

# Research on the application of intelligent wearable devices in college physical education teaching practice

Zhijun Liao

School of Physical Education, Southwest Jiaotong University, Chengdu 611756, China

**Abstract:** With the deepening of education and teaching modernization reform, the application of intelligent wearable devices has gradually received more attention in college physical education teaching practice. With the progress of science and technology, intelligent equipment through the connection of mobile phones, functional applications are more multiple, has been applied to the field of education. Physical education teachers in colleges and universities should fully understand the application of smart wearable devices, combine the specific content of education and teaching, and implement new exploration of teaching reform. Based on this, this paper will focus on the application of smart wearable devices in physical education practice in colleges and universities.

**Key words:** smart wearable device; Universities; Physical education; practice

## I. Introduction of smart wearable devices

Wearable device is a sensor device worn on the user's body to record human movements and behaviors. Through the wearable computer device, through the recording and transmission of data and the recording and analysis of various identification devices, the application of various sensing technologies, computing technologies and data connection technologies is realized, so that wearers can make good use of wearable devices for entertainment, information transmission and analysis, and realize the monitoring and analysis of their own body status. Wearable technology is the use of sensors and other devices to record the movement of people or things, analyze and calculate all kinds of data, and meet the needs of users.

At present, the common devices on the market are smart bracelets, smart glasses, smart watches, etc. With the improvement of people's requirements for the quality of life services, the attention paid to wearable devices is gradually increasing, and the development work of devices is gradually keeping up with the emergence of new products. Wearable devices such as inertial sensors, heart rate monitoring devices, etc., can be applied to a wider range of fields, to achieve human health, intelligent monitoring, human-computer interaction, information transmission and other functions.

## II. Analysis of the current situation of physical education teaching practice in colleges and universities

### 1. Tradition of teaching content

In the practice of college physical education classroom, the way and connotation of teachers' teaching are related to the actual results of students' training and affect the overall learning ability of students. In the traditional physical education teaching mode, the mode of teacher teaching and student imitation practice is gradually not suitable for the current new teaching environment. The physical education in colleges and universities uses the traditional knowledge system, and the teaching content is updated slowly and the content has few opportunities to change, which leads to the fixed teaching content and the lack of innovation and development. In teaching, teachers often act as the transmitter of knowledge, and rarely innovate the teaching links and teaching contents, thus the updating of knowledge is more hindered. From the perspective of students, the solidification of knowledge content is not conducive to the initiative of students in learning, the thinking method is not flexible enough, and the enthusiasm for innovation can not be stimulated.

### 2. Single teaching medium

In daily teaching, teachers lack the design of teaching links, lack of grasp of the actual situation of students, and can not accurately understand students' learning interests, resulting in students' lack of learning enthusiasm and other problems. In order to ensure the improvement of students' physical ability and the effective exercise of physical skills, teachers should improve the problems in the teaching system and teaching methods and apply more novel and flexible teaching media. In the practice of physical education classroom teaching, teachers should make good use of the role of media, enhance the interaction between students and teachers' guidance, and make the teaching media drive the change of the whole teaching. In traditional teaching practice, it is difficult to carry out the communication between teachers and students through visualization, and the communication process between teachers and students is short and not deep enough, which leads to a certain delay in the communication process and the decline of learning efficiency. Traditional media can not create a good atmosphere for physical education teaching, which is not conducive to teachers' creation of teaching situations, and lacks the ability and effect of constructing scene teaching.

### 3. The teaching means lag

In college physical education, the design of teaching mode is relatively simple, and students are in a passive learning state in actual teaching. Teachers' explanation and demonstration occupy most of the time in class, forming a situation of one-way knowledge transfer by teachers. Generally, teachers will explain the evolution of motor skills in detail in the oral teaching process, so that students can get

familiar with the key points of movement. Then explain and demonstrate for students. The traditional teaching mode of teacher-student communication can meet the needs of students to a certain extent, but due to the large number of students, the teaching space is affected to a certain extent, and teachers cannot take into account each student. In the demonstration process, teachers use oral teaching, which will reduce the flexibility and intuitiveness of teaching. Without the support of modern technology, the enthusiasm and attention of students are difficult to be stimulated and attracted.

### III. The application of intelligent wearable devices in college physical education practice

Smart wearable devices play an important role in the application of physical education. The following are several aspects of smart wear in sports teaching applications: 1. Sports data monitoring and analysis: Smart wearable devices can monitor athletes' sports data, such as heart rate, step number, speed, etc., to help coaches and athletes understand the effect and progress of sports. Through the data collected by the smart wearable device, it can be analyzed to understand the athletes' strengths and the direction of improvement, and formulate the corresponding training plan. 2. Sports skills guidance: Smart wearable devices can carry out instant analysis and evaluation of athletes' technical movements through sensors and feedback systems. Athletes can get real-time guidance and feedback through smart wearable devices to help them correct wrong postures and movements and improve their technical level. 3. Tactical training and game analysis: Smart wearable devices can record data during games and training and provide detailed analysis reports. The coach can understand the tactical performance of the whole team or individual through the smart wearable device, and understand the position and movement of the players in the game, so as to better adjust the tactics and strategies. 4. Personalized training plan: Smart wearable devices can make personalized training plans based on individual data and performance. According to each person's physical condition, technical level and goals, smart wearable devices can recommend appropriate training content and intensity to help athletes improve training results. 5. Athlete monitoring and security: Smart wearable devices can monitor athletes' physical conditions, such as heart rate, body temperature, etc., and detect abnormalities in time. At the same time, smart wearable devices can also help protect the safety of athletes, such as providing distress function, fall detection, etc., to ensure the safety of athletes in the training process. To sum up, smart wearables in sports teaching applications can provide a full range of monitoring, analysis and feedback to help coaches and athletes better understand and improve their own performance and technical level, improve training results and competition results.

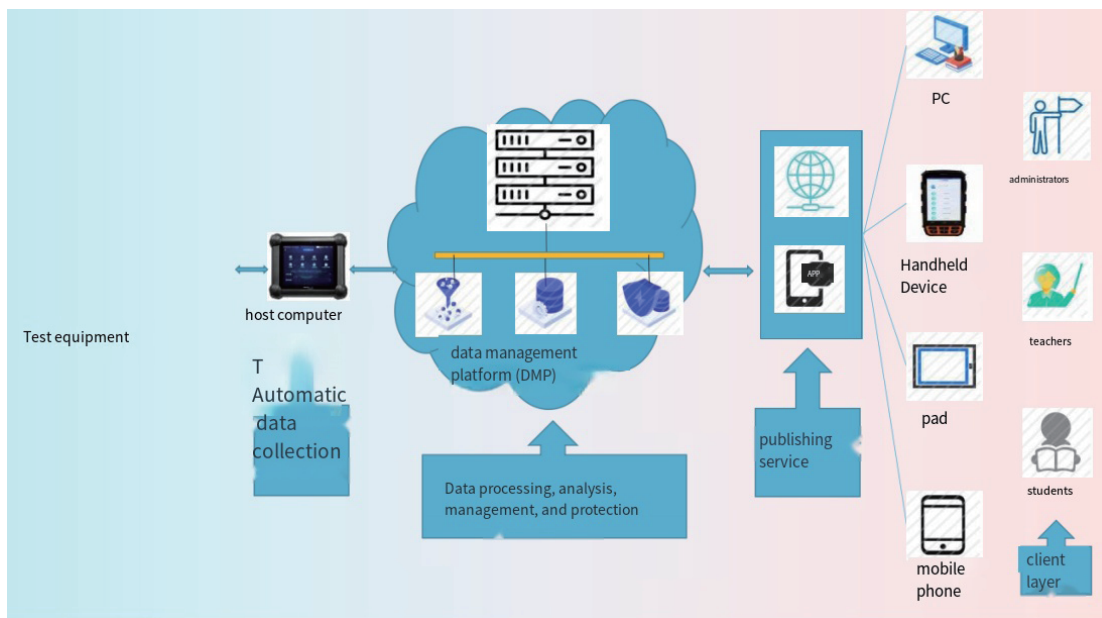


FIG. 1 Application of smart wearable in sports teaching

### IV. The application strategy of smart wearable devices in college physical education teaching practice

#### 1. Change teachers' educational concepts

The application of wearable teaching devices in teaching practice is of great significance. As a kind of teaching means with strong interest and times, the application of wearable devices on the one hand can bring multiple learning resources for the teaching of college physical education courses, enrich the teaching connotation of college physical education courses, simplify the learning difficulty of students, and arouse students' learning enthusiasm; On the other hand, it can provide students with more exercise, practical exploration and space for consolidating skills, so as to enhance students' experience and consolidate students' foundation with more abundant learning resources. Physical education teachers in colleges and universities should change their own educational cognition, flexibly apply various learning methods, combine with the application of wearable devices, and explore the new development direction of teaching. Some teachers

with conservative teaching thinking lack of awareness of the Internet, show a psychological rejection of the application of new technologies, have an imperfect grasp of intelligent products, and do not have strong information literacy. Therefore, teachers should first change their awareness of information education, increase their understanding of relevant knowledge, build their knowledge system, and improve their information literacy. The relevant knowledge of smart wearable devices belongs to the field of smart products, and teachers rarely come into contact with this kind of field in the past teaching. In order to avoid the problem of insufficient knowledge reserve in the application process, teachers should expand their own knowledge capacity, learn the functions and use methods of smart wearable devices, and analyze how to combine the products with teaching work.

#### 2. Organize teacher training work

The educational resources and technology of schools need to serve the teaching practice of teachers. As a reserve force for education, schools need to ensure the support of teachers, technology and funding, and ensure that teachers are trained in certain skills. Schools may hire professional and technical personnel to teach teachers, organize physical education teachers to carry out study, and incorporate the learning results into the assessment work. Schools should also regularly inspect and inspect the professional ability of teachers, set up special projects and evaluation systems, and form assessment projects, so as to promote teachers to learn teaching skills quickly and efficiently, get familiar with the use of teaching equipment, improve the quality of physical education and ensure the safety of equipment application, so as to lay a foundation for the improvement of the overall results of physical education.

#### 3. Cross-application of teaching mode

The advantages of smart wearable devices are mainly reflected in the convenience of use. With the development and progress of information technology, the application scenarios of intelligent technology are gradually increasing, and the integration with various education modes is gradually convenient. Teachers should grasp the application degree of modern teaching equipment in the actual use process, combine all kinds of teaching AIDS such as micro-lessons, MOOCs, multimedia equipment, etc., fully combine the content of physical education, and create a good teaching environment for students. For example, when teaching the movement of “three-step layup”, the teacher can first evaluate the use of wearable devices, and combine the detailed explanation of the movements of micro-class teaching in the teaching to further standardize the movements of students, improve the teaching effectiveness and achieve the balance of teaching proportion. Teachers can not rely on wearable devices, but need to use a variety of teaching cooperation, to achieve the full combination of teaching content and teaching media, to achieve the improvement of teaching results, to achieve the sustainable development of physical education classroom.

#### 4. Building an integrated teaching model

In the practice of college physical education, it is necessary to develop the supporting functions of intelligent wearable devices, invest in the construction of physical education data collection, user feedback and other mechanisms, so as to facilitate teachers to obtain real-time data and timely analysis of students' learning. For example, the evaluation of data collected by wearable devices can realize the synchronization of data acquisition and teaching analysis, and realize human-computer interaction supported by big data. Due to the differences in physical quality and physiological skills among students, technology collection needs to be supported by more precise data, break through the limitations of the device itself, and meet the needs of higher education. Teachers should start from a global perspective, improve the role of data in the intelligent platform by implementing the rational application of network channels, and realize the integration of teaching work and multi-project interaction.

In summary: The application of intelligent wearable devices is one of the links of colleges and universities to comply with the development of informatization and modernization. As an important course conducive to the healthy development of students' physical and mental health, the application of Internet information technology is conducive to the improvement of students' learning and physical education teaching efficiency. It is also an important innovation and exploration in line with the reform of physical education under the new situation, and promotes the continuous reform and upgrading of education.

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