Application of Cloud Computing in Informatization of Physical Education Teaching Resources

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Abstract

With the face of education information, our physical education methods still stay in the traditional words and deeds, which apparently cannot meet the needs of sports and health curriculum development. With the development of information technology and the extensive application of cloud computing technology in the field of education, cloud computing has become a hot topic in the educational informationization. This paper focuses on the hotspot of sports and health, explore how to use cloud computing to realize the sharing and application of PE teaching resources, promote the deep integration of information technology and physical education, promote the application of informatization in school sports and improve the quality of physical education teaching.

Keywords: Cloud computing, Information technology, Physical education teaching resources.

1. INTRODUCTION

Relying on Web2.0, cloud computing technology are built to the global integration of distance education platform for the purpose of the World University City for the application of the dominant information age education and teaching of the new changes provide the conditions and possible (Caminero et al., 2013). "Cloud platform" and "cloud space" are the world university city for a new education and teaching revolution to provide the weapon, and it has information age teaching and learning way to change the carrier, tools, platforms, windows and links. The premise of teaching is the teacher and student personal "cloud space" construction and continuous improvement," cloud space "function of the full development and mining (Yan, 2011). The "cloud space" of physical education is a powerful supplement to the teaching of physical education in the information age. As shown in Figure 1, the widespread use of cloud computing is given in details.

Figure 1. The widespread use of cloud computing
"Cloud computing" is an Internet-based service-related increase, use and delivery model, which usually involves the Internet to provide dynamic and easy to expand and often virtual resources for external users on the Internet to provide a set of abstract. Cloud computing technology with high stability has the rapid deployment of dynamic expansion, on-demand services and other advantages. Popular understanding is located in the Internet server cluster resources, and the local computer only need to send a demand information through the Internet. In addition, the remote will have tens of thousands of computers (Segrelles et al., 2017). You provide the required resources and will return to the local computer. The “cloud platforms” provide cloud-based services that allow developers to either run programs written in “clouds” or use services provided in the “cloud. In order to speed up the pace of Hunan vocational education information construction, Hunan Provincial Education Department is based on "cloud computing" services, and then covering the province’s vocational institutions, personal space-based real name system, and open Interactive learning platform for online learning. At present, the country has 20 provinces and municipalities using the World University City cloud computing technology to establish a 386 institutions “cloud platform”, which is known as personal home page to use Web2.0 and cloud computing technology and rely on the "cloud platform" according to the individual effective identity distribution of personal electronic ID card number, and in accordance with the electronic ID number (Caminero et al., 2016). Based on the real name of the personal learning space, "Cloud space" has a strong resource reserve function, and the cloud computing technology based on the personal space is essentially a powerful, massive storage of information storage. In addition, it has broken through the traditional paper media and even a single information terminal on the information reserves of the limited. For the personal information (resources) storage provides unlimited possibilities, reality and convenience.

2. ANALYSIS ON THE NECESSITY OF CONSTRUCTING “CLOUDSPACE” IN PHYSICAL EDUCATION TEACHING

Figure 2. Analysis on the Necessity of Application of Cloud Computing in Physical Education

2.1 The development trend of international education information

In the United States, the Obama administration is promoting national schools to adopt electronic textbooks, suggesting that state governments to modify textbook procurement procedures, and allowing primary and secondary schools to buy printed textbooks to the hands of every student. South Korea announced the "Intelligent Education" program to use the textbooks by 2015 digital, so that teaching content can be presented on the computer, interactive blackboard, tablet and smart TV. Singapore also uses e-books on a large scale. E-books can store all the textbooks, notebooks and homework data (Wang and Jou, 2016). This e-book package was launched nationwide in 2011. Japan Ministry of Communications has started in October 2010 in Japan’s 10 primary schools for electronic textbook trial program (Long, 2015). The goal of this pilot program is extended to 2015, the Japanese nationwide primary and secondary students are equipped with an electronic textbook. As shown in Figure 2, the Analysis on the Necessity of Application of Cloud Computing in Physical Education is given in details.

\[ y = \sum_i x_i \] (1)

2.2 The development of national education information needs
“National long-term education reform and development plan (2010-2020)” pointed out that “information technology on the development of education has a revolutionary impact, we must attach great importance to the education of information into the national information technology as a whole, which is ahead of the deployment of education Information network (Dinita et al.,2012). By 2020, the basic coverage of urban and rural schools at all levels of education information system should promote the educational content, teaching methods and methods of modernization. We should use full use of high-quality resources and advanced technology, innovative operation mechanism and management model, integration of existing resources to build advanced, efficient and practical digital education infrastructure. To speed up the terminal facilities, we should promote the construction of digital campus to achieve a variety of ways to access the Internet.

\[ y = \min \left( x_1, \ldots, x_n \right) \]  

(2)

2.3 The development of physical education in the information age itself

First, the traditional sports teaching is teacher centered, students lack of initiative; Second, the traditional sports teaching content in sports teaching materials, students' selective small, the lack of personality needs; Thirdly, the traditional teaching methods and means to teach simple type, seldom used multimedia and Internet, students lack enthusiasm; Fourthly, interactive teaching in addition, the sports class simple communication, basically no interaction, the teaching process dull.

\[ y = \frac{1}{N} \sum_{i=1}^{N} (x_i - \bar{x})^2 \]  

(3)

Learning in the 21st century means that students are able to create, integrate and evaluate information in a way that understands and respects cultural diversity from a different academic perspective while proficient in knowledge. Students not only have to master 3R (read, write, count), but also to master 3C (creation, communication and cooperation). Virtual tools and open source software will provide students with a world without learning, any age, any time, any place which is learning ubiquitous.

3. ANALYSIS ON THE NECESSITY OF CONSTRUCTING "CLOUD SPACE" IN PHYSICAL EDUCATION TEACHING

The use of modern cloud computing technology, financial management system or platform in the "cloud space" are in the realization of physical education curriculum management, educational administration, teacher management and student management (Bazzaza and Salah,2015). Breaking the traditional teaching model, physical education teachers (including students) will be all the curriculum resources layer by layer to the smallest "knowledge package", and use the network, work, learning and other ways to collect and organize the latest and most useful curriculum resources with the use of the Internet. Multimedia and other teaching media are in the process of physical education at any time to update. Marx argues that "the essence of man is not an abstraction inherent in a single person, and it is the sum of all social relations in its reality." This social relationship firstly embodies the interaction between people. "Cloud space” is seen as a cloud based on the Internet teaching and learning activities of the tools and carriers, interactive interaction and display is its natural function. "Cloud space” is a platform for interaction, which includes both teachers, students and leaders of the
interaction between the exchanges with more time and space, break the border, the development of the school between the teachers and students, teacher’s interaction (Liu et al., 2014). In university City space, there have been cross-school interaction between teachers and students across the province, there is a remote Hunan Jiangxi school and Zhejiang school teachers on the physical education teaching mode of exchange discussion, which will become the university city residents learning exchange mode normal, which is also a significant feature of the Internet era of interaction and interaction. As shown in Figure 3, Application of Cloud Computing in Physical Education Teaching is given in details.

Lifelong learning has become the 21st century international development trend in the era of knowledge economy, everyone is learning people, everywhere is the innovation and every day is the creation of the time. Some people will be the image of the “open the door of the twenty-first century, the key to light.” In order to meet the needs of students in sports knowledge, we must learn from time to time and learn from all over the world (Cen, 2014). In the “cloud space” sports resource library, the action principle, action method, practice method, sports knowledge window and so on. Video resources are shared, and students cannot only pre-class preview, class study, after-school review, and even after work to learn. “Cloud Space” will provide students (and teachers) with a world of no boundaries, any age, any time, any place, so that learning is everywhere. Learning lifelong is not only a concept, and it is a social practice (Jian and Wanjuan, 2013).

4. A STUDY ON THE PRACTICALITY OF “CLOUD SPACE” IN PHYSICAL EDUCATION TEACHING

![Diagram of Cloud Computing Applied to Physical Education](image)

**Figure 4.** The Basic Framework of Cloud Computing Applied to Physical Education

4.1 Management room

The use of hyperlink technology link OA office system and the square teaching management system, educational administration management system, teaching Zhou Zhi fill system and other systems or platforms are sports file collection, system publicity, notice release and other sports administration and physical education curriculum maintenance (Sobeslav et al., 2015). Curriculum tasks, teaching plan, elective, transfer, achievement entry, information maintenance, information query and quality evaluation will fill the report, classroom attendance, teaching advice and other physical education management. As shown in Figure 4, the Basic Framework of Cloud Computing Applied to Physical Education is given in details.

4.2 Course flight

In accordance with the "cloud space", there are sports resources curriculum, construction task book, teaching plan, space resource library, form of lesson plans and other columns. All the sports curriculum with a form together are one by one with a hyperlink to the course Navigation form. "Course flight" shows the sports space resources curriculum construction, but also is for students to the selection of physical education courses and learning the content of the course provides a great convenience.

\[ z = \frac{y_1 + y_2 + y_3}{3} \] (4)
4.3 Resource library

In accordance with the idea of "breaking and building live resources", we build sports library such as sports terminology, sports skills, teaching organization, sports video, tournament situation, competition organization and arrangement, competition rules and referee law, health management and so on. Resources decomposition layer by layer to the smallest "knowledge package", are placed in their respective resource library to facilitate students to learn, but also to facilitate the writing of formal education teachers lesson plans. The construction and application of the "cloud space" sports resource library of PE teaching in Changsha Civil Administration Vocational and Technical College are given in details.

\[ z = \max \left( y_1, y_2, y_3 \right) \quad (5) \]

4.4 Teacher table

The information of PE teachers is divided into basic information, educational experience, work experience, research field, scientific research situation, professional expertise and other columns with the name plus pictures in the form of a hyperlink to the form of the table to be presented to facilitate students. Sports enthusiasts learn from each other, while students choose different courses and different teachers have the purpose of learning to provide a convenient door.

\[ z = \min \left( y_1, y_2, y_3 \right) \quad (6) \]

5. CONCLUSIONS

With the face of education information, our physical education methods still stay in the traditional words and deeds, which apparently cannot meet the needs of sports and health curriculum development. With the development of information technology and the extensive application of cloud computing technology in the field of education, cloud computing has become a hot topic in the educational informationization. This paper focuses on the hotspot from the perspective of sports and health, explore how to use cloud computing to realize the sharing and application of PE teaching resources, promote the deep integration of information technology and physical education, promote the application of informatization in school sports and improve the quality of physical education teaching.

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