

Opportunities and Challenges: a Study on the Effectiveness and Optimization of Online Physical Education in Undergraduate Colleges

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Abstract: The development of online physical education in colleges and universities is in line with the needs of the development of teaching information in the new era, which is conducive to the realization of subjectification of students' learning, further enriching physical education resources and helping to resolve the contradiction between unification and individuation of teaching. But at present, the online teaching of physical education in undergraduate colleges is faced with some difficulties, such as the restriction of technical environment, the inadequacy of teachers' online teaching ability and quality, the lack of interactive teaching information and the blind spot of teaching process evaluation. Therefore, higher vocational colleges should establish stable teaching technology environment, improve teachers' online teaching ability, design reasonable teaching mode and strengthen evaluation and assessment, so as to promote the further development of online teaching construction of physical education in undergraduate colleges.

1. Introduction

Introduction

Since the 18th National Congress of the CPC, the CPC Central Committee with General Secretary Xi Jinping as the core has been focusing on the development trend of science and technology in the world to build a “cyber power”. Make a list of points and requests. The development of network information technology not only brings about the transformation of production mode and life style, but also brings about the profound reform of educational ideology, educational mode and educational method, making “Internet + education” possible. As a basic subject in school education, physical education plays an indispensable role in ensuring students' physical quality and forming good exercise habits and health awareness. Under the network information age, it is an inevitable trend to develop online sports teaching actively. In addition, the COVID-19 outbreak in 2020 has had a significant impact on the normal teaching work of vocational colleges nationwide. The Ministry of Education requires teachers to guide students to study at home online and “suspend classes”. The National Steering Committee for Physical Education in Institutions of Higher Learning also issued relevant guidelines, requiring physical education during the epidemic to do a good job and realize “non-stop schooling, non-stop teaching, non-stop practice and non-stop Training without suspension”^[1]. Therefore, physical education online is a special period of learning. The necessary way for schools to carry out teaching work is to minimize the epidemic situation Influence on teaching activities and guarantee students to complete their studies successfully. Therefore, in the information age of teaching trend and teaching emergency management needs. Next, the advantages and challenges of online physical education in higher vocational colleges are discussed. The optimization measures have important practical significance.

2. The Significance of Developing Physical Education Online Teaching in Undergraduate Colleges

Profound changes have taken place. Computers, mobile phones and other mobile terminals have become indispensable learning and communication tools for students. The application of information technology in the field of education has become an inevitable trend of The Times. The active development of online physical education in higher vocational colleges is to meet the needs of the development of teaching information, which is of great significance for optimizing the traditional teaching and learning model and improving the quality of physical education and learning.

2.1 Conducive to Promoting the Development of Sports Teaching Information

Online education or online education, distance education, refers to a web-based learning activities. The concept of online education can be traced back to the 1840s, when British scholar Isaac Pitman taught shorthand courses by correspondence through the postal system, which is regarded as the beginning of correspondence education in the world. Subsequently, this long-distance teaching mode mainly served students in areas with poor teaching resources^[2]. With the development of computer and Internet technology, Caltech first introduced the concept of online learning and launched the first online learning course in 1994. At present, a new online education model -- "MOOC" (MOOC) has been formed worldwide. It combines high-quality teaching resources, advanced Internet technology and active teaching philosophy, providing educators and learners with a brand new and efficient teaching model. Online teaching forms represented by "MOOC" have been developing rapidly in China, and there are more than 20 large-scale MOOC platforms, such as "MOOC in Chinese Universities", "MOOC Online" and "MOOC Online". In addition, Tencent classroom, nail, QQ group, WeChat group and other online communication applications provide a platform for teachers to carry out live broadcast of courses in real time, which really breaks the limitation of teaching time and space. Online teaching is a successful mode of organic combination of information technology and education, universities actively pushing forward the construction of the online teaching platform for class provides nearly 20000 different courses in colleges and universities, and the small number of undergraduate course colleges and universities sports curriculum general, has not yet covers all the physical education curriculum, undergraduate course colleges and universities sports teaching online construction is still very limited. Therefore, it is of great significance to carry out physical education online teaching in undergraduate colleges to promote the development of physical education informatization.

2.2 Conducive to the Realization of Students Learning Subjective

The continuous reform of undergraduate specialty construction in China has promoted the innovation of physical education teaching mode, but the current physical education teaching reform is in the process. All kinds of attempts and innovations have not fundamentally changed the limitations of "taking classroom as a single platform" and "taking teachers as the main body", and it is difficult to achieve satisfactory results of physical education teaching reform through partial improvement of teaching contents, methods and organizational forms. The development of online education provides an important opportunity for deepening the reform of physical education in higher vocational colleges. It overturns the traditional physical education teaching mode and has incomparable advantages in realizing the subjectification of students' learning. Different from other disciplines, physical education teaching has typical interactive characteristics. It attaches great importance to the interaction between students' physical practice and teachers' teaching content. Students' cognition and proficiency of physical education skills determine the final effect of teaching content. Under the online teaching mode of physical education, teachers can provide guarantee for students to learn knowledge and skills by integrating high-quality resources before class, fully mobilize students to actively participate in practice and discussion through explanation and demonstration in class, and students can watch teaching videos repeatedly after class to deepen their understanding and consolidation of actions. Therefore, online physical education makes students change from passive receivers to active inquirers, and shows the high degree of participation in pre-class self-participation, in-class knowledge and after-class consolidation exercises, so that students really become the subject of learning.

2.3 Conducive to the Realization of Students Learning Subjective

Information asymmetry often occurs when information is transmitted from teachers to students, thus affecting the effectiveness of teaching. Teaching information The asymmetry is caused by improper teacher guidance, limited teaching resources or differences in the way students receive knowledge. Under the background of the Internet, information resources bring non-competitive teaching contents due to their sharing characteristics. Many online teaching resources are labeled as public, the pattern of information asymmetry between teachers and students is gradually broken, and the information asymmetry between undergraduate universities and other high-level universities is alleviated to some extent^[3]. For example, the online teaching platform of MOOC is open to all learners, where learning resources are completely open. Anyone can access all learning resources at any time and place for free, and learners from all over the world can communicate and learn together. At the same time, mooC platform contains many high-quality courses at the university level. When the educational level of undergraduate institutions cannot meet the educational needs of students, students can use MOOC platform to access to more high-quality teaching resources. Therefore, the massive high-quality information resources contained in the online teaching platform have changed the limitation of the traditional classroom teaching content. Carrying out physical education teaching in undergraduate universities can further enrich the physical education resources, which is conducive to optimizing the training mode of physical education talents and improving the quality of physical education.

2.4 Resolve the Contradiction between Unification and Individuation

For a long time, physical education teaching in undergraduate colleges has adopted a “one-size-fits-all” approach in terms of teaching objectives, implementation and assessment. It shows the characteristics of unification and standardization, but due to the differences of students' learning starting point and ability, it actually ignores the individual development needs of students, which finally leads to the serious separation of physical education teaching arrangement in undergraduate colleges from students' reality. In order to ensure the normal implementation of the teaching plan, the unified teaching of the class as a unit in the undergraduate colleges and universities should pay attention to the individuality of students while emphasizing the unification, so as to make the teaching arrangement more in line with the actual situation of students. Physical education under the online education mode has the characteristics of unification. Teachers upload teaching resources to the platform for students to learn or for all students to give centralized lectures. They explain and demonstrate for all students in the course and lead students to do physical exercises together. At the same time, the online teaching of physical education shows obvious personalized characteristics. Before class, students can choose to learn relevant teaching content according to their own needs, and independently control the time, place, progress and so on face to face. In case of complex sports actions or skills that are difficult to learn, students can watch videos repeatedly for training and consolidation. It can be seen that the development of online physical education in undergraduate colleges solves the contradiction between unification and individuation of teaching, which is conducive to the optimization and improvement of teaching effect.

3. The Challenge of Carrying out Online Teaching of Physical Education in Undergraduate Colleges

Online teaching mode has promoted the profound reform in the field of teaching and adapted to the trend of information development. But because of the development of online teaching model The lack of perfection leads to the multiple challenges of the online physical education in higher vocational colleges, such as the unstable technical environment, the lack of teachers' ability and quality, the lack of teaching interactive information and the lack of teaching process evaluation.

3.1 The Technical Environment of Online Physical Education Needs to Be Optimized

The realization of online teaching relies on the stable technical environment, and the

construction of China's current online teaching platform lacks mature technical support. Cloud service host resources, Internet broadband resources and many other technical factors cannot meet the needs of large-scale online teaching. For example, during the COVID-19 epidemic, a large number of primary and secondary schools and universities across the country implemented online teaching on a large scale, and a large number of users led to the phenomenon of “network collapse” on various platforms at the same time. Many pre-built online teaching and recording platforms in schools were unable to cope with large-scale simultaneous online teaching^[4]. But even the well-known platform software, in the teaching process also appeared such as live clock-on, audio and video delay, teachers and students do not regularly log and so on many problems. According to a survey on online teaching of teachers and students, the average degree of satisfaction of 11 online teaching platforms widely used by colleges and universities is 7 points, and students' degree of satisfaction of online teaching platforms is poor, mostly. Many students think that the instability of the Network has affected their learning mood, and many teachers also say that the network has aggravated the teaching task, affecting the normal development of the teaching task. As a highly interactive teaching course, the teaching effect is greatly affected by the network, platform function and teaching fluency, and problems such as lag, delay and ambiguity in the teaching process are bound to weaken the final teaching effect. Therefore, there are still many shortcomings in the current technical environment of online teaching of physical education in undergraduate colleges, and it is urgent to optimize and upgrade the online teaching technology.

3.2 The Ability of Teachers to Teach Online is Inadequate

Whether online or offline, PE teachers play a key role in the success or failure of teaching. Online learning has changed the process of teaching and learning. This not only requires teachers to fundamentally change the teaching concept, but also poses a great challenge to teachers' information teaching ability. The preparation, explanation and demonstration of the teaching content, as well as the summary and reflection of the students' learning effect, are carried out under the careful planning and design of the teacher. The selection and construction of teaching platforms, the updating and improvement of online teaching resources, the organization and management of in-class physical education activities and the assessment of students' learning contents, etc. not only require physical education to have a high professional quality, but also require teachers to be proficient in computers and the operation of various teaching platforms. However, part of the undergraduate course for the appropriate way of explanation. Online teaching, many teachers the multiplexes, in equipment installation and debugging, the design of the course content, such as classroom online FAQ there was a problem in every way, to reflect the current undergraduate course colleges and universities sports teachers teaching skills to enhance online, undergraduate course colleges and universities need to teachers' teaching ideas and the use of online teaching platform skills training system.

3.3 The Lack of Interactive Information in Online Sports Teaching

Physical education has typical interactivity and sense of presence, and online physical education makes the interactive process of education in virtual time and space. Under the effect of the completion, to a certain extent to limit the body as the main body of physical education activities. How is it structured in a virtual online classroom. It is a very important practical link to build the interactive relationship between teachers and students. First of all, online teaching widens the distance between teachers and students, both of which are connected by machines, turning physical practice teaching into “listening and watching” teaching. The loss of the sense of physical presence makes it difficult to build a communication platform between teachers and students. Learning a new motor skill can only be transformed into operational knowledge through descriptive knowledge learning and motor cognition. This process requires students to form motor memory through the perception of various parts of the body under the personal guidance of teachers, so as to acquire motor skills^[5]. However, it is difficult for students to master correct motor skills due to the current situation of online physical education. Secondly, offline physical education teaching enables students to obtain three-dimensional, multi-dimensional and all-round information.

Online physical education belongs to the category of virtual reality, which transforms three-dimensional classroom space into two-dimensional plane teaching. However, the transmission and feedback of teaching information are difficult to be presented through two-dimensional plane, and the problem of information loss is serious.

3.4 There Are Blind Spots in Teaching Process Evaluation

The evaluation of physical education teaching effect should adhere to the way of combining process evaluation and summative evaluation, which is generally recognized as the teaching effect evaluation. However, there is a blind spot in the teaching process evaluation in the online teaching model of physical education. Through dynamic observation and evaluation of students' performance in the whole learning process, process evaluation gives feedback to students' learning attitude, learning situation, advantages and disadvantages. The process evaluation runs through the whole teaching process and has important auxiliary value for the optimization of teaching quality and the improvement of education mode in later period. However, due to the space limitations of online sports teaching, sports equipment and venues cannot be guaranteed, and it is difficult to see the students' attitude, investment and mastery level through the display interface. Therefore, teachers cannot follow up students' learning effect comprehensively. Secondly, physical education emphasizes the difficult points and error-prone points of movements. Only by explaining the difficult points and error-prone points clearly and letting students fully demonstrate them, can the accuracy of teaching effect evaluation be realized. However, due to the influence of teaching equipment and picture quality, it is difficult to accurately feedback students' real actions to teachers, which leads to misunderstandings for teachers' teaching evaluation. Therefore, physical education teachers should explore how to realize the accurate tracking of students in online teaching to ensure the authenticity of teaching effect evaluation.

4. The Optimized Path of Online Teaching of Physical Education in Undergraduate Colleges

In the ten-year Development Plan on Teaching Informatization (2011-2020) issued by the Ministry of Education, it is pointed out that the development of education should be deeply integrated with information technology, and education reform should be promoted through the establishment of a new informationized teaching environment. Under the trend of information age, colleges and universities should actively carry out online physical education, and promote the further development of online physical education construction by optimizing online teaching platform, strengthening teachers' skill training, designing reasonable teaching content and strengthening teaching evaluation and assessment.

4.1 Optimize the Teaching Platform and Establish a Stable Teaching Technology Environment

Online teaching based on information technology relies on a stable technical environment. Moocs, live courses, open courses and other online teaching forms all need Internet. The supporting of the collateral environment such as collateral environment, terminal equipment and system platform is provided. Undergraduate universities should make full use of advanced technologies such as big data, artificial intelligence and 5G to build a high-quality online teaching platform when carrying out online teaching of physical education.^[6] First, specific teaching function provided by the online teaching platform, is a key factor in determining the quality of teaching, as a result, online teaching platform should meet the needs of different learners, as far as possible support was recorded live teaching, teaching and online discussion and so on the many kinds of teaching methods, and course arrangement, attendance management, answering questions interactive teaching function, simulation test, etc. Due to the particularity of physical education course, the online teaching platform should be designed in a targeted way. For example, the live classroom broadcast should support the function of video amplification for one-to-one action correction, and the online scoring system should be added to enable teachers to conduct action teaching assessment.

In addition, host resources and network environment are the quality assurance of online teaching, and host resources are generally provided by Alibaba and Tencent. And other cloud servers provide

solutions, while higher vocational colleges should establish stable and efficient network support, such as active access to 5G network, to ensure the stable and fast performance of online teaching network environment.

4.2 Strengthen Skill Training and Improve Teachers' Online Teaching Ability

As an inevitable requirement of teacher specialization, online teaching ability is the inevitable result of teacher development in the information age. Physical education teachers teach online. The development of learning ability is not only the guidance of students' motor skills in the traditional sense, but also the guarantee of teaching quality according to the requirements of online classroom teaching. First of all, online teaching of physical education requires teachers to improve their information literacy and possess basic operation skills such as audio and video production, software and application of teaching platform. For example, they can independently produce micro-lessons of physical education, edit and record relevant teaching videos on the network platform, and be familiar with the implementation procedures of operating online lessons. Secondly, physical education teachers should pay attention to the cultivation of online curriculum content organization ability. Physical education requires physical exercises, so teachers should think about course contents suitable for online teaching, such as health education and skill learning methods, etc., which are suitable for online teaching, while outdoor practice such as basketball and swimming is not suitable for online teaching. At the same time, teachers should create online learning situations for students, and the technical actions of offline teaching can provide students with intuitive experience through the teaching situations designed for online physical education courses. For example, students can preliminarily grasp several key points of high jump movement through videos, which lays a foundation for students to better understand skills in practice. In addition, higher vocational colleges should strengthen the training on the application of physical education teachers' information technology, online teaching design, teaching organization and management, and carry out the teacher's skill training and level certification in an organized way, such as skill level certification.

4.3 Strengthen the Evaluation and Assessment, Improve the Online Teaching Management System

The evaluation of physical education online teaching should not rely on the final evaluation of mid-term examination and final examination under the traditional teaching mode, but should be Assessment runs through the process of daily teaching. Because of the blind spot in the process evaluation of online physical education, higher vocational colleges should strengthen the daily assessment to realize the accurate tracking of students' learning effect. From the perspective of evaluation subjects, not only teachers' evaluation, but also independent evaluation, student exchange evaluation and group evaluation should be strengthened. Independent evaluation means that students can conduct self-evaluation on their motor cognition and skill mastery according to the unified evaluation standard, and can include their own learning motivation, attitude, effect and other factors into the evaluation index, so as to better understand the learning dynamics and apply them to the later self-motivation. Students' mutual evaluation means that students can evaluate each other's learning situation. It can give full play to the advantages of online teaching mode and carry out mutual evaluation in the form of anonymity so that students can put forward real opinions. Group evaluation is to complete exchange mutual evaluation in groups, which enables students to reflect on their own action mistakes while observing the learning effects of others and establish an effective sense of collaboration. In addition, the scientific performance evaluation system is the foundation to guarantee the teaching order. Therefore, higher vocational colleges should make the online teaching of physical education controllable and evaluable, explore the evaluation system of teaching and learning on the line of teachers, and ensure teachers' teaching performance incentive.

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