A Study on Research-Based Model for Physical Education Teaching using Online Networks in Colleges

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Abstract -- With the wide use of networks, the time and space limit of physical education (PE) teaching in colleges is greatly reduced. Resource sharing of PE teaching is realized, and thus the degree of freedom in the choices of PE knowledge and skills learning are significantly improved. Starting with the analysis for research-based teaching connotation and the advantage of using the network to carry out research-based PE teaching, this study discusses the design model and implementation process of research-based PE teaching in colleges based on the network platform to further improve the quality and effect of PE teaching in colleges.

Keywords - network; research-based; PE teaching

I. INTRODUCTION

With the rapid development and widespread application of the network, the teaching based on the network platform has become a hotspot, and the traditional acceptance teaching mode was increasingly impacted by researched-based teaching mode. Compared with the traditional teaching way, the research-based teaching is more conducive to cultivating the innovative talents with high quality so as to highlight the value and importance of an era due to its accordance with the postmodernism teaching view. Hence, with the modernization and informatization of education, the research-based teaching of network inevitably becomes the trend and requirement. The network provides extremely large amounts of integrated information resources, powerful information processing tools and good interactive communication environments, which makes the research-based teaching based on network have more potential advantages. However, the physical dynamic contained in the sports technologies and skills, the openness of teaching process and strong demonstration requirements of technology actions make the network teaching platform as the best auxiliary mode for students to learn PE knowledge and skills in their spare time.

Connotation and value of research-based teaching

In the 1960s, the educationist Bruner in America earliest put forward the concept of "research-based teaching". He thought that the research-based teaching was the combination of study and research as well as organically combined the research-based classroom teaching, research-based extra-curricular teaching and research-based teaching evaluation. Quality education emphasized that the activity construction was the basic way of students development, and the innovative education ideas advocated that traditional students development view based on classroom instruction should transform to the students development view based on activity construction. The research-based teaching advocated the students development view "based on activity construction". Namely, the situation and approach similar to scientific research were created during the teaching process, which made the students absorb knowledge, apply knowledge, analyze problem and solve problem in the study process of independently initiative exploration, initiative thinking and initiative practice. Thus the comprehensive quality of students was improved, and hence this is a kind of teaching way to cultivate the creation ability and innovation spirit.

The research-based teaching is based on an open teaching idea. Moreover, it breaks through the students development view "based on classroom instruction" and takes the outer world as the site and content of teaching, therefore, it is conductive to lifelong learning. Connotation of research-based teaching can be summed up as learning process reflects the research of scene settings, teaching process reflects the subjectivity of students, teaching methods reflects the flexibility and advance, content of courses system reflects the openness and pluralism. As a kind of learning way, the research-based learning permeated in all the disciplines and all activities. Furthermore, it can make the students in the independent research exploration give full play to their subjectivity, learn to collect, analyze, process and use the information, as well as constantly cultivate innovative consciousness, innovative spirit and practice ability. Basic Connotation and value of research-based teaching were shown in Figure 1.
Figure 1. Basic Connotation and value of research-based teaching

II. UNIQUE ADVANTAGE TO CARRY OUT RESEARCH-BASED PE TEACHING BASED ON NETWORK

A. The rapid development of internet providing excellent teaching resources and environment for the research-based teaching

The research-based teaching is not only the change in teaching theory and idea but also the profound change in the connotation of education technology and means with the rapid development and popularization of computer network and multimedia technology. The network education resources take the information as the carrier, and the manpower and material resources are parsed and integrated in the network in a form of information, thus providing excellent teaching resources for the research-based teaching. In the network courses, part of "knowledge sources" for teachers are replaced by network, especially, under the condition of modern long-distance and open education, the role and status of the network become more prominent due to the separation of teachers and students. The contents and organization forms in the PE teaching process are different from those in other courses teaching processes, because the broad space of PE teaching field, experience of physical sports, freedom sense of interpersonal communication, achievement sense of improvement in sports qualities or skills are usually hard to achieve for other courses. The students can learn a large amount of PE knowledge and sports information at any time in their spare time in the network, and the videos of audio-visual education based on network platform can replace the technology demonstration of PE teachers to a certain extent. Hence, the research-based PE teaching of network has significant advantages. The PE resources are very abundant in the information society network, and the most data and information needed by research-based PE learning of students are obtained directly by network, which greatly improved the efficiency of students to master sports knowledge and skills. The research-based learning takes the activities as main implementation form and emphasizes the personal experience of students. Furthermore, the PE of students is carried out in a main form of physical activities of students, and then the students are asked to actively participate in various sports activities. Hence, they can independently choose their favorite sports for learning, experience and feeling.

B. Rich network of sports resources meeting the multiple needs of students in learning PE

Currently, students can only have one PE class per week in most colleges in China due to the limit of class hours and athletic ground, so it is difficult to meet the thirst for PE knowledge and skills of students. PE teaching platform of network provides abundant information for students, and the students interact with the objects in a natural way in the virtual environment. The PE information obtained both in the internet and in the personal sports practice activities can bring realistic feeling and experience to students. Students can achieve more knowledge by themselves rather than in the established limited PE learning environment and classroom teaching resources by independently exploring and studying the issues related to the interesting PE knowledge or sports items through the network platform. This not only broadened the scope of knowledge for students but also embodied the students development view base on "activity construction".

C. Comparison between "research-based PE teaching of network" and "traditional PE teaching"

Research-based PE teaching of network made online and offline combine with classroom as well as made the
strengths of modern information technology offset the weaknesses of traditional classroom, thus complementing each other with advantages of network teaching and traditional classroom. Research-based PE teaching of network combined the open, interactive, learning-oriented MOOCs ideas as well as retained the advantages of traditional classroom, such as scene participation and tutoring by class grouping. Comparison between research-based PE teaching of network and traditional PE teaching was shown in Table 1.

<table>
<thead>
<tr>
<th>Teaching</th>
<th>Research-based PE teaching of network</th>
<th>Traditional PE teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching subject</td>
<td>&quot;Learning-oriented&quot;, and teachers provide guidance and service.</td>
<td>&quot;Teaching-oriented&quot;, and students passively accept knowledge.</td>
</tr>
<tr>
<td>Teaching content</td>
<td>Micro class, fragmentation, and highlight &quot;new, refined, practical&quot; characteristics</td>
<td>Baldness, limitation, and poor practicability</td>
</tr>
<tr>
<td>Teaching process</td>
<td>Highlight &quot;Learning&quot;, as well as autonomous and research-based learning.</td>
<td>Highlight &quot;Teaching&quot;, and “Duck-stuffing” type of teaching</td>
</tr>
<tr>
<td>Teaching effect</td>
<td>Knowledge internalization both in and outside of the classroom</td>
<td>Knowledge internalization in the classroom</td>
</tr>
<tr>
<td>Teaching evaluation</td>
<td>Both explicit and implicit indexes, and the process evaluation.</td>
<td>Explicit index and summative evaluation.</td>
</tr>
</tbody>
</table>

III. ROLES AND ACTIVITIES OF TEACHERS AND STUDENTS IN THE RESEARCH-BASED PE TEACHING OF NETWORK

A. Roles and activities of teachers

Under the network environment, when the research-based PE teaching activities are carried out, the PE teachers undertake multiple roles. The PE teachers are not only the designers of learning items but also the supporters and leaders. Moreover, they undertake the tasks, such as guidance, monitoring, evaluation, management, and so on, in the whole research-based teaching process. According to the characteristics of network teaching and learning, teachers should further design the learning activities of learners, determine the learning strategy so as to finally generate the learning items after determining the learning contents and goals. Moreover, the generated items must meet the network learning environment as well as can spread and interact in the network. As the managers of network teaching and learning, the teachers should monitor the individual activities of learners, learning group activities and the activities among the learning groups and then evaluate the learning experience activities of students, which makes the research-based learning activities of students always in an orderly state and positive operation orbit so as to reach the expected effect of network teaching. The research-based PE teaching under the network environment emphasizes the development view of students based on "activity construction", hence, this inevitably requires that the teaching activities should be centered on the students activities.

B. Roles and activities of students

The research-based PE teaching of network asks the students to freely explore a series of PE knowledge and sports principles under the guidance of PE teachers. The students should know their own interests and hobbies and then put themselves into the motor learning of their favorite sports technology in the spare time. Therefore, the research-based PE teaching of network emphasizes personal experience of students and can combine the real world and virtual environment, which makes the students comprehend the PE knowledge in the real sports. Thus they can master PE knowledge and sports skills. According to the different characteristics of sports items, the sports can be independently accomplished by the learners or jointly accomplished by groups. In addition, the individual or group learning activities can be discussed by the network to exchange the learning experience. According to roles and activities of teachers and students in the process of research-based teaching of network, basic flow and paradigm of research-based PE teaching of network were shown in Figure II.
IV. DESIGN FOR RESEARCH-BASED PE TEACHING MODE OF NETWORK

According to the characteristics of Basic flow and paradigm of research-based PE teaching of network, the research-based PE teaching based on network platform can be divided into three stages with the development idea based on "activity construction" for students as well as the openness and uniqueness of PE teaching activities, namely, the early analysis stage, generation stage, and evaluation and modification stage.

A. Early analysis stage of teaching design

The goal of PE in colleges is to make the mind and body of students comprehensively develop as well as make the students master sports knowledge and form a habit of lifelong physical exercise. PE teaching is a process that the PE teachers designedly and purposefully impart knowledge and cultivate abilities of students according to a certain teaching objectives and the specific training objectives. The goal of research-based PE teaching of network has the characteristics, such as comprehensiveness, contextualization, and so on. The learning goals referred to obtaining the PE information knowledge, forming physical exercise habit, mastering sports practice skills, experiencing emotion, cultivating teamwork spirit, and so on according to research-based learning characteristics and different learning stages of PE teaching under the network environment. Research-based learning referred to the independent, open and exploratory learning activities carried out by students under the background of wider education resources.

Hence, when designing the research-based PE teaching scheme of network, the cognition degree of PE by learners, the starting point level of sports skills as well as possible development direction and space need to be accurately and comprehensively known, which can provide the basis for the choice of teaching contents and the design of network learning activities.

B. Generation stage of teaching scheme

The PE teaching process has the openness characteristic because of the factors such as the extensity of PE teaching classroom space, the motility of PE learning of students, the complexity of sports skills learning, and so on. Likewise, the generation of teaching process has the dynamism. Those characteristics completely conform to the research-based teaching need of network. Hence, the research-based PE teaching to be carried out must generate a dynamic network curriculum resources in advance. The effect of dynamic generative resources for the network teaching was to form the growing point which makes the teaching be carried out and continue as well as to make the teaching continuously dynamically generated based on the growing point. Thus the teachers and students could continuously develop in the teaching process.

The research-based teaching activities design includes the bilateral activities of teachers and students, especially, the independent activities of students. It has great significance for the teaching activities design that "student-centered" teaching is determined. The implementation scheme of research-based PE teaching of network includes the determination of operational goals of research-based learning, teaching events, network learning environment, network learning materials, and so on. The completion of PE teaching tasks mainly depends on the network and cooperation of network learning partners. Moreover, only the target tasks of learning with the openness and complexity can motivate the resonance and high-level thinking activities of learners. However, unlike the media transfer of traditional classroom teaching, the media transfer in the research-based learning process under
the network environment mainly determines that what forms of media are used to present learning resources. The frequently-used media forms of PE teaching include texts, graphics, images, audios, animations, videos, and so on. Furthermore, the teaching effect from the multidimensional combination of multiple media is unreachable for the traditional classroom teaching.

C. Stage of teaching implementation, evaluation and improvement

The specific practice results of research-based teaching design scheme in the network environment are related to many factors, such as teaching participants, network environment, learning places, and so on, so they cannot be completely anticipated. Therefore, the teaching scheme should be flexibly carried out according to the actual situations in the implementation process of research-based teaching of network. PE teaching activities implementation of network should focus on the students development based on "activity construction" to reasonably and effectively complete the PE teaching tasks. The PE teachers should guide, coordinate and monitor the learning process of students during the implementation process of teaching scheme. Students experience the collaboration communication by sports practice, and the corresponding exploration activities between teachers and students as well as among students are carried out. Namely, during the implementation process of teaching, the PE teachers communicate information with students through network platform, and then they discuss, compare and evaluate the teaching scheme together. The interaction between teachers and students is an important link of the research-based PE teaching of network. The teachers put forward the modification advice for the teaching scheme, locally adjust the initial behavior characteristics of teaching implementation, correct the implementation process, and constantly optimize the teaching scheme according to the results of information integration. This can make the whole teaching process present the creation nature of dynamic generation. The students in different grades and classes can thinking through the network platform during the implementation process of research-based PE teaching of network. Moreover, they learn from each other, jointly improve, and enhance self-confidence and self-efficacy. As well as they evaluate the reliability of teaching scheme and boldly put forward their own learning feelings and ideas during the implementation process of PE teaching, which can help the teachers constantly optimize PE teaching scheme and improve the teaching effect. The three basic stages of research-based PE teaching of network were shown in Figure III.

![Figure III. The three basic stages of research-based PE teaching of network](image)

V. CONCLUSIONS

The implementation for research-based PE teaching of network proposed higher requirements for the professional knowledge, teaching and research abilities, audio-visual technology level, scope of knowledge, sense of responsibility and love of PE teachers. PE teachers in colleges must keep up with the trends of times, constantly update their knowledge structures and levels, learn advanced education ideas and change the teaching thinking mode. Moreover, they should feasibly carry out the profound connotation of quality education, humanistic education and innovative education as well as should actively explore the operation and practice ways to carry out the research-based teaching mode of PE in the network environment so as to further improve the education quality of college PE and promote the construction of campus sports culture connotation.
REFERENCES


