Design Method of Auxiliary Platform for College Physical Education Teaching Based on Campus Network

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Abstract. In the network technology increasingly popular, especially mobile platform technology and Internet of things technology rapid development of modern society, the original information platform has been a huge challenge. Their development also puts forward higher requirements and opportunities for the construction of technical assistance platform in the development of higher education. The purpose of this paper is to model the framework of the auxiliary platform of physical education based on campus network from the perspective of software architecture construction, and to provide methodological guidance for the construction of this kind of auxiliary platform. In order to facilitate the development of physical education teaching platform in higher education, this paper, relying on the campus network, applies the wireless platform and the Internet of things technology, and puts forward the idea of constructing a new auxiliary platform for higher physical education based on campus network, which provides a new model for realizing informatization and modernization of higher physical education teaching. The research structure of this paper shows that, compared with the traditional physical education teaching mode, the method proposed in this paper is oriented to the actual classroom teaching, and technically has the self-name of database and background resources, realizing dynamic framework and real-time data, which is an important innovation to the original teaching platform.

Keywords: Campus Network, College Physical Education, Teaching Auxiliary Platform, Software Architecture

1. Introduction

Since the 1990s, China began to build campus network on a large scale. Today, universities and vocational colleges have built their own campus network. On this basis, the auxiliary teaching platform relying on the campus network has also been developed to a certain extent, including the physical education teaching platform in universities. But with the ministry of education reform in the degree of attention to the college students' physical quality is higher and higher, in the education of colleges and universities sports teaching ideas and methods are undergoing major changes, the existing campus network sports education auxiliary platform has been more difficult to adapt to the needs of
the development of college sports, build up a consistent with The Times and the demand of colleges and universities sports teaching auxiliary platform became imminent urgent tasks.

In the world, a large number of network platform utilization development planning conferences are held every year. In 2002, many famous universities in the United States began to attempt to broadcast teaching videos online [1]. The famous Massachusetts institute of technology (MIT) released the public course of "computer science and technology" in 2003, which attracted experts and scholars from more than 150 countries around the world in the field of related research, and the cumulative number of broadcasts exceeded 20 million times, achieving good results beyond expectations [2]. In Europe, distance education forum is held all year round, with over 2000 participants per game and over 500 excellent papers published every year [3]. Recently, the focus of foreign studies has been on smart education, which is the upgrade of distance video education and will be the next focus stage of education development. Moocs, which concentrate many excellent teaching resources, have achieved rapid development, and the world's top universities, such as Harvard University, Massachusetts institute of technology, tsinghua university and Yale university, are actively promoting them [4-5]. In China, the design and implementation of teaching auxiliary platforms started late, but the promotion efforts were very great [6]. In all primary and secondary schools, the ministry of education has cooperated with other relevant ministries to actively carry out distance education activities, trying to stimulate the enthusiasm and participation of the whole people in learning through the distance education system [7]. The domestic research and evidence collection results show that it is possible to provide a teaching auxiliary platform for various courses in colleges and universities by using existing technologies [8].

The research of this paper fully analyzes the beneficial results of the existing research, describes the application status of campus network in the physical education of colleges and universities in China, and explores the relationship between the development of network technology and the auxiliary teaching platform of colleges and universities [9-10]. Through questionnaires, this paper analyzes the impact of campus network technology on contemporary physical education teachers and college students and their application expectations [11]. In addition, the traditional physical education teaching mode and the teaching mode using the auxiliary platform of college physical education based on the campus network are analyzed, which finally makes a beneficial contribution to the cause of physical education in China [12].

2. Method

2.1 Supporting Theory

The research of this paper is the research of the design method of the auxiliary platform of college physical education based on campus network, and is also the basic research of the development and realization of the application system of networked teaching. In the context of campus network, how to link the network teaching of physical education with campus network is the focus and difficulty of the research. In order to achieve this breakthrough, the supporting theory of this study mainly includes Photoshop, Firework image processing, Flash animation, ASP programming language and information system architecture theory.

The realization of the online video teaching of physical education courses, the comprehensive management of students' physical education scores, and the storage of sports scores are the basic functions of the application platform. The application of these theories also provides a platform and a way for the platform to enrich the extracurricular cultural knowledge of college physical education.

2.2 Platform Architecture

It can be considered that ARIS is an important model framework of the campus network-based auxiliary platform for college physical education teaching, which is an integrated information system. The structure diagram of this framework is shown in figure 1 below.
Figure 1. System diagram

As can be seen from the figure, this paper divides the auxiliary platform of physical education into two subsystems. This is the teaching subsystem and the management subsystem, here can also divide the function modules into network courseware management, student course management, teacher course management and system user management and other basic modules.

2.3 Platform Design Objectives

This platform is designed based on the teaching goal, according to the sports teaching goal, the construction of the auxiliary platform goal is to improve the enthusiasm of the college students to participate in sports activities, give full play to the students' enthusiasm and initiative, increase the communication and exchanges between students and teachers, so that the students can understand the meaning of sports teaching, teaching important and difficult. As for physical education, its main construction goal is to strengthen teachers' understanding of students, answer students' questions quickly and accurately, reproduce classroom teaching content through video multimedia, integrate excellent teaching resources, break the time and space restrictions on teaching, and achieve optimal theoretical guidance.

2.4 Design Principles

Based on the campus network of various universities, the auxiliary platform of physical education creates an education model that conforms to the physical and mental health of college students through the combination of learning theory, communication theory and education theory. Especially for college students, the design of the platform should follow the following principles: first, the principle of interactivity, which requires to enhance the interactive performance of the system in terms of the content design of student assessment; The second is the principle of selectivity, which requires students majoring in physical education and students majoring in non-physical education to be
differentiated and develop different cultivation strategies. Finally, there is the principle of individuation, which requires students to conform to the acceptable range of learning, competition and training, instead of blindly setting unrealistic goals.

3. Platform Design

As an auxiliary platform for college physical education teaching, the analysis of its business should mainly start from the design of teaching. When making specific function, emphasized the teaching activities of creating situation, pay attention to the quality of the teaching objectives and teaching content analysis, emphasize the use of a variety of information resources to support students active rather than passive acceptance, pay attention to information resource design, emphasizes the important role of "situation" in the study and design based on the network teaching strategy.

In the design process, we always focus on the goal of campus network technology to assist physical education, and fully consider the characteristics of computer network itself and the actual operation in the process of combining with college physical education. At the same time, it is also clear that the essence of physical education is self-exercise, and the application of network technology can only be an auxiliary role.

In terms of the design of the course content, it adopts the method of modular organization, and maintains relative independence in the division, which is based on the teaching unit. The content organization of the course must highlight the good guiding function, choose the Web page as the main part, realize the link with teaching PPT to connect, make the page jump to the maximum extent to maintain the smooth operation.

In addition, the platform also builds the knowledge connection between each module, applies the course structure to the hierarchical structure, and makes the module more open and extensible, so as to ensure that students can choose courses according to their actual needs in the teaching process.

4. Discussion

4.1 Implementation of the System

(1) Realization of teaching resource module

Educational resource management module is mainly a collection of physical education teaching plan, introduction to professional teachers, teaching syllabus, teaching cases and videos. The teaching resource module is an open integration module. Students only need to input the network address of the system in the campus network environment, and can access the module without any software. When the module is implemented, response speed and simple and smooth interface must be integrated into the design planning of the whole module.

Cases in the teaching of the module of video processing, for all the teaching video video taken RMVB format storage and playback, such processing format in accordance with the current main web application design rules, and can be downloaded in the campus network environment high, Gao Changchuan well under the condition of ensure the quality of images, each teaching so that the students can see the details. All videos can be saved offline to a local storage device for easy viewing anytime, anywhere.

(2) The realization of online q&a module

The network q&a module consists of three sub-modules, namely the online q&a module, the forum communication module and the individual exercise suggestion sub-module. Each student can choose a different module according to his actual situation for his own learning. The realization of the q&a module is relatively simple, which only needs to design the corresponding storage table in the database. The three tables are the student table, the teacher table and the administrator table. Among them, the administrator table can add or delete all students' information, while the teacher table and student table do not have these permissions, and the teacher table has more rights to upload videos than the student table.
(3) Realization of the course assignment module

The course assignment module is also an open module that can be accessed only by inputting network address in the campus network environment. The two sub-modules in this module will present different assignments with different specific contents due to different teaching plans and teaching plans set by teachers. The forms of the assignments are set according to the practical electronic resources in the teaching process. In addition to the content published by teachers, only administrators can add and delete classes, while ordinary student users only have the rights to view and download classes online.

4.2 Analysis of System Implementation Results

This system is built based on Web Sever and Browser structure mode, with a friendly interface and clear structure of the salient features, teachers and students can directly access the system in the campus network environment, has a very good applicability. The implementation of this platform system greatly facilitates the browsing and communication between students and teachers in colleges and universities, and also realizes the sharing of excellent teaching resources. The research proves that the design of auxiliary platform for college physical education teaching based on campus network has certain advantages in teaching effect, which are mainly manifested in the following two aspects.

(1) Direct effect

With the help of the auxiliary platform of physical education teaching, the investigation results of the effect of physical education on lifelong sports awareness, sports learning ability and enriching sports knowledge are shown in Table 1 below.

Table 1. Evaluation results of students' role in the auxiliary platform of physical education teaching

| Group                   | Develop physical education learning ability | Learn more sports skills | Exercise their body | Learn more about project techniques | Cultivate lifelong sports awareness | Meet their interest in sports |
|-------------------------|---------------------------------------------|--------------------------|---------------------|-------------------------------------|----------------------------------|------------------------------|
| Network environment     | M=0.52                                     | M=0.79                   | M=0.72              | M=0.61                             | M=0.54                          | M=0.72                       |
| Traditional teaching    | M=0.14                                     | M=0.35                   | M=0.29              | M=0.14                             | M=0.31                          | M=048                        |
| MSE                     | 0.042                                      | 0.335                    | 0.318               | 0.026                              | 0.045                           | 0.47                        |
| T                       | 8.993                                      | -1.326                   | -4.668              | 12.255                             | 4.377                           | 0.616                        |
| P                       | P<0.01                                    | P<0.01                   | P<0.01              | P<0.01                             | P<0.01                          | P>0.05                       |

It can be found from the table that the application of teaching auxiliary platform greatly broadens the function of physical education education, which is beneficial to students to learn more physical education knowledge and skills, and it is also easier for students to master more suitable exercise methods, and develop lifelong sports learning habits, laying a foundation for the formation of lifelong sports awareness.

(2) Indirect effect

In this paper, a comparative study was conducted between an experimental university using the teaching auxiliary platform and a control university using the traditional teaching mode. The content of the survey was mainly about the quantitative comparison of physical exercise participation time and physical fitness indexes. The comparison results are shown in Figure 2 and Figure 3 below.
Figure 2. Differences in physical exercise under different teaching modes

Figure 3. Differences in students' physical quality under different teaching modes

Obviously, the application of the auxiliary platform of physical education not only improves students' consciousness of participating in physical education, but also has a positive effect on students' enhancement system. It shows that the auxiliary platform of college physical education based on campus network plays a direct role in the target level of college physical education with a new teaching model, which has a strong promotion value.

5. Conclusion

On the one hand, the auxiliary platform of college physical education based on campus network
reflects that college physical education attaches great importance to developing students' potential of self-conscious exercise, and on the other hand, it combines the new form of Internet technology. It not only enhances the interest of physical education, but also greatly promotes the reform of students' sources and learning methods of physical education. This is good for students to develop a lifelong exercise habit, enhance the sports learning ability has a better demonstration and promoting effect. It can not only make up for the unitary and boring content, less curriculum arrangement and the limitation of time and space, but also bring beneficial inspiration to the reform of college physical education, which is more conducive to the deepening of college physical education reform.

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