Application of Big Data in College Sports Information Management

Jianjun Wu

Hunan City University, Yiyang, 413000, China

Abstract: With the rapid development of big data and artificial intelligence information, the university sports information management system will also face reform. Introducing big data into the university sports education management will be conducive to the application and development of educational concepts and teaching means, and effective personnel training. Through the influence of big data, this paper constructs a system of big data, integrates the sports information management system based on big data platform, and optimizes the training mode of sports talents.

Keywords: Big Data; Information Management; Colleges and Universities; Sports

1. Introduction

In October 2016, the Central Committee of the Communist Party of China and the State Council issued the Outline of the "Healthy China 2030" Program of Action to promote the construction of Kang China. With the advent of the era of national fitness and the development of the sports industry, professional talents in sports management and sports rehabilitation are especially in short supply. Universities and colleges should complete the training of innovative talents. Specialty setting and personnel training should aim at the society. Needs and people's needs, which requires great changes in school-running mode, teaching plan, curriculum system and training ways, in order to expect the sports management information system to have the ability of big data guidance of health sports education [1-3]. At the same time, the current growth of college sports health data is very fast, facing the traditional sports management information system with weak expansion ability, it seems that it is somewhat inadequate. Sports management information system needs to support the processing ability of massive data and unstructured data, in order to improve scientific decision-making and teaching management efficiency [4-5].

With the rapid development of information technology such as big data in cloud computing, this paper introduces information technology such as big data in physical education teaching process, and puts forward the research of University Sports Management cloud information system based on big data. It will rely on big data and integrate high-quality sports resources, build a big data environment for physical education, build a big data platform for university sports management cloud information, and upgrade the Department of university sports management information. It is of great significance to cultivate the sports talents needed by the society, share the big sports data and cooperate with innovation.

2. The Dilemma of College Sports Development in the Age of Big Data

Compared with the previous generation of College students, the college students in the new era with the old concept of physical education and the aging education mode, mainly after 00, have relatively superior living conditions, a wide range of knowledge, precocious thinking and independent personality. They have typical thinking mode, life concept and behavior mode in the Internet era. However, many colleges and universities still follow the indoctrinated teaching mode, only pay attention to technology professors, teaching methods and contents are seriously lack of pertinence.

College students'physical fitness is declining, their physical fitness is weak, lack of sports ability and consciousness of long-term physical exercise is a practical and applied subject. The physical education courses offered by universities are compulsory for all students to participate in. The ultimate goal of learning physical education courses is to apply them to daily physical exercise and exercise, but college students' physical education is a practical and practical subject. The declining trend of quality and health has not been curbed. The irregular dietary habits, Internet addiction and less sports consumption are all the important reasons for the decline of College Students'physical health. One of the most important factors is that nearly half of the college students do not actively participate in fitness exercises. When most of the students still stay in the stage of "asking me to exercise" in physical education class, most of the physical fitness test work in many schools is to complete the targets and tasks issued by the state or superiors, and students have not really formed a

good attitude towards physical education and persistent exercise habits.

With the development of campus information technology, the application of various intelligent terminal technology, cloud computing technology and big data technology, the comprehensive quality requirements of college physical education teachers have been raised to a new level. Technical quality has become an important factor hindering the innovative development of physical education teachers. Situational design ability of online physical education curriculum, innovative ability of interactive physical education teaching methods, management ability of sports elective club form and so on are new challenges faced by college physical education teachers in actual teaching activities.

3. The Role of Big Data in Sports Information Management

Active application of information is information management. Quantitative data analysis of large data integration management platform can excavate the value of these data itself. Using big data and cloud computing technology in school physical education management, we can extract and analyze relevant data, discover potential value, and put forward predictive guidance to deepen and improve supervision. In the past, classroom teaching, extracurricular activities and sports training in physical education have been three independent systems. It is common that they are separated from extracurricular teaching and practice. Big data technology makes all kinds of sports data of the three systems related vividly. Through big data technology, discrete data such as students'fitness status, sports behavior and habits can be collected by active and automatic way. On the one hand, it can help students realize self-health monitoring and physical exercise analysis. On the other hand, teachers can not only correct these information in real time. Correcting students'wrong exercise behavior can also make corresponding adjustments to the curriculum design, making it more pertinent and predictable, greatly improving the teaching efficiency, so as to truly construct an effective cycle model of in-class guidance and in-class support.

Big data technology can promote the development of physical education teaching, change the traditional evaluation model of physical education curriculum, and effectively expand the educational function of physical health testing for college students. In the past, because of the inability to grasp students'daily exercise behavior, the sports evaluation system in Colleges and universities can only be confined to physical education, the National Standards for Students' Sports Health and students'sports events, etc. It is confined to the evaluation methods of practical skills assessment and achievement attainment. Big data can capture students' daily sports behavior trajectory, and the evaluation index can be expanded to personality and physical fitness. Ability, knowledge and skills, practical skills, willpower, judgment and other aspects, fully respect the individual differences of students, the implementation of diversified assessment standards is more conducive to the cultivation of high-quality talents. At the same time, big data can optimize and adjust the relevant content of physical education curriculum by understanding the indicators of students, so as to guide students in all aspects of physical fitness, and ultimately achieve the improvement of College Students'physical health level and establish the concept of lifelong physical education.

4. Design of Big Data Information System

The construction of University Sports Management cloud information system based on big data and the mining of existing sports resources data will provide support and services for various teaching and learning applications that need sports resources data. According to the functional division, it can be divided into three functional subsystems: (1) data acquisition and monitoring, mainly to obtain the information of past sports resources, and to collect real-time data of existing University Students'physique. The use of 5G, WIFI, Internet technology to achieve stable, reliable, secure network channels, data collection and integration. (2) Big Data Processing System: The big data system of sports resources information includes data support, data exchange and system integration, operation and maintenance system, and the core subsystem of intellectualized instruction, etc. (3) Big data application management: Big data application management is the application layer core of management of University Sports Management cloud information system based on big data, and is the key to realize sports management and sports teaching.

Data Warehouse Design: This project is different from the traditional dimension design of data warehouse, mainly including dimension model, ODS (operational data store), OLAP and so on. The data warehouse construction of this project follows the following steps: building model based on big data dimension of College sports, including aggregated data, centralizing sports data sources, supporting college data over the years, and maintaining data consistency. In order to improve system access efficiency, data partitioning technology is fully utilized in project design, and storage performance is exchanged by space. OLAP supports multi-dimensional data analysis and query, establishes cube data model; data extraction set completes the process from student physical data collection, aggregation to ODS, integration to master data table; visualization module visualizes the system data structure relationship through virtual simulation. The idea of integrating large data with data warehouse greatly improves the query efficiency of information management system, and also realizes the

transformation to deep data. This project uses Mon DB non-document database system between application layer and data warehouse, runs aggregated data and pretreatment and develops system interface, establishes relationship between large data warehouse and MonDB, completes batch real-time loading and updating of sports classification data.

5. Concluding remarks

In the era of big data, the change of physical education teaching in higher education is not only the traditional form of teaching and learning, but also the change of the inherent teaching mode of thinking and the change of management mode of thinking, which is exactly what the current physical education teaching in Colleges and universities needs to change urgently. "Today's education and teachers don't live in the future, and future students will live in the past," conforming to the development of the times and daring to try, this will be a new field that physical education workers in the era of big data are trying to open up.

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