

# Project-based Teaching Model of Physical Education Based on OBE

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**ABSTRACT.** *The promulgation of National Medium-and Long-Term Education Reform and Development Plan (2010-2020) marks the cultivation of high-quality applied talents from the supply side is an important task for talents training in colleges and universities. Based on the literature and fieldwork, this paper aims at the current situation of the cultivation of physical education professionals in China. Based on the OBE education concept, this paper proposes the application of physical education professionals who take students as the main body and knowledge and ability as the main line. Under the guidance of talent training, we will build a multi-level project-based teaching model combining professional main course learning, professional core competence training and comprehensive ability training. Through the completion of the "project" to realize the organic combination of knowledge learning and ability training, train students to solve physical education. Teaching practical problems, innovative practices and the ability to learn for life.*

**KEYWORDS:** *OBE; physical education; project type; teaching*

## 1. Introduction

The development of my country's higher education in the new era aims to comprehensively improve the quality of talent training, improve the level of scientific research, enhance social service capabilities, and highlight the characteristics of running schools. Talent training is the most basic responsibility of universities. The quality evaluation of talent training in colleges and universities is not only limited to the study and mastery of knowledge and theory, but the development of quality and ability oriented by market demand has become more prominent. This is the opportunity and challenge given to us by the times. We must focus on professional training goals and set up courses. And the overall optimization of teaching mode.

In recent years, the quality of China's physical education professional talent training has gradually improved, and the social recognition is high, but there are still many urgent problems that need to be solved, such as the training of talents based on the needs of discipline and professional development, the orientation of training objectives is blurred, and the curriculum and teaching are separated. The practice situation is serious and limited to "content-based" and so on. The discussion on the cultivation of physical education professionals has gone through decades. Scholars have put forward constructive opinions from different perspectives. This study combines the characteristics of the development of the times and market needs, and draws on the OBE concept of the international engineering education reform. According to the 2017 Ministry of Education *Implementation Measures for Normal Colleges and Universities Teacher Professional Certification (Interim)*<sup>[1]</sup> document spirit, analyze the characteristics of the teacher industry, benchmark reforms, and explore a learning output-oriented project-based teaching model to promote sports education professionals Cultivate reforms.

## 2. OBE education concept and project-based teaching mode

### 2.1 Introduction to OBE Educational Concept

#### 2.1.1 The connotation of OBE education philosophy

As an advanced educational concept, OBE was put forward by Spacei and others. It started with the reform of engineering education. Since its inception, it has been recognized and recognized by the international education field, and has become an educational reform in the United States, Britain, Canada, and Germany. The

mainstream concept of the OBE education model is considered to be an innovation of education paradigm. OBE (Outcome Based Education) also known as learning output-oriented education, graduation requirements and training goals are guided by social needs, teaching design and teaching implementation are based on student learning results, integrating knowledge, ability and quality. The concept of talent training is the mainstream trend of contemporary college education reform.<sup>[2]</sup>

OBE educational concept implements the basic concept of teacher education certification based on "student-centered, output-oriented, and continuous improvement". The student center emphasizes following the students' learning rules and personal characteristics, and adopts the standards of normal students for curriculum setting and teaching implementation; output-oriented, emphasizes student learning achievements, and regards graduation requirements as the evaluation criteria for normal students' graduation; continuous improvement emphasizes the importance of teacher training. The evaluation is diverse, comprehensive and continuous, and the evaluation results are used as the basis for teaching reforms to promote the continuous improvement of the quality of teacher training professionals. The training of physical education professionals and engineering education share the characteristics of training students' skills practice and innovation ability. Based on the OBE concept, explore a multi-level project-based teaching model that is oriented by learning output and emphasizes the cultivation of theoretical knowledge, practical skills and innovation ability. Can effectively improve the quality of training applied physical education professionals, and at the same time have reference value for physical education professional certification.

### ***2.1.2 Characteristics of OBE Educational Concept***

Curriculum and instructional design under the OBE educational concept closely focus on the expected learning output. On the one hand, it is manifested in the "reverse design" of the curriculum plan, which is to introduce the set graduate abilities into the curriculum plan, and clarify the importance of each course. Realize the contribution of expected learning output; on the other hand, it is manifested in the "positive construction" of teaching. In order to achieve the expected learning results, teachers can follow the principles of systemcity and practicality to design the teaching process, pay attention to teaching practice, and eliminate long-term existence and graduation. Teaching content with little contribution is required. Corresponding from end to end, establish a seamless matching matrix.<sup>[2]</sup>

First of all, OBE educational concept realizes the fundamental transformation of educational paradigm from "content-based" to "student-based". The expected learning output of students precedes the teaching content and plays a leading role. All educational activities such as teaching activities, curriculum resource development, student management, etc. must be carried out around the expected learning output of students.

Secondly, the OBE educational concept believes that learning output is the driving force for the entire teaching activities and the evaluation of learning results. The teaching procedure advocated by OBE Education is to "define expected learning output-achieve expected learning output-evaluate learning output", and "learning output evaluation" constitutes a closed loop of continuous improvement of the quality of talent training based on the OBE education philosophy.

Third, it is conducive to the establishment of an open, transparent, flexible and mutually recognized educational structure. Facing the three major international education trends of "student-centered, life-long education and internationalization of education" in the 21st century, from the perspective of the current needs of China's education development, to examine and discuss the ISO9000 international certification mechanism, is the education industry and quality certification worker Issues of continuous concern.

Fourth, the OBE educational concept has led to changes in the education system and education model, refocusing and repositioning the concept of talent training: from emphasizing methods to emphasizing results, from a goalless process to a process with clear goals, from focusing on time spent to focusing on The completion of the results, from emphasizing entry requirements to emphasizing the standards achieved, from teaching-oriented to learning-oriented, from focusing on the curriculum itself to focusing on the results of the curriculum.

## ***2.2 Introduction to project-based teaching mode***

### ***2.2.1 Connotation of project-based teaching***

Project-Based Learning is an innovative education model that Western countries have explored in the process

of transition from elite to popular higher education. Project-based teaching is based on constructivism. It was proposed in the 1970s that the center of advocating teaching should be "students' learning", and learning should be problem-oriented. The learning process is the process of solving problems, and the teacher's role is to guide and supervise. Through the learning process, students can better apply knowledge to practice and improve practical ability. This also highlights Dewey's empirical education theory.<sup>[3]</sup> Later Dewey's student William H. Kilpatrick further developed his theory, which mainly included goal setting, goal realization plan, plan implementation control, and evaluation of learning results, emphasizing that students are guided by teachers. Next, the process of decomposing the goal into several tasks and completing it in the form of a team.<sup>[4]</sup> William Kerberch is considered to be the initiator of project learning and education methods.

In the context of teacher professional certification, this research is based on the "National Standards for Undergraduate Professional Teaching Quality in General Colleges and Universities" (hereinafter referred to as the "National Standards for Physical Education") as a realistic basis, combined with William Kerberch's theory and teaching model elements. It focuses on exploring the project-based teaching model of physical education from four aspects: goal, design, implementation, and evaluation.

### ***2.2.2 Features of project-based teaching***

First, it reflects the learner's subjectivity in the teaching process. In the process of project implementation, students change from passive knowledge receivers to active explorers of knowledge and assume certain responsibilities during interaction, while teachers act as instructors and advisers of project implementation.

Second, the teaching process is to solve practical problems. The starting point of project-based teaching is the perplexity and interest of learners. In a real situation, learners can solve practical problems, realize the mastery and application of knowledge, and improve professional quality and ability.

Third, the completion of the project is based on the team rather than the individual. From project planning to implementation, it is carried out in a team cooperation manner. Project resources can be obtained through a variety of different ways such as the Internet, textbooks, periodicals, learning database, practical activities, etc. The project implementation process can be completed using network information platforms, multimedia technology, classroom teaching, practice and other activities. Cooperative and diversified learning forms build a dynamic, open and complementary learning environment for students.

## **3. The training goal of physical education professionals under the OBE education concept**

"People who have no foresight must have immediate worries." According to the OBE education philosophy, the goal of talent training is both the starting point and the end point. Social needs determine the training goals, and the training goals determine the curriculum and the curriculum system and teaching mode. Therefore, clarifying the training objectives of physical education professionals is the primary task of deepening the reform of talent training quality.

The "National Standards for Sports Majors" promulgated by the Ministry of Education covers the basic goals and professional goals of the training of physical education professionals. The professional goals propose that students majoring in physical education must master the basic theories and methods of special sports teaching, training, and competitions, and have comparative Strong physical education and teaching ability, capable of school physical education. Graduation requirements are the specification of talent training goals. In the evaluation of results, the training goals requirements reflect the graduation tracking of graduates 3 to 5 years after graduation to identify whether they have reached the talent training goals, and the graduation requirements reflect the students at graduation Specific requirements in terms of quality, knowledge and ability. The project-based teaching under the OBE educational concept is to construct the knowledge, abilities and qualities that students need to master when they graduate in the form of projects (tasks). The purpose is to improve students' comprehensive practical ability and cultivate applied talents.

## **4. The design of the project-based teaching model of physical education major**

### ***4.1 Thoughts on the design of project-based teaching mode for physical education majors***

The project-based teaching model based on the OBE education concept emphasizes the close integration of knowledge learning and ability training. When students graduate, they must have a solid theoretical foundation

as well as professional knowledge required by the industry, and be able to comprehensively apply this knowledge to the actual work of school sports. When implementing the project plan, on the one hand, it is necessary to consider the integrity of the student's entire professional knowledge system and abilities, break the knowledge and technical barriers between courses, and achieve the organic integration of multiple professional core courses and practical teaching; on the other hand, increase the number of students. The cultivation of professional practical ability in physical education, strengthen special skill training and practical teaching, and emphasize the cultivation of students' learning ability, innovative thinking ability, communication ability, teamwork ability and other comprehensive abilities.<sup>[5]</sup> Third, to implement applied teaching, the cultivation of innovation ability, sustainable development ability and professional ethics throughout the entire training process and implement it into the project system.

#### ***4.2 The design of three-level project-based teaching model for physical education majors***

Constructing a three-level project-based teaching model is the most important link in the training of applied talents. By setting up projects in teaching, it provides students with a platform for independent learning, exploration and innovation, and collaboration to complete teaching content.

It guarantees the cultivation of a large number of sports talents that meet the needs of the society, and at the same time realizes the personalized training of students as the main body. The essence of the three-level project-based teaching model is to divide the student's learning process into different stages, and determine the learning goals of each stage, these learning goals are from elementary to advanced, and ultimately achieve peak results. Graduation requirements are the support of training goals, and graduation requirements need to be further refined into ability indicators. Each course in the curriculum system must make a definite contribution to the realization of the ability structure to form a curriculum matrix. The entire curriculum matrix is closely integrated with each teaching link. Realize the organic combination of knowledge learning and comprehensive ability training. The three-level project-based teaching model of physical education major is based on the three-level project of the professional core curriculum, supported by the second-level project of professional core competence training, and the main line of the first-level project of comprehensive ability training. The arrangement and combination of courses present a two-dimensional "Group" and "String" refer to the project-based teaching model of horizontal integration, vertical integration, and multi-level combination.

##### ***4.2.1 Three-level project teaching design based on professional core courses***

The three-level project teaching is set in the professional core curriculum. According to the requirements of the "National Standards for Physical Education", the core curriculum of the physical education major adopts the "3+X" model. "3" includes school physical education, physical education curriculum and teaching theory, and sports skills learning and control, "X" is set according to school characteristics and social needs, which can be skill courses or knowledge courses, reflecting the flexibility and autonomy of talent training. First, the design requirements of the third-level project teaching are based on the ability matrix required for graduation, and a certain professional core curriculum is the entry point. The core curriculum module is built around the professional core curriculum. The general module consists of 3-5 courses and is given Very specific and complete teaching documents such as curriculum standards including the ability matrix; second, a number of professional core curriculum modules at the same level form a three-level project teaching curriculum group, with a duration of 1-6 semesters; third, the third-level project teaching content The basic knowledge of the course is designed as the content, and the relevant courses are implemented to strengthen students' understanding and application of the core knowledge or skills of the course. Fourth, the course teaching of the third-level project is based on the collaboration of several teams. The team members are composed of 5-8 teachers and students or students. Finally, each student will be led or specifically engaged in physical education, process or system conception, design, The exercise of a certain link or the whole process in the realization and operation; fifth, each three-level project has independent planning and organization content, assessment nodes, and formulates assessment scoring standards. The assessment methods are divided into classroom assessment and teaching practice And the teaching design of professional core curriculum modules.

##### ***4.2.2 The second-level project teaching design supported by professional core competence training***

The second-level project teaching aims to strengthen the cultivation of students' professional core abilities, covering the knowledge and ability requirements of multiple courses. First, usually combine two or more professional core curriculum modules, with one professional core curriculum as the entry point, supplemented by

other core curriculum modules; second, the second-level project teaching is not limited to the curriculum group at the same level. It also forms a series relationship with vertical courses, condensing the courses that reflect the professional core competence. Generally, there are 4 second-level projects, and the duration is from the third semester to the sixth semester; the third and second-level project teaching is based on. For the purpose of cultivating professional core competence, its research results will also be extended to first-level projects, such as graduation design/thesis; fourthly, like third-level projects, second-level projects also require teamwork to complete, and each project has independent planning and Organize content, assessment nodes, and formulate assessment and scoring standards. Fifth, the assessment of the second-level project adopts the form of competition or professional internship, which enhances students' sense of competition and ability to solve real problems. The specific forms include: professional basic knowledge and comprehensive skills projects (such as the design and participation of teaching skills competition), Comprehensive practical projects of professional courses (such as the design and participation of project sports competitions).

#### ***4.2.3 The first-level project teaching design with comprehensive ability training as the main line***

In the physical education major, there are generally two first-level programs, namely innovation and specialty education (individualized development) and graduation design/thesis. Innovation and specialty education run through the entire talent training process, aiming to enable students to establish the concept of "physical education", guide students' career orientation, and cultivate students' professional ability; graduation design/thesis emphasizes the integrity and connection of professional knowledge and ability modules. It also focuses on the cultivation of humanistic qualities, aiming to cultivate students' comprehensive knowledge and abilities. Second, the first-level project teaching is completed independently or in a team under the guidance of teachers. It is a comprehensive evaluation and assessment of the knowledge and abilities required by graduation requirements.

The multi-level combined project-based teaching design for training objectives not only covers the core knowledge modules of the physical education professional direction, but also enables students to master the physical education professional through the hierarchical teaching from simple to difficult, broad to professional. Core knowledge and abilities can effectively cultivate students' humanistic qualities such as interpersonal communication and teamwork. This teaching model that combines theory and practice reflects the idea of talent training that integrates knowledge, ability and quality.

### **5. Implementation of the project-based teaching model for physical education majors**

#### ***5.1 Focus on selected project***

The selection of project focal points should follow the "four combinations": combining student interests, combining the core curriculum key points and difficulties of the module, combining actual teaching problems, and combining frontier issues in the field. After in-depth analysis, students are free to form groups, consult materials, and select specific projects.<sup>[6]</sup> For example, a three-level project with "Physical Education Curriculum and Teaching Theory" as the core curriculum. The content of the project is the design and implementation of physical education classroom teaching. It is necessary to comprehensively use a certain sports skills and physical education system knowledge to complete primary and secondary school physical education. Teaching design and implementation.

#### ***5.2 Develop project implementation plan***

Students conduct data review, group study, discussion, formulate project design goals, implementation plans and plans, and complete the opening report. The most important thing in this link is the setting of group practice methods. Common practice methods include case analysis, situational experience, and task-driven.

#### ***5.3 Process control of project implementation***

The implementation of the project is carried out through the division of labor and collaboration among the team members, during which the teacher will supervise and guide from time to time to ensure the smooth progress of the project. Students are exposed to virtual problems and situations and use their existing knowledge to solve preset practical problems, aiming to solve the problem of the disconnection between theoretical

knowledge and practice and the unbalanced allocation of practical resources.

#### **5.4 Project output and communication**

Achievement output is the thought design and final result of the team in the process of solving the problem, which is displayed at a certain teaching node, and the nodes are divided into mid-term, end-of-term, and graduation. When communicating, it is necessary to answer questions raised by teachers and students in order to learn from each other and improve.

#### **5.5 Evaluation of project-based teaching**

The project-based teaching based on the OBE education concept realizes the continuous improvement mode of "double cycle" education quality through integrated evaluation inside and outside the school. The evaluation subject has a trend of diversified development. The evaluation subject includes student self-evaluation, in-group evaluation, out-of-group evaluation and teacher evaluation within the school, and outside the school includes employers and third-party institutions. The evaluation content should be expanded from theoretical knowledge to practical operation ability, from subject content to professional ability, and from written methods to multiple methods. Therefore, the evaluation content is divided into three dimensions, namely the evaluation of subject knowledge mastery, the evaluation of project operation ability and the evaluation of teamwork ability. The evaluation form uses a combination of process assessment and summative assessment. Process assessment and summative assessment should go deep into each course and each level project, such as independent course assessment based on the semester, and project assessment at all levels based on the semester, academic year or the entire training process.

### **6. Conclusion**

The OBE educational concept and project-based teaching are the experience of engineering education, and also the embodiment of the spirit of the Ministry of Education's *Ordinary Higher Education Professional Certification Implementation Measures (Interim)* document, that is, "learning output, quality assurance, and continuous improvement." The project-based teaching model of physical education based on the OBE educational concept. The training goals and graduation requirements are determined around the requirements of modern physical education teachers. The curriculum is used as the carrier, and the knowledge and ability are oriented to design teaching projects, and follow the teaching project design-teaching project implementation-Project achievement display-The program of learning evaluation summary promotes the project implementation, is student-oriented, respects the subjectivity and individual development of students, and monitors the teaching process through a multi-dimensional evaluation system to ensure the smooth implementation and operation of the teaching project, which is more consistent The actual needs of the post make the training of physical education professionals not out of touch with the actual requirements, and improve the quality of physical education talent training from the supply side.

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