The Realization of Sports Intelligence Based on the Perspective of Students' Physical Fitness

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Abstract. Intelligent technology is widely used in all aspects of life. The use of modern information technology to promote the development of sports intelligence to improve the physical health of students is an important way to reform school sports. As the development of school sports is facing problems such as insufficient attention and insufficient teachers, it is recommended to establish a dynamic monitoring system of student physique, school sports teaching and competition training management mechanism, construct a school sports culture network platform, and build a "cloud" by means of network technology such as big data. "Platform sports education new model and other paths to achieve the intelligent development of school sports.

Keywords: Big Data, Intelligence, Physical Health

1. Introduction
In recent years, the physical health of Chinese adolescent students has continued to decline due to many reasons, and enhancing the physical health of students as part of school physical education has an inseparable relationship with this. School physical education has not formed an effective integration and closed loop of physical education, group activities, competitions and physical health in the theoretical framework, lack of big data support and technology application at the practical level, and lack of sufficient medical empirical research support for sports health management. The physique of adolescents also lacks good management and monitoring, health management methods are monotonous, and there is even a trend of younger disease. Based on the era of highly developed information technology, the knowledge system of school sports in my country needs further innovation and improvement [1]. The education department once pointed out: Adhere to application-driven, continue to improve the application ability of teachers' information technology, and make full use of modern information technology to promote in-depth changes in teaching and learning methods [2-3]. In the era of big data, it is the only way for school physical education to reform and develop school physical education through the use of cutting-edge technology and advanced concepts in other disciplines to reform school physical education, innovate school physical education teaching models, and promote the development of school physical intelligence and information.
2. The Development Status of Sports Intelligence
With the continuous in-depth study of human body by digital technology, its scientific achievements have strongly promoted the development of sports science, making people apply digital technology to the field of sports. In 2005, the "Sports Information Resource Center" in Canada created the "Sports Science Database (SSD)". This database collects and integrates sports science-related literature published by various countries and regions in the world over the past two decades, and finally forms a huge data database continuously provides domestic and foreign coaches and athletes with the most authoritative, detailed and richest reference and sports information in the history of world sports science [4]. Later, SSD and the International Sports Information Association (ASI) jointly developed to make it more comprehensive and complete. These sports information resource centers are scattered all over the world, but some of them only serve small groups of users, lacking a unified sharing platform management, and the dissemination and applicability need to be improved [5].

China's research on the development of sports intelligence started late. In recent years, some experts and scholars have carried out exploratory research on sports intelligence, focusing on distance teaching of sports and the visualization of abstract technical actions [6]. With the rapid development of science and technology, the perspective of physical education has been further extended and magnified. The relationship between sports representation and sports form is observed and combined organically at the macro level, and the fundamentals of life science phenomena are explored in the unit of molecules at the micro level. The reason is to penetrate intelligence into all aspects of sports [7]. At present, school sports intelligence has been applied in sports measurement and evaluation. In some provinces, the high school entrance examination sports test adopts smart equipment for testing, which has realized the "three modernizations", and the use of arm watches, infrared electronic sensors and other equipment has greatly improved efficiency, fairness, and fairness [8]. However, the management and service of physical fitness test data are poorly applied. After the data is collected, the data is not sorted, analyzed and fed back in time. Students do not understand their physical conditions and do not carry out targeted intervention measures. College students lack corresponding guidance, intervention, feedback, and retesting.

3. The Realization Path of Sports Intelligence Based on Students' Physical Health
Relying on the traditional model to carry out school physical education reforms will inevitably be difficult. In the information age, the research results of "Internet+", big data analysis, artificial intelligence, etc. are combined with physical education and sports science, with the aid of scientific research platforms, based on the reality of school sports, and the physical health management of students as the entry point, systematically a set of solutions for school physical education based on artificial intelligence and Internet technology is proposed. It has important theoretical and practical significance for carrying out a new round of physical education reform and realizing the purpose of school physical education.

3.1 Establish a Dynamic Monitoring System for Students' Physical Fitness
Use a variety of Internet technologies and wearable smart device technologies to realize real-time monitoring and management of college students' physical health status, grasp college students' sports, health and other data, form a platform model with full coverage inside and outside the school, during and after class, and dynamically propose a scientific and reasonable physique health improvement program to cultivate good physical exercise habits of college students [9]. Through the establishment of student physical health files, teachers, students, and parents can see the physical health data of students anytime and anywhere, and send physical warnings to teachers and parents in time based on dynamic physical fitness evaluations, and push exercise prescription recommendations and health consultations to make targeted improvements and effective this solves the practical problems that parents do not pay attention to and teachers dare not teach. At the same time, the dynamic monitoring system of student physique can carry out targeted and effective practice under different education conditions through the real-time sharing function of network transmission, which can effectively avoid
the disadvantages of relying too much on physical education equipment in the past and improve the regional differences in physical education.

![Statistics of weekly exercise times of students](image.png)

**Figure 1.** Monitoring system of Students' Weekly Exercise Times

3.2 Establish a Management Mechanism for School Physical Education and Competition Training

Using advanced intelligent technology, real-time monitoring of the teaching situation of the physical education classroom, combined with the students' personal customized training program, avoid sports injuries, and make the physical education classroom more effective and safer. Establish a dynamic national school physical education management mechanism, form an incentive mechanism for school physical education teachers, increase teachers' teaching enthusiasm, and provide technical services and further training guidance for physical education teachers to assist physical education teachers in efficient and scientific physical classroom teaching [10]. Establish a guidance platform for extracurricular exercises and sports training, manage extracurricular exercises and sports training, and form an integrated physical education model inside and outside of class. Help relevant government departments and school administrators to establish a sound physical education management system. Using the real-time sharing effect of network communication, the teaching of excellent physical education teachers can be spread to more places, which not only allows other physical education teachers to broaden their horizons, open their minds, and improve their own teaching level, but also solve the problem of insufficient teachers to a certain extent.

3.3 Building a School Sports Culture Network Platform

Use more high-tech to establish a school sports culture network platform, and carry out a variety of online and offline sports activities that students love to see on the platform, and the linkage between inside and outside the school. Sports content (physical education, training, competition) is the carrier, make full use of the gathering effect brought by the Internet, use live broadcast, self-media and other technologies to improve students' enthusiasm for participating in sports independently [11]. On the other hand, attract parents to join the school's sports activities and physical education to form a benign sports circle. Through the platform, students, parents, and physical education teachers can interact to form a social function, and use sports to enhance communication between family members and between teachers and students, thereby enhancing the attractiveness of sports, fostering students' enthusiasm for sports, and develop students' concepts and habits of lifelong exercise.
3.4 Constructing a New Model of Physical Education on the "Cloud" Platform

First of all, change teaching concepts and use "cloud" to link inside and outside the class. In the traditional teaching model, as the leader of the classroom, the most important thing for teachers is to change their teaching concepts. The traditional "crawling" teaching method is not enough to effectively stimulate students' learning potential. It is necessary to change the situation where students passively accept sports knowledge in the past. In order to allow students to learn actively, teachers use cloud platform data (in-class effects, extra-curricular exercises, club activities, competition participation, volunteer activities) to conduct real-time management and comprehensive evaluation of students, and build an "online + offline", "the teaching mode combining "in-class + extra-curricular" helps teachers collect and analyze data in and out of class and develop strategies to teach students in accordance with their aptitude and guide students to learn actively [12]. Second, cultivate a sound personality and let "cloud" be integrated into ideological and political education. If students want to improve their physical quality and cultivate a sound personality, having good physical fitness is the basic requirement, and more importantly, they must truly understand the sportsmanship contained in sports activities. You can use "AI move" APP, "Sports" WeChat public platform, QQ and other online platforms to explore the ideological and political education in sportsmanship, and regularly push a large number of articles on the combination of ideological and political education and sportsmanship, especially about party members actively participating in sports activities articles can play an important role as a leading model, so that many students, teachers, and parents are aware that participating in sports activities is a behavior that the country actively promotes. This helps students understand the spirit of sports and the meaning of sports, jump out of the comfort zone, and participate in sports activities. In addition, improve the physical quality of students and use "clouds" to perfect the education system of physical education. In our "cloud" teaching model, we extend the classroom to students' daily lives, and teachers and students have established extensive connections. By organizing and participating in a variety of sports competitions, more students are attracted to participate in sports. In the process of preparing for the competition, students can interact with teachers, classmates, and common fans, which not only helps improve their physical fitness, but also at the same time, the students' motor skills have been improved, sports interest has been cultivated, social skills have been enhanced, and their psychology has become more mature. This helps students deeply understand the meaning of sports, and thus fall in love with sports from the heart.

4. Conclusion
In the era of big data, the development of sports science will be more closely related to intelligent technologies such as the Internet and artificial intelligence. The realization of the purpose of school sports education and the reform and future development of sports education will rely more on the intelligence of information technology, sports science it will also become more attractive and splendid
due to the participation of intelligence, but the intelligence of sports has a long way to go, and we need to work together to realize the convenience, humanity, and efficiency of school sports as soon as possible.

References

[1] Laurson K R, Saint-Maurice P F, Karsai, István, et al. Cross-Validation of FITNESSGRAM Health-Related Fitness Standards in Hungarian Youth. Research quarterly for exercise and sport, 2015, 86(sup1):S13-S20.

[2] Welk G J, Bai Y, Saint-Maurice P F, et al. Design and Evaluation of the NFL PLAY 60 FITNESSGRAM Partnership Project. Research Quarterly for Exercise & Sport, 2016, 87(1):1-13.

[3] Wang X Q, Xu Y Y. The Exploration of Building College Students Physical Health Management System. Contemporary Sports Science and Technology, 2016, 006(014):59-61.

[4] Romanillos G , Austwick M Z , Ettema D , et al. Big Data and Cycling. Transport Reviews, 2016, 36(1-3):75-84.

[5] Itoh T, Kumar A, Klein K, et al. High-Dimensional Data Visualization by Interactive Construction of Low-Dimensional Parallel Coordinate Plots. Journal of Visual Languages & Computing, 2016, 43(dec.):1-13.

[6] Opach T, Rod J K. Augmenting the usability of parallel coordinate plot: The polyline glyphs. Information Visualization, 2018, 17(2):108-127.

[7] Kim H, Choo J, Park H, et al. InterAxis: Steering Scatterplot Axes via Observation-Level Interaction. IEEE Trans Vis Comput Graph, 2016, 22(1):131-140.

[8] Shao L, Schleicher T, Behrisch M, et al. Guiding the Exploration of Scatter Plot Data Using Motif-Based Interest Measures. Journal of Visual Languages & Computing, 2016, 36(oct.):1-12.

[9] Luo G. Toward a Progress Indicator for Machine Learning Model Building and Data Mining Algorithm Execution: A Position Paper. Acm Sigkdd Explorations Newsletter, 2017, 19(2):13-24.

[10] Fei X, Tian G , Lima S , et al. Research on data mining algorithm based on neural network and particle swarm optimization. Journal of Intelligent & Fuzzy Systems, 2018, 35(3):2921-2926.