

Construction of intelligent teaching mode of college physical education under the background of "Internet +"

Fanfan Li

Communication University of China Nanjing, Nanjing 210000, Jiangsu

ABSTRACT

The rapid development of Internet technology is profoundly changing the field of education; college physical education also needs to keep up with the pace of the times for innovation. There are some problems in traditional physical education, such as limited class hours and insufficient personalization. Students can obtain personalized sports guidance through intelligent teaching, and teachers can grasp the teaching effect more accurately. Therefore, this paper focuses on the construction path of intelligent teaching mode of physical education in colleges and universities to provide practical solutions for improving students' physique and teaching efficiency.

KEYWORDS

Internet +; college physical education; intelligent teaching

Physical Education in colleges and universities has long been faced with large class sizes, single teaching methods and other issues. Although the school has gradually adopted the network course platform, most teaching modes still use simple video teaching or data collection. It does not teach students by their aptitude. Simple technical superposition can not improve the quality of teaching; the key is the deep integration of technology and teaching objectives. For example, virtual motion capture technology that can correct students' posture in real-time, cloud computing platforms to analyze students' physical fitness data, etc., have not been effectively applied in physical education in ordinary universities. Therefore, this paper will explore the integration of intelligent technology and physical education to open up a new way to reform physical education in colleges and universities in our country.

1 The development trend of physical education under the background of "Internet +"

1.1 The Proposal and Development of the "Internet +" Concept

"Internet +" was first proposed by the Chinese government in 2015 to transform traditional industries using Internet technology. Mobile Internet and cloud computing support the development of "Internet +," which enables various terminals and systems to interconnect and form a cooperative network. Take teaching as an example. With the help of Internet technology, schools can build online teaching platforms so that students can get the learning materials they need without having to attend class in person. "Internet +" is not only used in pursuing high-end technology but also in using technology to solve practical problems. For example, applying an electronic attendance system to school sports management can reduce the workload of manpower statistics and track students' attendance in real time. In the era of "Internet +," the focus of its development has gradually changed from "Extensive connection" to "Enhancing value." In the early days, the industry focused more on technology coverage, such as making smart devices widely available; now, it combines technology with practice, for example, in the functional design of teaching platforms, to meet the needs of teachers preparing lessons and students practicing. This shift will require a concerted effort by technology developers and educators to prevent the disconnect between technology and real-world needs^[1].

1.2 The impact of "Internet +" on college physical education

The network appearance caused the university sports curriculum to change. In terms of teaching methods, teachers can use sports bracelets, smart watches and other instruments to monitor students' heart rates and exercise intensity in real time to achieve more accurate and timely classroom feedback. For example, when running long distances, teachers can identify students with poor physical fitness based on these data to train them in a targeted manner. Through online teaching videos, students can continuously practice standardized movements outside of class, effectively supplementing the shortcomings of the classroom. The pattern of resource allocation has also changed. In the past, physical education mainly relied on teachers' experience and teaching time. At the same time, digital resources represented by "Virtual simulation" enable more students to break the limitations of space and space, learning special abilities. For example, students can use three-dimensional animation to disassemble each movement of martial arts so that students can grasp

the power more clearly^[2].

1.3 The trend of the integration of physical education and intelligent technology

The application of intelligent technology in physical education mainly includes three aspects: accurate monitoring, personalized guidance and situational innovation. Accurate monitoring uses smart devices (such as pressure-sensitive pads, joint sensors, etc.) to obtain students' muscle state, trajectory and other fine information during exercise, and the assistant teacher finds problems that the naked eye can not observe. For example, in the long jump training, the sensor can measure the take-off angle of athletes for analysis and provide timely correction advice. The personalized counseling is aimed at students' physical quality (such as vital capacity, flexibility, etc.) through the algorithm to develop a targeted training plan. For students with poor physical fitness, adopting a step-by-step training method and gradually increasing the amount of training is recommended. At the same time, virtual technology can also simulate sports activities, which can solve the problem of shortage of venues and equipment. For example, students can practice their balance skills by simulating a skiing situation to reduce the risk of outdoor activities. However, smart technology should be positioned as a teaching aid, not a substitute for the teacher or the activity itself. Data can help teachers develop more scientific schedules, but teachers still need to actively guide students to participate and correct actions^[3].

2 The construction of an intelligent teaching mode

2.1 The basic concept of intelligent teaching mode

In the traditional education mode, teachers rely on their own experience and a fixed lesson plan to teach. Intelligent Education uses data to optimize teaching, analyze students' physical conditions, and adjust them accordingly, thus avoiding cookie-cutter practices. The core of the model lies in two aspects: one is to meet the needs of students accurately, and the other is to assist teachers in finding the differences in the level of students to develop appropriate training programs. Teachers need to spend several days assessing their performance in a traditional classroom. However, with this smart device that can record information such as heart rate and movement accuracy in real-time, timely improvement suggestions can be made. The application of this method in the classroom should have three prerequisites: the collection of data will not cause interference to the classroom, and the lightweight wristband can be used instead of the precision wearable device; the analysis conclusion should be consistent with the realistic educational principles, the training plan should be based on the student's usual results; this instrument has the characteristics of stability and simplicity, which can prevent the normal teaching process from being affected by cumbersome tasks or instrument issues^[4].

2.2 The design Framework of intelligent teaching mode of physical education in Colleges and Universities

The design of an intelligent teaching mode can be divided into three aspects: data acquisition, intelligent analysis and classroom application. The data acquisition layer is the most basic part, and it mainly uses simple and reliable equipment to collect movement information of students. For example, a smart wristband can record heart rate and speed during running, and a mobile phone can be used to take photos. This process must be cost-effective, easy to use, and not require high-end equipment. The intelligent analysis layer processes the data and puts forward the teaching scheme. For example, the system can automatically group students according to their physical fitness test data. It can also use video analysis to point out the deviation of students when shooting. The key is that the evaluation of the system should be adaptable, and teachers can modify it according to the actual situation. The classroom application layer is important in combining information technology and practical teaching. For example, teachers can use a big screen to display the exercise data of the whole class to identify the students with poor physical fitness quickly, and students can use a mobile phone app to review their training plans after class. This architecture aims to naturally integrate technology into the classroom through hierarchical cooperation and improve teaching efficiency without increasing the burden on teachers.

2.3 Application technologies and tools of intelligent teaching mode

Intelligent teaching can not be separated into four means: data collection, analysis, auxiliary teaching, and resource management. Data collection uses smart bracelets and other ways to obtain students' movement information, take photos and analyze them through mobile apps to reduce the impact on sports. Data analysis tools can translate this data into pedagogical feedback, such as automating the generation of physical reports, highlighting students' strengths and weaknesses, or comparing scores before and after to assess progress. Assistive teaching is used for classroom interaction, for example, displaying the average heart rate of the class in real-time on the screen, which helps the teacher adjust the

intensity of the exercises. When a student makes a movement mistake, the sound alarm device will emit a sound. The tool is simple and intuitive and avoids much work. Resource management is mainly used to integrate teaching materials, such as storing standard action videos, training plan templates, etc., so teachers can use them anytime. The platform should also be able to synchronize multiple devices, enabling teachers to seamlessly switch between phones, computers and tablets^[5].

3 The implementation path of the intelligent physical education model

3.1 Implementation status of intelligent physical education in colleges and universities

At present, physical education in colleges and universities tries to use intelligent technology to improve teaching, but the pace is sometimes fast and sometimes slow. Many schools are just starting with "Catch-up" programs, such as wristbands measuring heart rates and devices recording running data. However, these devices mostly store data and rarely tailor training programs to individual students. Few well-off schools use "Advanced" technology, such as systems that automatically correct students' shooting positions with a webcam. However, these pilot projects are so small that most students have not had the chance to try them out. Teachers' attitudes to the new technology vary widely. Younger teachers are more willing to try, for example, analyzing videos of their students' long jumps with mobile software and comparing them with standard routines. However, older teachers are more comfortable with traditional methods. They worry that using too much technology will reduce the opportunities for face-to-face instruction. Although some teachers can use the equipment, they do not quite understand how to turn the data into specific teaching plans, such as knowing that students have weak physical fitness but cannot design a phased exercise plan.

3.2 Construction and management of intelligent teaching platform

The key to building an intelligent teaching platform is to use simple tools to solve practical problems and avoid making the system difficult to use in pursuing high technology. A good platform should comprise building blocks: collecting data, for example, by connecting different devices such as bracelets, scales, and mobile apps, processing it, automatically generating students' physical fitness files, training suggestions, etc. Finally, the results are presented, and different operating interfaces are designed for teachers and students. Teachers can see the whole class, and students can only see their data. Be careful, though, that all the functions are clear at a glance and not overly technical, such as the button that says "View cardiorespiratory report" instead of "Fetch biometric logs.". At the same time, the platform needs to connect disparate data, such as physical test scores, classroom performance, and homework, into a comprehensive ability scale and to keep it up to date, starting with the basics (such as automating averages) and gradually add utilities (such as motion comparison in video) based on feedback.

3.3 Collaborative Development of teacher-student Interaction and Intelligent Teaching

With smart devices, the biggest challenge is not whether to use technology but how not to let technology interfere with normal student-teacher interactions. If the teacher keeps looking at the data screen to see the heart rate of the whole class, he will ignore a student in the corner who has made a posture error; if the student only looks at the score on his wristband, he will forget to listen to the teacher's on-the-spot instruction. Therefore, clarifying the principles, providing technical references, and letting the teacher make the decisions is necessary. In practical terms, teachers need to learn two new skills: to identify problems from data, such as observing a student's jumping technique when the system indicates that the student consistently jumps low, and to balance technology with traditional teaching, such as using a wristband to record long-distance running results while still personally demonstrating sprinting techniques. Students need to do three things: use the device as a tool rather than a standard answer, talk to a teacher when they see data anomalies, and do not let the need to look good (such as the number of steps) distract from safety. The ideal intelligent physical education class should be that teachers use equipment to quickly understand the overall situation, free up more time for personalized guidance, and finally let technology become a bridge to connect teachers and students and improve efficiency, not a barrier in the middle.

4 Conclusion

The article clarifies the problems of using smart devices in college physical education classes. At present, although many schools have begun to use wristbands and video analysis tools, most of the devices can only remember data and can not analyze; teachers are not comfortable with them, older teachers are worried about technology affecting their

lessons; students are either addicted to swiping data or feel they are being monitored. The root cause behind these problems is not too backward technology, but the school management methods and grading standards did not keep up. Therefore, the intelligent platform of college physical education teaching should connect the existing devices such as bracelets and mobile phones to generate students' physical fitness reports and suggestions automatically, and physical education teachers and computer teachers can work together, let the P.E. teacher make the demands ("Automatic recommended indoor workouts on rainy days"), let the technical team develop the features, and do not rely on machines in class. Allow plenty of time for the teacher to demonstrate and correct mistakes. Only by truly integrating technology, management and teaching methods can smart devices help students form the habit of scientific exercise.

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About the Author

Fanfan Li (1982.1 -), female, Han nationality, from Nanjing, Jiangsu Province, master, Associate Professor, Communication University of China Nanjing, Research Direction: Physical Education.

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