

Research on Teaching Reform and Practice of Pharmacology Course in Nursing Major of Applied Undergraduate Colleges based on OBE Concept

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Abstract. This article aims to explore how to implement changes, evolution, and enhancement of the undergraduate pharmacology courses teaching quality in the classroom based on the philosophy of OBE (Outcome-Based Education, Outcome-Based Education). By studying and discussing the three key components of OBE: the teaching plan designed backward from outcomes, the student-centered teaching implementation process, and the outcome-oriented teaching evaluation mechanism, this article specifically proposes teaching strategies and evaluation models. The purpose of adopting these strategies is to train students logical thinking, critical thinking, and problem-solving skills, enhance their self-learning abilities and motivation for continuous learning, thereby achieving an overall improvement in educational quality.

Keywords: OBE Concept; Undergraduate Nursing Major; Classroom Teaching Quality.

1. Introduction

The ongoing advancement of educational reform in contemporary society has made outcomes-based education (OBE) a central issue in the field of teaching. The OBE philosophy focuses on student-centered learning outcomes, involving a reverse planning process to ensure that all teaching activities are highly aligned with predetermined goals, thereby significantly promoting the comprehensive development and enhancement of students qualities and capabilities. Integrating the OBE philosophy into the pharmacology course for nursing majors in undergraduate institutions plays a crucial role in improving teaching quality and cultivating high-quality nursing professionals who possess both innovative thinking and practical skills.

2. Core Steps of OBE Concept

The OBE (Outcome-Based Education) philosophy, as a crucial direction in today's educational reform, emphasizes learning outcomes for students and achieves comprehensive improvement in educational quality through three key steps: reverse design, student-centered approach, and teaching evaluation. Below is a detailed explanation of the three core components of the OBE philosophy

2.1 Teaching Plan based on Reverse Design of Results

According to the outcomes, designing teaching plans in reverse is the primary step of the OBE philosophy, whose importance is evident. In such a clear step, educators must first establish the specific learning outcomes for students, which not only reflects the achievement of teaching objectives in the course but also mirrors the future growth trajectory and career needs of students. Based on these clear outcomes, educators need to reverse-engineer the process of planning teaching plans, from selecting and establishing teaching content, choosing appropriate teaching methods, to designing suitable teaching activities, each step should be strictly designed according to the learning outcomes. Through this meticulous process arrangement, the relevance and effectiveness of teaching activities are guaranteed, making students learning more purposeful and directed. By adopting the method of reverse teaching design, educators can more clearly guide the teaching path, and students will have a clearer understanding of their learning goals and achievement standards, thereby effectively enhancing their enthusiasm and autonomy in learning.

2.2 The Teaching Implementation Process with the Participation of Students as the Main Body

The core concept of OBE is the implementation of teaching courses with students as the main group. In this process, students are not merely passive recipients of knowledge but are transformed into active guides and explorers of knowledge. The role of faculty members also shifts to that of facilitators and supporters, employing a variety of innovative methods such as heuristic thinking, case studies, and active discussions to teach, fully stimulating students' enthusiasm for learning and their spirit of exploration. By introducing Problem-Based Learning (PBL) and Team-Based Learning (TBL), students are given more opportunities for autonomous and collaborative learning. These teaching strategies not only ignite students' deepening spirit of exploration but also hone their critical thinking skills, teamwork abilities, and problem-solving skills, laying a solid foundation for their all-round development.

2.3 Outcome-oriented Teaching Evaluation Mechanism

According to the outcomes-based teaching evaluation, the core testing and feedback system of OBE philosophy is implemented. In this process, the focus of evaluation is not limited to students' learning success but expands to encompass both the quality of their learning experiences and outcomes, utilizing diversified methods for assessment, such as writing course papers, conducting small-scale experiments, participating in various practical activities, organizing course-related competitions, etc. Through this comprehensive evaluation approach, educators can comprehensively assess whether students' knowledge understanding has depth, skill application has proficiency, and overall literacy has improved. This holistic evaluation method ensures the comprehensiveness and fairness of the assessment and provides valuable information for continuously optimizing course instruction. After evaluation, educators can quickly identify students' learning status and existing issues, thereby adjusting and refining teaching strategies and methods to enhance the quality of the course. Students can also clearly recognize their strengths and weaknesses from the feedback, thus clarifying their future learning paths and goals.

3. Strategies to Improve the Quality of Nursing Professional Pharmacology Classroom Teaching based on OBE Concept

3.1 Optimize Teaching Methods and Improve Teaching Effects

1. Use problem-oriented teaching to stimulate students' desire to explore

To deeply stimulate students' logical thinking and potential investigative thinking abilities, the course "Pharmacology" ingeniously integrates various dimensions and high-level question types in its teaching, such as case analysis questions, mechanism explanation questions, clinical decision simulation questions, etc. It meticulously examines and verifies students' precise mastery of core knowledge points in pharmacology, with a particular emphasis on guiding students to appropriately combine theoretical knowledge with clinical practice. Through deep analysis, logical reasoning, and comprehensive evaluation, it aims to enhance students' cognitive acuity and creative innovation capabilities comprehensively. For example, when discussing the mechanism of action of a complex drug (such as a novel anti-tumor drug) in depth, the course thoughtfully designs a variety of rich question types: case analysis questions reflect the application examples of the drug in specific patients, requiring students to analyze the pharmacological principles behind the therapeutic effects and potential individual differences; mechanism explanation questions require students to deeply explore the molecular mechanisms of action of the drug, including targets, signaling pathways, and potential interaction networks; clinical decision simulation questions simulate real clinical scenarios, enabling students to think about various factors such as drug efficacy, safety, and cost-effectiveness based on theoretical foundations. Above all, develop personalized and appropriate treatment plans and be able to explain the basis of decisions and possible challenges.

2. Integrate a variety of questions to exercise students thinking quality

It is hoped to comprehensively enhance students logical thinking and potential investigative thinking abilities, innovatively integrating diverse and challenging question types into the classroom teaching of the Pharmacology course, including but not limited to scenario simulation questions, case analysis questions, mechanism reasoning questions, and open-ended essay questions. These question types not only strictly test students mastery of pharmacology knowledge points but more importantly, they require students to flexibly apply their learned knowledge for in-depth analysis, logical reasoning, and comprehensive evaluation, thereby effectively cultivating students higher-order thinking qualities. Taking a complex drug from the Pharmacology course as an example, the following question types are designed to challenge students thinking abilities: Scenario simulation questions place students in real clinical decision-making environments, requiring them to formulate reasonable medication regimens based on patients specific conditions and drug characteristics, and explain their decision-making basis; Case analysis questions require students to deeply analyze a specific drug adverse reaction case, exploring its mechanism of occurrence, preventive measures, and management methods; Mechanism reasoning questions focus on the molecular mechanisms of drug action, requiring students to draw the signaling pathways of drug actions and predict potential side effects or drug interactions; Open-ended essay questions encourage students to combine the latest research advancements to comprehensively evaluate the drugs clinical application. The efficacy, safety, economy and future research direction of the use require them to put forward unique insights and argue their reasonableness

3. Assign homework and cultivate the ability of independent learning

To deeply cultivate students autonomous learning and lifelong learning abilities, we have meticulously designed challenging and exploratory post-class assignments after the completion of the Pharmacology course. These assignments aim not only to consolidate classroom learning but also to guide students to actively explore unknown fields through extensive literature collection, in-depth analytical thinking, and rigorous academic expression, thereby comprehensively enhancing their autonomous learning capabilities and information integration literacy. Taking the Pharmacology course as an example, we have assigned the following post-class tasks to each student: Students are required to select a newly marketed drug in recent years, independently research and summarize its pharmacological mechanisms of action, clinical trial data, indications, and potential adverse reactions, paying particular attention to the innovative points and advantages of the drug compared to traditional therapies; Students need to further analyze actual cases of the drugs clinical application, evaluate its efficacy, safety, and patient compliance, and attempt to propose improvement suggestions or future research directions; Students are encouraged to combine their learned pharmacological knowledge to write a review paper, systematically explaining the research progress, clinical application prospects, and existing challenges of the drug, while demonstrating their keen insight and critical thinking in the field of pharmacology.

3.2 Change the Teaching Implementation Strategy to Improve Students Learning Experience

1. Establish the subject status of students and stimulate their initiative in learning

The leaders in traditional culture education are teachers, and their level of traditional cultural literacy directly affects the quality of teaching. Therefore, educators should continuously improve their own traditional cultural literacy by participating in training and learning, reading works, and other methods to gain a deeper understanding and recognition of traditional culture. They should have the ability to integrate traditional culture with language teaching, innovate teaching methods and instructional approaches, and enhance teaching quality. The teaching of traditional culture should not be limited to the level of knowledge transmission but should also focus on emotional infiltration and value guidance.

2. Improve the use of new teaching methods to promote deep learning

Educators should appropriately guide students to establish correct values and inherit and promote the excellent qualities and spirits of Chinese traditional culture. Traditional evaluation systems tend

to focus more on the teaching and recognition of knowledge, thereby neglecting the examination of students comprehensive abilities and cultural literacy. In traditional cultural course instruction, educators should promote diversified evaluation mechanisms, paying attention not only to the outcomes of students learning but also adopting a variety of evaluation methods and appropriate criteria, such as participation in class, the quality of homework completion, and the seriousness of practical activities, to comprehensively and fairly assess students learning status, thereby stimulating their enthusiasm and motivation for learning.

4. Implementation Effect and Reflection

After such practical research, the strategies for improving the quality of pharmacology course teaching based on the OBE philosophy have achieved significant results. Students learning enthusiasm has been greatly enhanced, and their logical thinking, critical thinking, and adaptability have significantly improved; students initiative in learning and lifelong learning abilities have also been effectively cultivated. However, the implementation process was not smooth sailing, with some issues identified, such as a few students showing poor adaptability to new teaching methods and an increase in evaluation workload due to diversified teaching evaluation methods. In response to these issues, in-depth research and reflection were conducted, leading to the proposal of proactive improvement measures. It is necessary to strengthen guidance and training in learning to help students better adapt to new teaching methods; optimize the teaching evaluation process to improve efficiency; continue to actively explore and refine classroom teaching quality improvement strategies designed based on the OBE philosophy, with the aim of continuously enhancing teaching quality and cultivating students comprehensive qualities.

5. Conclusion and Outlook

In this paper, following the concept of OBE, it demonstrates the concrete and practical methods for improving the quality of pharmacology teaching in undergraduate nursing education in the classroom. Through measures such as excellent transformation of teaching and learning methods, changing teaching implementation strategies, and reforming and advancing teaching evaluation models, it has significantly enhanced students positive learning attitudes, dialectical thinking abilities, and autonomous learning capabilities. As a continuous process of transformation in teaching and learning methods, it is necessary to continuously explore and actively improve teaching strategies and evaluation models to adapt to the development of the times and the needs of students. Looking to the future, there should be a deepened focus on improving teaching processes in education, strengthening exchanges and cooperation with international advanced educational concepts, and continuously stimulating the innovation and vitality of undergraduate nursing education. Actively emphasizing the comprehensive improvement of students qualities, focusing on cultivating students innovative thinking and practical research capabilities, striving to nurture highly competent nursing professionals who are competitive internationally, thereby making outstanding contributions to the country.

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