

Analysis on Physical Education Class Online Teaching Mode in Colleges and Universities

Yi Liu

Nanning University, China

437224860@qq.com

Abstract. Physical education class online teaching in colleges and universities is inevitable as result of post-epidemic era and information development in the future. Therefore, this paper starts from current situation of physical education class online teaching in colleges and universities, points out that although colleges and universities have gradually launched online teaching and gotten outstanding achievements, but there are also outstanding problems such as weak concept of online teaching, solidified thinking of physical education class teachers, low quality of teaching resources and backward teaching evaluation. Then analyzes four constituent elements of online teaching in colleges and universities including participants, curriculum resources, network tools and internet interactive platform, builds physical education class online teaching model which contains before-class, in-class and after-class, finally puts forward four strategies including improving participants' quality, optimizing curriculum resource system, developing network tools and building internet interactive platform, which aim to provide reference for improving quality and level of physical education class online teaching in colleges and universities.

Keywords: physical education class in colleges and universities, online teaching, optimizing strategy.

1. Introduction

With continuous propel of Chinese educational reform and widespread popularization of information technology, traditional teaching mode is impacted and challenged constantly. Nowadays, combination of education and Internet information technology is setting off tide of information teaching quietly by vigorous development of information technology and Internet technology. On one hand, traditional classroom in the past paid more attention to "what to teach" and "how to teach", while paid little attention to how to integrate students into class. Arrival of Internet era has put forward new idea of course teaching clearly. As leader of educational activities, teachers should consolidate students' dominant position and take students as center. On the other hand, Internet enables students to contact various forms of teaching mode, forming an open learning concept and active thinking ability. Their access to knowledge is shifting from traditional classrooms and books to online slowly. Development of Internet provides multi-channel and personalized path for resource acquisition. College education will be close to Internet, physical education class is no exception. Therefore, this paper starts from current situation of college physical education class online teaching, constructs physical education class online teaching model, and puts forward strategies of optimizing physical education class online teaching, which hope to provide reference for improving quality and level of physical education class online teaching in colleges and universities.

2. Current situation of physical education class online teaching in colleges and universities

2.1 Physical education class online teaching in colleges and universities achieves initial results

2.1.1 Trying to carry out physical education class online teaching gradually

Some colleges and universities have adopted online teaching in physical education class courses, and many have made plans for physical education class online teaching and carried out relevant

training. Famous sports colleges and universities such as Beijing Sports University, Shanghai University of Sport, Wuhan Sport University and physical education class department of well-known colleges and universities such as Tsinghua University, Shanghai Jiao Tong University, East China Normal University has reached achievement in making multimedia courseware and constructing teaching interactive platform. Shanghai Jiao Tong University has established "Chinese College Physical education class Education Network" based on Shanghai Jiao Tong University to integrate college physical education class education curriculum resources. In year 2005, curriculum, syllabus and textbooks of some projects were put online gradually, and website operation of student physical education class association was guided to better play function of physical education class knowledge dissemination. Therefore, multimedia and network assisted teaching of physical education class will be popularized rapidly, and development prospect of physical education class online teaching is promising.

2.1.2 Making outstanding achievements in construction of excellent courses

According to data, Bei Hang University, Shanghai Jiao Tong University, Tsinghua University and other universities have established high-quality courses. Among them, research department of Tsinghua University has brought construction of excellent physical education class into track of discipline construction, and is organizing compilation of all textbooks and CAI multimedia teaching software that have innovative contents, adapt to teaching development of 21st century, and is suitable for interests and characteristics of ordinary college students. Excellent course construction of "(fitness and development)" athletics in Nanjing Normal University has achieved initial results and strong momentum of development. Other courses, such as " Physical education class Hygiene" and "Martial arts" of Chengdu Sport University, were rated as first approved excellent course in Sichuan Province.

2.2 Main problems in physical education class online teaching in colleges and universities

2.2.1 Weak concept of online teaching

In physical education class online teaching, most teachers regard online teaching as a teaching means, which cannot meet requirements of new model of online teaching. Popularization level of computer network knowledge among physical education class teachers in colleges and universities is low, and who master multimedia technology, especially courseware making, are even rare. However, physical education class online teaching requires teachers to be able to complete construction of learning resources, that is, experts with both physical education major and network technology. Online teaching required by courseware construction is not limited to simple basic computer operation, which is a great challenge for college physical education class teachers.

2.2.2 Solidified thinking of physical education class teachers

Driven by online teaching atmosphere in colleges and universities, physical education class teachers are able to treat with a positive and objective attitude generally. However, due to inertia formed by traditional teaching methods, they are still solidified in idea of applying Internet relatively, lacking innovation and unable to use it flexibly. For example, in class of teaching martial arts, teachers who want to add Internet auxiliary factors in demonstration link of routine movements often only search and download relevant online teaching videos to play them to students, and use videos instead of their own movements to demonstrate.

2.2.3 Low quality of teaching resources

Nowadays, physical education class online teaching courseware in colleges and universities is insufficient, and teaching resources such as online material library, online courses and online multimedia courseware are lacking, and its quality is not high. Some colleges and universities, especially higher vocational colleges and newly upgraded undergraduate colleges, are still in blank state of multimedia and network assisted teaching. It is also found multimedia and network assisted teaching are used in theoretical teaching mostly, but which is seldom used in practice.

2.2.4 Backward teaching evaluation

Although teaching management departments of colleges and universities have realized importance of physical education class online teaching and regard it as part of pilot teaching reform, they still apply traditional mode in management mode, examination form and evaluation of teachers, etc. At present, there are still many problems in physical education class online teaching, such as unclear evaluation object, limited evaluation purpose in teaching form, and adopting summative evaluation, etc. [1]

2.3 Components of physical education class online teaching in colleges and universities

2.3.1 Participants

Main participants of physical education class online teaching in colleges and universities are teachers and students. Among them, teachers are composed physical education class teachers from physical education class teaching team mainly, who play role of guidance, supporters and so on in whole process; Students are all students and main body to learning. Physical education class online teaching in colleges and universities breaks structure of traditional classroom teaching under virtual environment. Teachers and students can not only form effective learning among themselves, but also establish connections between students and curriculum resources, students and students with help of Internet platforms and tools under virtual environment.

2.3.2 Curriculum resources

Curriculum resources are main content of teachers' teaching activities, and also main object of students' learning, which are the key and core of whole teaching process. They are composed of basic knowledge in class and high-quality extracurricular learning resources mainly. To be specific, basic knowledge in class is mainly in accordance with teaching content stipulated by curriculum standards and teaching syllabus, mainly including basic concepts, methods, action essentials, etc. High-quality extracurricular learning resources mainly include excellent athletes' competition videos, AR demonstrations, 3D animation, etc.

2.3.3 Network tools

Network tools play an intermediary role in physical education class online teaching activities, which is a bridge and medium of communication between teachers and students. Development of information technology provides a convenient tool for implementation of physical education class online teaching, which helps teachers to teach effectively and students to explore and study independently. That is, PPT courseware, video, audio, flash animation and other multimedia tools; WeChat, E-mail, QQ and other communication tools; Upload and download, search engines, browsers, software and other learning tools; Virtual space, chat room, discussion area and other interactive tools.

2.3.4 Internet interactive platform

Development of information technology provides an opportunity for reform of teaching mode and learning mode, and open and interactive network environment also provides convenient platform support. Internet interactive platform can provide teachers and students with cooperation, communication, sharing and others, conducive to effective implementation of physical education class online teaching in colleges and universities. Specifically, physical education class online teaching in colleges and universities under virtual environment takes information technology and network environment as platform to realize online teaching process and promote effective learning of students. [2]

2.4 Physical education class online teaching mode in colleges and universities

Physical education class online teaching in colleges and universities is an innovative teaching method which uses digital technology, communication network, computer terminal, multimedia tools and other teaching resources to carry on teaching design. Teacher design and produce teaching

video, and submit video to upload. Students can learn new knowledge and motor skills independently by watching online teaching videos before class, and make videos of acquired motor skills and upload them to online platforms. Online communication in class, discuss how to master correct motor skills, achieve teaching tasks and objectives. Further consolidation and improvement of motor skills after class. Comprehensive evaluation is combination of formative evaluation and final evaluation, and realize big data recording and evaluation automation.

Before-class	In-class	After-class
<ul style="list-style-type: none"> •Teacher: Upload Courseware, Teaching Resources, Assignments, etc. •Student: Preview, Record Trouble, etc. 	<ul style="list-style-type: none"> •Teacher: Physical Demonstration, Unriddling, Interaction, etc. •Student: Difficult Questioning, Understanding, Interaction, etc. 	<ul style="list-style-type: none"> •T e a c h e r : Layout/Correcting Exercises, Course Grade, Comprehensive Evaluation, etc. •Student: Complete Exercises, Consolidate Knowledge, Teaching Evaluation, etc.

Figure 1: Physical education class online teaching mode in colleges and universities

In view of characteristics of combining practice with theory, physical education class online teaching mode adopts "one lesson, three stages", which divides a lesson into three stages, that is before-class, in-class and after-class. Such a design can not only overcome difficulty of fault between in-class and after-class existing in traditional physical education class, but also solve problem of online physical education class teaching after-class practice cannot be tested. It retains characteristics of interaction in traditional physical education class teaching, and further realizes attention and teaching of each student by using advantage of information technology.

3. Strategies of physical education class online teaching in colleges and universities

3.1 Improving participants' quality

3.1.1 Perfecting information literacy of teachers

Firstly, enhance teachers' information awareness. Due to influence of various subjective and objective factors, there is a widespread understanding that "physical education class teaching is in playground mainly relying on physical education class and exercise means with little physical education class information". Under influence of this understanding, teachers' initiative awareness of receiving physical education class information is weak, which lead to their physical education class knowledge scope is getting narrower and narrower, and even students' understanding of latest worldwide physical education class information is broader and deeper than teachers. Physical education class teachers in colleges and universities must establish concepts of physical education class education, physical education class culture, physical education class ethics, physical education class evaluation, physical education class survey, physical education class space and physical education class benefit that are suitable for development in information age.

Secondly, promote teachers to use information resources. Teachers should improve their computer retrieval skills through self-study of knowledge system of literature retrieval, and be able to use it in practical information retrieval under network environment as soon as possible. According to needs of physical education class teaching practice, develop and transmit excellent physical education class application software; Display existence of physical education class information in different forms; Discover and use preserved information resources (human resources, physical education class facilities resources, curriculum content resources, extracurricular and

out-of-school physical education class resources and physical geography physical education class resources) accurately. Correct understanding value of all kinds of physical education class information resources and difference, evaluate information resources critically, distinguish deviation and advantages and disadvantages, and carry-on refining integration and management of physical education class information resources, give full play to effect of physical education class information resources, make teachers to adapt to "globalization" of physical education class information environment, enjoy physical education class information resources both at home and abroad.

Lastly, display teachers' information literacy. According to practice of colleges and universities, taking on-the-job training and rotation training method, and three training levels, namely basic level, development level and advanced level, and put forward specific goals for each level of training; organize teachers to take part in national computer rank examination, stipulate age, position and requirements of computer rank examination of teachers, so that passing rate of physical education class teachers' computer rank examination will increase year by year; join information competition activities, promote teachers to do research on application of information technology in practice of university physical education class technology through role of competition, display research and application of physical education class information technology skills; Strengthen horizontal contact within colleges and universities, tackle key problems jointly, develop physical education class software and physical education class information products, and construct physical education class information communication system. [3]

3.1.2 Promoting participation enthusiasm of students

Firstly, create online teaching environment. In view of low level of computer network knowledge popularization among physical education class teachers in colleges and universities and few teachers master multimedia technology, especially courseware making, college physical education class departments should strengthen leadership and create good information environment. Strengthen information policy publicity and education, reinforce formulation of universal multimedia training planning and evaluation standards, do a good job of campus network construction, equip teachers with necessary modern information technology equipment and software, create environment of using information technology.

Secondly, take students' interest as guide. Generally, self-control of contemporary college students is low generally, who cannot focus on learning fully even in school. However, attention of students in physical education class online live teaching is likely to be distracted and they just deal with other things in class due to lack of teachers' control. Some students even play games and watch movies on electronic devices in class. [4] Physical education class online teaching is committed to develop more attractive courses, enrich campus community cultural life, carry out network investigation, feedback effect analysis and disputes solving based on current physical education class, develop physical education project those who in a wide range of interesting vigorously. [5] In order to break limitation of traditional skills teaching fundamentally, teachers can choose subject and content with characteristics that are in accordance with learning needs of college students. For example, in consideration of rising obesity rate of college students in recent years, carry out divergent teaching program design and implementation by taking central abdominal obesity as a demonstration. [6]

3.2 Optimizing curriculum resource system

3.2.1 Speeding up systematic planning of online physical education class

Although online teaching has been popularized by many colleges and universities, mode application has not given a clear description of what kind of people to train and what future development direction. School should formulate comprehensive and specific rules and regulations to standardize management of physical education class online teaching. Clarify construction concept and future development trend of online class. Teaching design and planning are carried out

with results-oriented concept, and curriculum system design should be carried out with learning results-oriented. From students' professional characteristics and training objectives, physical education online course is planned systematically, learning objectives are proposed from perspective of talent training, and course content of each chapter is arranged reasonably around learning objectives.

3.2.2 Developing online course resources

Development of online course resources should include collecting high-quality resources and self-made special resources. On one hand, physical education class teachers can download, collect, analyze and integrate online teaching resources, including scattered excellent resources and professional platform resources, bring into their own teaching reserves in course preparation and research links. On the other hand, physical education class teachers in colleges and universities should continue to accumulate experience in using network, and take initiative to learn, film and make teaching videos, and convert novel teaching ideas and detailed explanation of special courses into online courses for teaching and assisting students to review and consolidate their use. Successful development of physical education class is solid foundation of beginning physical education class online teaching. [7]

3.2.3 Highlighting physical education class specialized characteristics

Characteristic is premise of network "golden course" in physical education class, and also main means for college students to participate in independent inquiry actively. On basis of refining curriculum structure, teachers should take arrangement of characteristic content as breakthrough point to carry out reorganization planning of physical education class knowledge expression, key and difficult points and curriculum objectives. According to core quality of physical education class major and education goal of "strengthening physical fitness, increasing intelligence, establishing morality and appreciating beauty in physical education class", enrich target engine function from three dimensions including fitness, self-improvement and self-cultivation, promote one-to-one correspondence between content and target keywords, stimulate and maintain students' favorable degree and excitement for physical education online class. [8]

3.2.4 Strengthening teaching evaluation

Teaching effect of physical education class online teaching in colleges and universities should be more reflected in class evaluation. In physical education class online teaching evaluation, teachers should integrate traditional classroom teaching evaluation and network teaching evaluation based on comprehensive, epochal and scientific principles and supported by pedagogy and network education technology. Starting from realistic environment of physical education development in colleges and universities, proper setting of teaching evaluation system is carried out by collecting long-term goals and realistic goals. Improve teachers' self-evaluation, teaching process and design evaluation, students learning evaluation and other parts in teaching evaluation system design. Teachers' self-evaluation is from two dimensions of basic accomplishment and professional ability mainly. The former involves teachers' subject knowledge, information technology literacy and educational knowledge. The latter involves teachers' teaching implementation ability, systematic teaching design ability, professional knowledge ability, teaching research ability, social ability and so on. [9]

3.3 Developing network tools

3.3.1 Forging public network platform

Physical education class online teaching in colleges and universities can be achieved by building a network platform, which requires more rich and real physical education class content and can promote network platform development and operation with characteristics of market. Construction of physical education class public service network platform in colleges and universities can provide diversified services for college students, such as searching, broadcasting live physical education

events, registering and participating in physical education activities, inquiring and booking physical education venues, guiding and training physical education activities, and purchasing physical education products, etc. Colleges and universities construct search content of physical education class public service network platform from two aspects of search physical education class venues and physical education class training, which can help college students better and more convenient to choose suitable physical education class venues and physical education class coaches, enhance students' learning interest, enthusiasm and initiative in physical education class activities.

3.3.2 Optimizing mobile App platform

Physical education class online teaching in colleges and universities can help colleges and universities break limitation of time and space in providing physical education class public service better and more effectively. College students only need mobile phone registration that they can use platform easily, understand university and nearby physical education class venues telephone, projects, routes, prices and other information by using positioning system in mobile App quickly, and choose physical education class venues more conveniently. When colleges and universities establish physical education class public service mobile phone App platform, they need to build from four modules including venue recommendation, matchmaking, event information and personal center. In addition, mobile Apps need to be improved from aspects of booking fitness guidance and pushing fitness information, which can help college students find physical education class partners and physical education class venues conveniently.

3.3.3 Improving WeChat platform

Colleges and universities can use WeChat platform to construct physical education class public service platform reasonably and effectively. When constructing WeChat platform of physical education class public service, colleges and universities should design simple and beautiful interface, which can better stimulate interest and enthusiasm of college students to participate in physical education knowledge learning and physical education exercise. Colleges and universities should encourage professional WeChat operation members and technical personnel to join in construction of WeChat public platform for physical education class public service, and push information such as physical class events, physical class activities, physical class equipment and physical education knowledge regularly. WeChat platform of physical education class public service is composed of micro-physical education class, micro-reservation and micro-community mainly. Micro-physical education class section information such as physical education news, event registration, physical education results, physical education videos and game ticket information for college students timely. Micro reservation section provides college students with service of choosing and booking stadiums, integrating relevant coach information, equipment information, etc. Micro-community board can be set according to different network usage habits, and various physical education network platforms and Apps can be added. [10]

3.4 Building internet interactive platform

3.4.1 Constructing teaching platform

By virtue of characteristics of high data rate and large capacity of network communication technology, comprehensive utilization of monitoring equipment, network platform and motion intelligent equipment can be realized. Online teaching platform and virtual reality, remote monitoring and other advanced technologies are interconnected, realize unity of theory teaching and practice teaching in online teaching platform effectively. At the same time, strengthen construction of physical education class online teaching platform by taking teaching needs into account and enhancing hardware and software facilities related to platform effectively. Platform does not conform to characteristics of college physical education class teaching module should be deleted appropriately, achieve innovative design of college physical education class online teaching platform combined with characteristics of physical education class education. For example, try to connect SPOC (Small Private Online Course) with flipped class effectively to create practice course

innovative teaching information level; Make use of O2O (online of Offline) mode to build physical education class teaching platform, etc. Create suitable and efficient platform through these ways, which lay a solid foundation for development of physical education class online platform. [11]

3.4.2 Improving physical education class teachers' information skills

Information processing skills refer to processing physical education information to useful information for improving effect and quality of physical education class online teaching. Physical education class teachers should take information processing as main line and improve skills of using physical education information. It includes acquisition, transmission, processing and application of physical education information. Physical education information acquisition skill refers to accessing to all kinds of physical education information timely by use of information processing tools. On one hand, physical education class teachers should use printed literature to obtain teaching and scientific research information; On the other hand, they should use computer terminal of campus network to obtain network information. Information transmission skill refers to transfer of physical education class research results or new physical education information prepared and processed by oneself by means of computer, network and electronic communication. Physical education class teachers in colleges and universities should create new physical education class information by combining physical education practice closely. Information application skill refers to studying and thinking, inducing and summarizing by using information, and improve ability of using information to analyze and solve problems. Physical education class teachers in colleges and universities master methods of module combination structure supporting integration of teaching materials by using software application, physical education class text development and multimedia teaching materials, provide college students to learn information consultation and guidance by using theory and method of artificial intelligence, and strengthen cultivation of use of physical education information skills by learning from media experts and cooperation.

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