



Constructing an OBE-based FD-QM professional certification teaching system for sports anatomy

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Abstract

Sports anatomy is a crucial foundational subject for training professionals in physical education, sports medicine, and related fields. Establishing a teaching system that aligns with the Outcome-Based Education (OBE) philosophy and meets the FD-QM certification standards has become a central task in current educational reforms. This study focuses on the OBE-based FD-QM professional certification teaching reform in sports anatomy. Initially, the core competencies that graduates from the School of Sports and Health Sciences should possess were analyzed, and corresponding course graduation requirement indices were developed. Subsequently, the sports anatomy course content was integrated and optimized, leading to the design of a new modular and project-based teaching model. A professional teaching quality monitoring system based on FD-QM was established during the implementation phase. Quality management was ensured through syllabus reviews, tracking teaching activity quality, and evaluating learning outcomes to ensure the teaching process aligned closely with the expected goals. Modern teaching methods such as virtual simulation and online adaptive learning were incorporated into this teaching system, providing students with rich autonomous learning contexts.

An integrated practice teaching platform that combines industry, academia, and research was also established, promoting an organic fusion of theory and practice. This study offers insights into OBE-based professional certification reform and constructs a complete teaching quality assurance system. Future efforts will further optimize and promote its application in related professional fields, fostering continuous improvement in higher education quality.

Keywords: OBE, FD-QM, teaching reform, sports anatomy

Introduction

With the vigorous development of the sports industry, the demand for professionals in sports anatomy is increasing. However, traditional sports anatomy teaching models have several issues, such as fragmented knowledge and lack of practical components, making it challenging to fully develop students' comprehensive abilities. Therefore, there is an urgent need to reform the professional teaching system to improve the quality of talent cultivation.

The OBE philosophy emphasizes using the core competencies students require after graduation as the starting point for educational design, focusing on the close alignment between the learning process and expected outcomes. At the same time, FD-QM (Fudan Quality Matter) serves as a professional certification standard, providing standardized guidance for teaching quality monitoring. This study aims to construct an FD-QM professional certification teaching system for sports anatomy based on the OBE philosophy, thereby enhancing the quality of professional talent cultivation.

This teaching system reform involves several aspects, including professional competency analysis, course content reconstruction, and quality monitoring of teaching implementation. This study hopes to provide valuable references for OBE teaching reforms in related fields through systematic design and practical application.

Overview of Outcome-Based Education (OBE)

The Outcome-Based Education (OBE) concept originated from the educational reform movement in the 1990s, advocating for the core competencies that students should possess upon graduation to be the focal point of educational design. Unlike traditional "content-oriented" education models, OBE emphasizes "outcomes" of learning, such as

the comprehensive abilities, including knowledge, skills, and attributes students gain through learning.

OBE concept asserts that in designing teaching syllabi, determining teaching content, and evaluating methods, teachers should align with the competency requirements students need to achieve. This ensures a high degree of consistency between teaching activities and talent cultivation goals. In the OBE model, the teacher shifts from a knowledge transmitter to a learning facilitator, focusing more on stimulating students' active learning enthusiasm and innovative thinking.

Moreover, OBE emphasizes diversified evaluation methods, extending beyond traditional exams to include comprehensive and developmental assessment methods, such as learning outcome presentations and research paper writing, to comprehensively examine students' competency achievements. Implementing OBE requires the concerted efforts of institutions, teachers, and students, with tailored implementation plans developed according to the characteristics of different disciplines and professions.

Introduction to FD-QM Professional Certification Standards

FD-QM is a professional certification standard proposed by Fudan University to ensure the quality of professional construction in higher education. This standard presents a series of specific requirements and evaluation indicators for the quality of professional course design from multiple dimensions, including course overview, learning objectives, assessment, teaching materials, course activities, course technology, learning support, and course production.

1. Course Overview

FD-QM requires a clear and complete course syllabus that fully reflects the course's nature, objectives, content,

teaching methods, and assessment forms. The syllabus should also include the teacher's basic information and course policies, helping students understand the necessary preparation for learning.

2. Learning Objectives

Learning objectives should be clear and measurable, reflecting the expected knowledge, skills, and attributes the course aims to develop. The setting of learning objectives should align closely with the course content and assessment activities.

3. Learning Assessment

The design of assessment activities should be scientific and reasonable, including knowledge tests and practical ability assessments, employing diverse assessment methods such as assignments, projects, discussions, and exams. Assessment activities must align closely with learning objectives to comprehensively evaluate students' mastery and competency development. Assessment standards and scoring rules should also be clear and transparent to ensure fairness.

4. Teaching Materials

FD-QM standards require that all teaching resources be of high quality to support the achievement of learning objectives effectively. These materials include essential textbooks, handouts, reference literature, supplementary materials like courseware, videos, and online links. Materials should be presented and designed for easy understanding and use by learners.

5. Course Activities

Course activities should be designed around learning objectives and integrated throughout the teaching process to promote effective learning. These activities can take various forms, such as reading, exercises, discussions, research, and practical applications, using multiple teaching strategies conducive to knowledge internalization and skill development. Activities should provide timely feedback to learners, allowing them to track their progress, identify problems, and make necessary corrections.

6. Course Technology

The standard emphasizes using modern information technology to create a high-quality digital learning environment. The application of technology should align with teaching design principles, facilitating teaching and learning rather than hindering it.

7. Learning Support

Necessary learning services and resources should be provided to help learners overcome various difficulties they may encounter during their studies. This includes ensuring continuous support and updating plans to maintain course quality.

Professional Competency Analysis Based on OBE

Conducting a professional competency analysis based on OBE principles is a crucial foundation for constructing a new professional teaching system. Initially, it is essential to identify the core competencies that graduates need in their employment fields, serving as the starting point and focus of the entire teaching design. This can be achieved through

industry and employer surveys, educational expert consultations, and alumni feedback to gather comprehensive information on the required professional knowledge, skills, and attributes.

The collected competency requirements should then be classified and systematically organized into a transparent, professional competency indicator system. This system generally includes major competency categories, sub-competencies, and specific behavioral indicators, forming a logically connected framework. During the development of this indicator system, feedback from relevant stakeholders should be extensively considered, and the indicators should be continuously optimized according to changing societal needs.

Finally, under the guidance of the professional competency indicator system, existing course settings, teaching content, and practical components should be benchmarked to identify gaps with the expected cultivation goals and propose reform plans. This may involve adjusting and supplementing course settings and integrating or splitting existing course content to ensure that teaching activities meet the requirements for cultivating students' core competencies.

Reconstruction of the Course System

1. Module Division

Courses should be divided into modules based on the results of the professional competency analysis. Each module is a core competency, covering theoretical knowledge and practical skills. Courses within each module should be logically linked, clearly reflecting the sequential relationship.

2. Syllabus and Plan

Practical teaching syllabi and plans should be developed for each module and course. The competency cultivation goals should permeate every aspect of course design, including learning objectives, teaching content, methods, resources, and assessments, ensuring a consistent approach throughout the course.

3. Practical Teaching

Particular attention should be given to the arrangement of practical teaching components. This can include a variety of internships, practical training, and project research to develop students' practical abilities and comprehensive problem-solving skills. Close collaboration with relevant industries and enterprises and providing well-equipped internship bases and qualified teaching staff are essential.

Construction of Teaching Quality Monitoring System

1. Course Syllabus Review

Before offering a course, the syllabus should be thoroughly reviewed. Expert reviewers should closely examine the course objectives, content, and teaching methods, providing improvement suggestions to ensure alignment with OBE principles and professional cultivation goals.

2. Quality Evaluation During Teaching

Quality evaluation should be conducted during teaching activities, including classroom teaching, lab training, etc. Methods such as course inspections, random checks, and peer evaluations should be used to monitor the implementation quality, with timely feedback and improvement suggestions provided to teachers.

3. Learning Outcome Evaluation

After each course, diverse evaluations of students' learning outcomes should be conducted, including exams, assignments, and process records. These evaluations should comprehensively assess students' mastery of professional knowledge, skills, and attributes. Teaching summaries should be made to analyze factors affecting teaching effectiveness, providing a basis for subsequent teaching optimizations.

4. Teaching Quality Reports:

Based on the evaluation results of each course, professional-level teaching quality reports should be compiled, and the overall teaching quality should be evaluated. Common issues should be addressed by researching solutions from the teaching team, course settings, and faculty conditions, while specific problems should be solved with targeted measures. Feedback from these analyses should inform course optimization and teaching reform decisions to ensure continuous improvement in teaching quality.

Results

The study established a core competency indicator system for graduates, including five major categories and 21 sub-indicators, covering anatomical theoretical knowledge, sports biomechanics analysis, human movement assessment skills, sports injury prevention and treatment abilities, and comprehensive professional qualities. Under this indicator system's guidance, the original course system was systematically reconstructed. The new modular course setup was formed through reasonable module division and scientific syllabus formulation, with all theoretical and practical courses working synergistically to cultivate students' core competencies.

The course system was divided into five major modules: basic anatomy, sports biomechanics, sports assessment and analysis, sports injury prevention and treatment, and comprehensive practice. Each module includes multiple core courses with clearly defined prerequisite relationships. Each course has a new syllabus based on OBE principles, with course objectives, content design, teaching activities, and assessment methods closely linked to the competency indicator system.

A comprehensive quality monitoring system based on FD-QM standards was constructed to ensure teaching quality, including syllabus review, teaching process quality evaluation, and learning outcome quality evaluation, establishing complete feedback and continuous improvement mechanisms.

Additionally, the study strengthened practical teaching components, creating multiple virtual simulation and training bases through university-enterprise collaboration, providing students with abundant practical training opportunities. Cooperation with related medical institutions and sports units allowed project-based research, enabling students to apply their knowledge and skills in practice.

Conclusion

The OBE concept, as the guiding thought throughout the construction of the teaching system, ensures the quality of cultivation by focusing on developing students' core competencies. It embodies the humanistic principle of education, promoting students' comprehensive development. The OBE philosophy also encourages shifts in teaching

concepts and models, transforming teachers' roles from knowledge transmitters to learning facilitators and changing teaching methods from traditional lectures to inquiry-based and participatory approaches, immensely stimulating students' initiative in learning.

The FD-QM certification standard is crucial in constructing the teaching quality monitoring system. Its systematic, standardized, and operational nature provides clear guidance for quality monitoring and institutionalizing quality assurance. FD-QM sets specific quality requirements for syllabi, teaching implementation, and learning outcomes, forming a comprehensive quality management loop and ensuring continuous improvement and optimization of cultivation quality. FD-QM also emphasizes evaluating teaching conditions, such as faculty and practical bases, providing essential support for enhancing education quality.

References

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