

The significance and practical path of constructing a smart physical education teaching system in universities

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Abstract: The writer delves into the importance and feasible approach of establishing an intelligent physical education instructional platform within university settings. As information technology advances persistently, intelligent education emerges as a pivotal direction in educational realms. In the field of physical education teaching, the application of intelligence can improve teaching efficiency, enrich teaching content, expand teaching methods, and promote the comprehensive development of students. The author first analyzes the significance of constructing a smart physical education teaching system, including improving teaching quality, enhancing student physical literacy, and promoting innovative teaching models. Secondly, the practical path for building a smart physical education teaching system was explored, including technical support, teacher training, curriculum design, and other aspects. Finally, the challenges and opportunities in constructing a smart physical education teaching system were summarized, and future development directions were discussed.

Physical education at universities holds a pivotal position in realizing the national goal of fostering a robust sports culture. Presently, integrating technology into education stands out as a primary avenue for advancing educational reforms. Over recent years, the proliferation of networking, digitalization, and intelligent technologies, particularly with the emergence of mobile internet, cloud computing, big data, IoT, AI, and virtual reality, underscores the growing importance of internationalization and knowledge sharing in higher education. This not only creates new services, talents, teaching, and academic environment for universities, but also brings a series of new opportunities and challenges to traditional higher education. Although smart education has been initially established and breakthroughs have been made in the innovation and reform of university sports, many university sports information management systems have been established. However, information systems such as daily teaching management platforms, extracurricular sports exercise platforms, and physical health testing platforms are mostly limited to the PC end and lack necessary integration. Their functions are independent and scattered, which affects the optimization and rational utilization of university sports resources and also hinders the smooth progress of university education informatization 2.0. Therefore, in the context of high-quality education, the construction of a smart physical education teaching system in universities will create positive conditions for innovation in physical education teaching methods, management of extracurricular physical exercise platforms, improvement of student physical health levels, promotion of campus sports culture, optimization of sports venues, and management of school sports teams. This has

important and far-reaching significance for innovating and expanding the paradigm of physical education teaching, improving the supply of physical education services, and constructing a new model of physical education governance ^[1].

1. Definition of the concept of smart sports in universities

What is smart sports? Currently, there is no consensus in the academic community on its connotation, and research on it is still in its early stages. As Jiang Dongxing highlights, smart sports represents a progressive evolution of sports digitization, leveraging a diverse array of emerging technologies such as the internet, cloud computing, big data, and intelligent sensing. This integration seamlessly bridges the physical and digital realms of sporting activities, forming the bedrock for the eventual establishment of a comprehensive sports digitization and big data platform. Smart sports epitomizes a contemporary sports paradigm, enhancing the intelligence of sports services and management by enabling pervasive sensor-based monitoring of diverse athletic activities. Through sophisticated cloud-based processing, it facilitates the analysis and interpretation of vast amounts of sensory data, offering intelligent responses and decision-making support across various domains including competitive sports, national fitness initiatives, and sports infrastructure management.

To encapsulate, smart sports represents a progressive evolution and enhancement of sports digitization, serving as both a conceptual framework and a concrete initiative for advancing China's sports industry. In the context of university physical education, it embodies a novel approach to teaching and management characterized by seamless collaboration, comprehensive monitoring, continuous innovation, and holistic intelligent governance. The purpose is to utilize cutting-edge technologies such as artificial intelligence, cloud computing, big data, and the Internet of Things to improve the quality of physical education teaching in universities, enhance management efficiency, and broaden the breadth and depth of sports behavior information collection. Intelligent analysis and feedback of massive campus sports data, while ensuring that university sports decision-making can receive rich and accurate data information support, better meeting the diverse and personalized sports needs of teachers and students, and improving the modernization level of campus sports governance^[2].

2. The significance of constructing a smart physical education teaching system in universities

The intelligent physical education teaching system goes beyond merely merging modern information technology with physical education instruction. It represents a holistic integration of teaching philosophies, learning environments, educational resources, curriculum content, classroom dynamics, and instructional methodologies, resulting in transformative shifts in educational paradigms.

2.1 Improve the guiding ideology of physical education teaching in universities in the new era

For a long time, the physical education teaching system in universities has always regarded "health first, lifelong physical education" as the dominant ideology. However, physical education courses are often only seen as places to impart sports knowledge and skills, and the core tasks of curriculum ideology and moral education have been ignored, resulting in the actual effect and function of physical education teaching in universities not being fully realized. At present, the guiding principles of physical education teaching resonate with the spirit of the times, focusing on prioritizing health, promoting lifelong physical activities, and incorporating ideological and moral education into the curriculum. This forward-thinking approach not only fosters innovation but also

addresses the limitations inherent in traditional physical education pedagogy. The implementation of this new idea will make physical education teaching more comprehensive, and enable each student to benefit greatly from the comprehensive education process of all staff, whole process, and all aspects.

2.2 Establishing a student-centered smart physical education teaching philosophy

The concept of intelligent physical education teaching emphasizes placing students at the core of teaching, with teachers playing the roles of organizers, guides, and facilitators. This concept emphasizes taking the learning needs and interests of students as the starting point, comprehensively understanding the characteristics and preferences of students in sports learning, timely adjusting teaching methods, means and goals, and achieving precise and personalized teaching. Teachers need to closely monitor students' physical education learning habits, attitudes, and methods, and adjust teaching strategies based on this to better meet their actual needs. At the same time, the intelligent physical education teaching concept centers on the comprehensive development of students, encouraging them to actively explore knowledge and internalize it into abilities during the learning process. By fully utilizing intelligent learning methods such as online resources and smart devices, students can more flexibly acquire sports knowledge and skills, thereby cultivating core sports literacy and development abilities. This teaching philosophy not only focuses on the cognitive level of students, but also emphasizes the cultivation of their emotions, attitudes, and values, committed to cultivating sports talents with comprehensive literacy^[3-4].

2.3 Establishing diversified intelligent physical education teaching objectives

The traditional physical education teaching objectives usually focus on cultivating students' sports skills and physical fitness, while neglecting the cultivation of students' ideological and moral character, psychological health, and other aspects, resulting in a lack of sports spirit and willpower cultivation in students. The goal of smart physical education teaching not only includes cultivating students' sports skills and physical fitness, but also focuses on cultivating their correct outlook on life, values, patriotism, collectivism, and social responsibility. In addition, smart physical education teaching also focuses on cultivating students' moral qualities and willpower, as well as stimulating their sports spirit and interest. At the same time, with the support of information technology, smart physical education teaching integrates teaching objectives into physical activities both inside and outside of class, as well as the entire process of online and offline physical education learning. By utilizing information technology, physical education teaching can be organized and implemented more flexibly, providing personalized and precise teaching services, thereby further enhancing the comprehensive educational effect of physical education teaching in universities^[5].

2.4 Building Physical Education Teaching Supported by Information Technology

Firstly, the construction of intelligent hardware facilities should be carried out, including the construction of intelligent sports venues and the provision of intelligent sports equipment. In sports venues, high-definition cameras, intelligent large screens, and various intelligent sensors can be installed to achieve real-time monitoring and recording of student sports status, skill performance, and other data. At the same time, equipped with various wearable devices such as smart wristbands, sports trackers, etc., students can obtain personalized data feedback and guidance during exercise^[6]. Secondly, it is necessary to build rich software facilities to support intelligent physical education teaching. This includes developing various sports software apps, providing personalized training plans, health monitoring and other services. At the same time, utilizing digital resources such as electronic documents, images, videos, PPTs, etc., open courses such as micro courses, MOOCs, and

live courses are developed to meet the diverse learning needs of students. Additionally, constructing a campus smart sports service platform with rich content, which offers functions such as course scheduling, activity notifications, health assessments, etc., aims to provide comprehensive support and services for smart sports teaching. The construction of these software facilities will provide students and teachers with a more convenient and efficient learning and teaching environment, promoting the smooth implementation of intelligent physical education teaching.

3. The Construction Path of Smart Physical Education Teaching System in Universities

3.1 Building a digital and three-dimensional smart physical education teaching platform

With the help of platforms such as DingTalk and WeChat, we can build an all-weather communication and interaction space for teachers and students, achieving seamless integration of physical learning space and virtual network space, thereby improving teaching efficiency and learning experience. By utilizing emerging information technologies such as the Internet of Things, big data, and cloud computing, we can build a "mobile+connected" campus smart sports education and teaching platform. This platform will include public physical education teaching, extracurricular physical exercise, physical health testing management, group organization management, competitive training, venue management, and other content. Through mobile, three-dimensional, and intelligent solutions, it will provide more convenient and efficient teaching and management services for teachers and students. This platform not only enables information collection and archive management, but also provides personalized learning and exercise suggestions through big data analysis. Through the "Internet plus+sports" model, we can promote the flat, open and efficient organization and management of physical education and teaching, make physical education and teaching more intelligent and effective, and provide students with richer and more targeted learning experience.

3.2 Enriching and Improving the Curriculum System of Ordinary Universities

With the popularization of the Internet and mobile Internet, the construction of the curriculum system in colleges and universities is facing unprecedented opportunities. Nowadays, platforms such as Tencent Meeting, DingTalk, Huawei Cloud Welink, Zoom, etc. have become emerging carriers of physical education teaching. They provide an independent and multi-point connected network community, allowing teachers and students to participate in the same online field together, achieving fast links and resource integration. Through these platforms, physical education teaching can achieve blended online and offline teaching, expanding the panoramic and big data significance of teaching. This teaching model has advantages such as low interactive cost, real-time and convenient participation, transparent and open information, and efficient and smooth dissemination, which helps to break through the limitations of current physical education teaching in terms of time, space, and scale. In such an environment, students can share and flip courses through platforms such as the Wisdom Tree, achieving home learning of sports skills, physical fitness, and theoretical knowledge. They can watch teaching videos, complete assignments, and upload the results of their motor skills learning to the platform at home. These videos will be evaluated by the skills assessment team in person, providing students with more flexible and convenient learning and evaluation methods, promoting innovation and development in physical education teaching ^[7].

3.3 Enhancing Teachers' Information Literacy and Data Awareness

The concept of "Digital Campus" includes both the construction of a digital management service platform and the overall improvement of information literacy among teachers and students. In the process of building smart sports, it is first necessary to achieve comprehensive digitization in

education, teaching, physical testing, group, competitive training, venue management, and other aspects. This means integrating these aspects of information into the digital management platform, achieving centralized management, convenient querying, and efficient use of information, thereby improving management efficiency and service quality. Secondly, it is necessary to continuously improve the data and information application abilities of managers, physical education teachers, and students themselves. This includes managers and teachers mastering the skills of using digital management platforms, and being able to flexibly utilize data for teaching and management decision-making; Students need to cultivate their ability to collect, analyze, and utilize data information in order to better participate in smart physical education teaching. Through continuous training and learning, managers, teachers, and students can better adapt to the use of digital management platforms and apply them to educational and teaching practices, thereby promoting the continuous development of smart sports construction^[8-10].

4. Conclusion

As we enter the era of "Internet plus," the landscape of education is undergoing significant transformations. Despite the widespread integration of emerging technologies into teaching practices, some physical education instructors remain tethered to traditional methods, inadvertently fostering a passive learning environment for students. Establishing a smart physical education teaching system has become imperative to meet the demands of this evolving landscape. Leveraging digital management platforms and contemporary teaching methodologies can facilitate the sharing and enhancement of teaching resources, ultimately enhancing teaching efficiency and elevating educational quality. At the same time, the smart physical education teaching system can also meet the personalized learning needs of students, promoting their comprehensive development in skills, qualities, and ideological and moral aspects. Consequently, university physical education instructors ought to proactively engage in the development of smart physical education teaching, fostering a culture of ongoing innovation in teaching approaches and methodologies. This commitment is essential for driving forward the modernization of physical education instruction.

References

- [1] Zhou, L., & Tang, Q. (2022). Construction of a six-pronged intelligent physical education classroom model in colleges and universities. *Scientific programming (Pt.11)*, 78(1), 16-20.
- [2] Wang, G. R. (2022). Exploration of teaching and education: integration of sports and medicine in physical education in colleges and universities. *Contemporary Education Studies (picture)*, 6(1), 63-67.
- [3] Xu, M., Liu, D. A., Zhang, Y., & Hawamdeh, S. (2022). Design of interactive teaching system of physical training based on artificial intelligence. *Journal of Information & Knowledge Management*, 10(2), 176-189.
- [4] Li, W. (2022). A study on the construction of morality internalization of young teachers in colleges and universities. *Journal of Higher Education Research*, 18(3), 912-921.
- [5] Tao, T., & Lv, X. (2022). Construction of ideological and political education in colleges and universities based on the carrier of smartphone. *Security and Communication Networks*, 2022.
- [6] Li, W. (2022). Research on evaluation method of physical education teaching quality in colleges and universities based on decision tree algorithm. *Mobile information systems (Pt.3)*, 2022.
- [7] Yuan, H., & Li, M. (2022). Bocce training based on computer technology has an effect on physical education in colleges and universities. *Scientific programming*, 1(2), 26-33.
- [8] Guo, H. (2022). Research on the construction of the quality evaluation model system for the teaching reform of physical education students in colleges and universities under the background of artificial intelligence. *Scientific programming (Pt.11)*, 2022.
- [9] Zhang, S., & Zhao, F. (2022). Construction of teaching supervision system of applied undergraduate colleges and universities under the perspective of "internet+". *Journal of Environmental and Public Health*, 2022.
- [10] Chao, Y., Guo, X., & Wang, R. (2022). Exploration of teaching and education: integration of sports and medicine in physical education in colleges and universities. *Contemporary Education Studies (picture)*, 6(1), 5.