

# Strategy for Improving the Integrated Online and Offline Teaching Level of Physical Education Courses in Double-High Institutions

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**Abstract:** "Double-high institutions" refers to China's high-level vocational colleges and professional construction plans (referred to as "double-high plans"). In order to better achieve this goal, the physical education courses of double-high institutions should reform the existing teaching mode, and carry out online and offline integrated teaching based on actual conditions. Improving the ability of online and offline integrated teaching in physical education courses is beneficial to improving the quality of physical education classroom teaching, enhancing students' physical fitness, and meeting the needs of double-high institutions' education. The basic ability composition of information-based teaching in physical education courses of double-high institutions is sorted out, and the strategies for improving the teaching ability of physical education courses in double-high institutions are proposed. The teaching method is optimized according to the students' learning situation, and students are guided to communicate and interact online after class to promote the development of online and offline integrated teaching and improve the quality of teaching.

**Keywords:** *Double-high institutions; Physical education; Online and offline integrated teaching; Enhancement strategies.*

"Double-high plan" refers to a major decision-making construction project of the Party Central Committee and the State Council to build a group of leading reform, supporting development, Chinese characteristics, and world-class higher vocational schools and backbone majors (groups). It is also an important decision to promote the modernization of education in China and is known as "double first-class vocational education". The "double-high plan" aims to create a highland for the cultivation of technical and skilled talents and a platform for technical and skilled innovation services, and to lead vocational education to serve national strategies, integrate into regional development, and promote industrial upgrading. The construction of online and offline physical education courses is an important prerequisite for improving the comprehensive competitiveness of physical education courses in double-high institutions, and in order to effectively promote the implementation of the "double-high plan", physical education courses in double-high institutions need to optimize and design the existing courses to improve teaching level and quality.

Integrated online and offline teaching is an effective teaching method that integrates online teaching activities on the basis of traditional offline teaching to comprehensively improve teaching quality. Online and offline integrated teaching refers to fully utilizing the advantages of online and offline teaching in the process of carrying out teaching activities. On the one hand, teachers should use offline teaching modes to carry out classroom teaching activities to ensure that students can master basic knowledge and skills in

the learning process. On the other hand, teachers should also use the Internet reasonably to carry out teaching activities and comprehensively improve the teaching effect.

**The first point: The significance of online and offline integrated teaching is mainly manifested in the following aspects.**

1. Improving the quality of physical education classroom teaching

Under the background of the "double-high plan", the integration of online and offline teaching levels in physical education courses in double-high institutions has been significantly improved, and information technology and intelligent technology have been integrated into the teaching process of physical education courses. However, as a public and activity course, the development process of its informatization is relatively slow. In the current environment where the way of obtaining information, the way of transmission, the method of processing, and the principle of regeneration have undergone revolutionary changes, improving the information technology teaching ability of physical education teachers in double-high institutions is conducive to enriching the ways of obtaining physical education teaching content. With the support of smart campuses and information portals, it can fully utilize multimedia teaching tools, big data teaching platforms, and intelligent teaching methods to convey more vivid, novel, and interesting physical education knowledge to vocational college students, and improve the interest and enthusiasm of students in class. On the other hand, it is helpful for evaluating the teaching effect of physical education courses in vocational colleges. By collecting classroom teaching information through information technology tools, using cloud computing and big data to establish data models, timely monitoring and summarizing the quality of classroom teaching, and targeting weak links for teaching improvement and management optimization. A smart ecological system for physical education classroom teaching is created, which comprehensively improves the quality of classroom teaching.

2. Enhancing students' physical fitness

The implementation of online and offline integrated teaching in physical education courses in double-high institutions effectively transmits the dividends of the information age to students, which is conducive to enhancing the overall physical fitness of vocational college students. Online and offline integrated teaching of physical education courses, by improving information technology teaching ability, is conducive to promoting the comprehensive integration of physical education and information education, introducing richer physical education teaching content, touching on more core physical skills, and effectively transmitting them to students, achieving the goal of developing sports and

enhancing student physical fitness. Students from different majors and grades can enjoy the sports knowledge brought by integration, and comprehensively improve the information literacy of teachers and students. For example, physical education teachers can input students' sports information into the data model to obtain more accurate student sports potential values, deeply understand students' physical fitness, and provide a basis for implementing differentiated teaching methods for physical education teachers. In addition, by improving the level of integrated teaching in physical education courses, it is helpful to create a smart physical education classroom that integrates online and offline, indoor and outdoor, and create a self-determined, ubiquitous, and personalized learning environment for physical education, thereby effectively enhancing students' physical health and fitness.

### 3. Conducive to better improving students' learning efficiency

Students are the main body of classroom teaching. Only when teachers can use more efficient teaching methods to carry out teaching can they help students better master the knowledge they have learned. From the teaching status of some physical education courses in double-high institutions, it can be seen that some teachers have been using traditional teaching methods for a long time, and the teaching methods are relatively simple, and the course content is not rich enough, which makes it difficult to effectively improve students' learning efficiency. Integrating online and offline integrated teaching into the teaching process, fully exerting the main role of students in the teaching process, can better improve students' learning efficiency and learning quality.

## The second point: Ability Structure of Integrated Teaching in Physical Education Courses in Double-High Institutions

### 1. Cognitive Ability for Integrated Teaching

Teaching cognition is an important component of the core competence in professional development, which is to use the teaching system as the cognitive object, continuously construct new cognitive factors through critical understanding and reflection of current teaching activities, and provide ideological guidance for teaching activities. The improvement of integrated teaching level under the "double-high plan" is a conscious transformation and sublimation based on existing information technology, involving the understanding of teaching objectives in physical education courses, the analysis of teaching resources, the perception of teaching objects, the discrimination of teaching scenarios, and the thinking of teaching management. These abilities are the ideological foundation for conducting physical education course teaching. Only with integrated teaching cognition can the teaching objectives of physical education courses be continuously optimized, teaching resources be optimized, teaching objects be understood, and the integration of teaching scenarios and teaching management be achieved under the guidance of ideology. Currently, as a public course, physical education in vocational colleges is easily subject to narrow cognition, and teachers may simply view it as a single outdoor activity or sports class, which cannot make full use of information technology for physical education teaching. Therefore, it is necessary to accelerate the process of integrating teaching objectives, teaching tasks, teaching resources, teaching objects, and teaching management in physical education courses through the improvement of teachers' subjective cognitive abilities.

### 2. Operational Ability for Integrated Teaching

Operational ability for integrated teaching mainly refers to the ability of teachers to use information technology to solve teaching problems and achieve teaching objectives, including language expression, equipment operation, information management, and technology application. In the integrated teaching level of physical education teachers in double-high institutions, language expression refers to the language organization and semantic coordination with information equipment, which means realizing the complementary advantages of human and machine in teaching, transmitting physical education knowledge theory to students through reasonable ways, and improving students' acceptance efficiency. Equipment operation and technology application refer to the functional development and equipment application of physical education teachers in teaching, including physical and intellectual testing equipment, smart playgrounds, teaching tablets, etc., which are essential skills for integrated physical education teaching. Information management ability refers to the ability to manage and evaluate students' physical fitness and sports skills using big data and cloud computing in teaching. Influenced by the knowledge structure of art and sports teachers, physical education teachers in double-high institutions generally lack operational equipment application ability in physical education teaching practice, and lack the ability to construct formulaic data models, which cannot bring students' physical data into the model to assign values to simulated sports skills. The "Opinions" pointed out that to "improve the level of integration", it is not only necessary to improve the integrated equipment in the field of physical education teaching, but also to fully exert the subjective initiative of teachers and improve the language expression, equipment operation, information management, and technology application ability for integrated teaching.

### 3. Innovative Ability for Integrated Teaching

The innovation of teaching by teachers is mainly reflected in the novelty and creativity of a series of teaching activities such as teaching methods, teaching materials, teaching processes, and classroom management. Integrated equipment gives teaching innovation openness, value, and flexibility. In the physical education teaching of double-high institutions, teachers can innovate and combine teaching contents based on theoretical knowledge and sports skills of physical education courses, and design teaching plans that combine theory with practice. They can make full use of information equipment to improve teaching quality and help improve students' physical fitness. Especially in the vocational education model combining industry and education, teachers can fully grasp the convenience of diversified teaching brought by integration, use big data to extract the elements related to sports from massive information, and integrate them into professional fields, thus optimizing the physical education teaching process and creating innovative classrooms. For example, in the physical education course of medical majors in vocational colleges, the characteristics of famous respiratory disease expert Dr. ZhongNanshan's love for basketball can be combined to achieve the bi-directional extension of professional teaching and physical education teaching. Currently, integrated teaching of physical education courses in double-high institutions is widely used, but the level of teaching innovation is still insufficient. For example, some physical education teachers, due to outdated ideas and insufficient creativity, equate integrated teaching with electronic courseware teaching and multimedia teaching, and continue to use traditional teaching methods without absorbing the essence of smart education and

big data teaching. Therefore, the innovative ability for integrated teaching still needs to be further improved.

#### 4.Exploration Ability for Integrated Teaching

The exploration ability for integrated teaching is based on the development and experience summary of integrated teaching activities, and further expands and extends the ability of thinking, methods, organization, content exploration, and evaluation management of teaching with information technology as the link. It focuses on the exploration and discovery of integrated literacy, teaching research, and learning fields. In the physical education teaching of double-high institutions, the teacher's integrated teaching exploration activity is basically a closed-loop process of discovering problems, analyzing problems, and solving problems. Through exploration of existing problems, the best optimization path is found to achieve the improvement of their own level of integrated teaching. The "Double High Plan" provides basic material guarantees for the development of physical education teaching in double-high institutions, and needs to be improved and built on the basis of effective exploration of integrated teaching in physical education subjects, such as smart campuses and digital platforms. Currently, with the deepening of integrated teaching in higher vocational physical education, virtual simulation sports systems and electronic sports games are beginning to emerge. Although these virtual sports enhance the fun of physical education courses, they also increase students' dependence on virtual sports, which is not conducive to improving students' own quality. Therefore, to strengthen the exploration of integrated teaching levels in physical education courses both online and offline, appropriate solutions need to be found in response to the duality of integrated physical education. For example, boldly innovating sports activity themes, using smart campus systems in physical education teaching, combining the sports spirit of virtual sports with the sports skills of actual sports, integrating fun into teaching and learning, and providing students with opportunities to think and question through inspiring problems, exploring the combination of virtual and real sports teaching modes.

#### **The third point: gies for Improving the Integrated Teaching Level of Physical Education Courses in Higher Vocational Institutions under the Background of the "Double High Plan"**

1.Change the mindset and deepen the understanding of the connotation of integrated teaching.

To improve the integrated teaching level of physical education courses in double-high institutions, it is necessary to change the idea that physical education courses are only about sports and deepen the understanding of integrated teaching. Firstly, change the mindset and deepen the understanding of the connotation of integrated teaching, and improve the understanding of teaching objectives and the thinking ability of teaching management. Consciously establish the awareness of applying computer multimedia technology and network information technology to classroom teaching, sports competitions, and teaching management of physical education courses in higher vocational institutions. Make full use of mobile phones and networks to make integrated technology an organic part of physical education teaching and form a new teaching model that adapts to the needs of the information age. Secondly, make full use of integrated technology to design teaching activities and teaching links, and improve the analysis ability of teaching resources and the perceptual ability of teaching objects. Integrate integrated technology into all

aspects of physical education teaching, use physical fitness intelligence testing equipment to collect students' physical fitness information, and set different physical education projects based on students' personalized development. Use information equipment to target students' sports skills. Thirdly, actively participate in the task of constructing integrated physical education teaching, accept the integrated teaching mode from the perspective of ideology and deep inside, constantly improve their information technology application ability, and strive to establish a unified sports teaching information portal and big data platform, and improve the support system of smart campuses in the field of physical education. Translated to English:

2. Strengthen learning and enhance the operation level of integrated equipment.

To strengthen the training of modern information technology application ability, "modern information technology application ability should be an important basis for the evaluation and assessment of teachers." Therefore, the integrated teaching of physical education courses online and offline should strengthen learning and enhance the operation level of integrated equipment, thereby improving the operational ability of integrated teaching. On the one hand, physical education teachers need to strengthen their learning and improve their language expression, equipment operation, information management, and technology application abilities in integrated teaching through self-study or unified training. They should enhance the tacit understanding between teachers and equipment in higher vocational physical education courses and improve their coordination ability in language organization to achieve the organic combination of teacher's teaching language and machine playback language. On the other hand, physical education teachers also need to enhance their awareness and operation level of information equipment. Combining with the multimedia, intelligent testing equipment, smart playgrounds, and teaching tablets that higher vocational physical education possesses, they should enhance the utilization efficiency of integrated teaching resources and be familiar with each function and application scenario. In addition, active introduction of big data and cloud computing should be made to record, store, process, and analyze relevant information data such as students' physical fitness and sports skills, and improve the learning of supporting knowledge such as modeling and data processing abilities, thereby enhancing the utilization rate of integrated teaching resources in the teaching process.

3.Emphasize innovation and refine the development and utilization of integrated teaching resources.

"Double-high plan" schools should deepen reform and innovation, focus on construction tasks, scientifically formulate construction plans and task books, improve responsibility mechanisms, and solidly promote construction to ensure work effectiveness. Therefore, to improve the integrated teaching level of physical education courses in double-high institutions, it is necessary to focus on innovation and refine the development and utilization of integrated resources, thereby enhancing teachers' innovative ability in integrated teaching. Firstly, continuously adapt to the needs of "Internet + vocational education", promote the co-construction and sharing of digital resources, teacher resources, and education data in the sports discipline, and engage in the construction of integrated physical education teaching to improve their teaching level, and promote information technology and intelligent technology deeply integrate into the whole process

of sports education teaching and management services. Secondly, relying on information technology, adhere to the student-centered teaching concept, and devote themselves to innovating the content and methods of physical education teaching. Take football tactical teaching as an example, teachers can search for high-quality tactical systems in a massive Internet resource database, discuss and learn with students, strengthen execution points and practical focuses, and apply them to practical exercises in football sports competitions to further enhance the effectiveness and scientificity of integrated teaching. Finally, make full use of integrated teaching equipment, reasonably allocate it with other sports courses, and realize the optimization of resource allocation. For example, using cutting-edge and technological football virtual simulation games, combined with VR virtual reality technology to assist football teaching, to achieve a more efficient, autonomous, and interesting teaching experience.

4. Be courageous in exploration and build a normal mechanism for integrated teaching.

The ability of double-high institutions to explore integrated physical education courses focuses on the exploration and discovery of integrated literacy, teaching and research, and learning fields, and requires strong logistical support during the exploration process. Therefore, it is necessary to build a normal mechanism for integrated teaching. It is important to fully utilize the existing information resources for physical education teaching exploration. The "double-high plan" provides the necessary material foundation for teaching exploration, and physical education teachers need to form a targeted teaching exploration mode based on this foundation. For example, setting up integrated physical education experimental classes for football courses, building smart classrooms and smart playgrounds, and establishing virtual football sports competitions with other institutions. Actively explore the "interconnection" teaching mode of online and offline physical education classes, combining the live viewing, replay recording of online sports programs with classroom learning and playground demonstrations of offline sports, and promoting students' virtual sports spirit and actual sports skills. Supported by information technology, boldly explore a series of teaching links such as concepts, organization, content, mode, technology, evaluation, and environment, and achieve unified management of physical education classroom teaching through the comprehensive management platform of smart classrooms and smart playgrounds. For example, using AI technology to achieve non-contact attendance, monitoring late and early leave behaviors throughout the entire course, and providing data support for decision-making based on automatically generated attendance data, teacher-student behaviors, and interactive information.

#### The fourth point: lusion

The "double-high plan" aims to build a highland for the cultivation of technical and skilled talents and a platform for technical and skilled innovation services, leading vocational education to serve national strategies, integrate into regional development, and promote industrial upgrading. Under the background of the "double-high plan," the integration of online and offline teaching is very important, which can better promote the professional construction of physical education courses in double-high institutions, achieve deep integration of industry and education, and improve students' learning quality to a certain extent. In the process of teaching design, physical education courses in double-high institutions should adhere to the principles of integration, interestingness, interactivity, and practicality and gradually develop the basic abilities of integrated physical education courses. It is necessary to change the concept, deepen the cognition of integrated teaching, strengthen the manipulation level of integrated equipment, refine the development and utilization of integrated teaching resources, and build a normal mechanism for integrated teaching. This is to better realize the improvement of the integrated online and offline teaching level of physical education courses under the background of the "double-high plan".

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