

Research on Teaching Reform of Lamp Design Course under OBE Concept

Yang Xin

School of Fine Arts and Design, Huainan Normal University, Huainan, Anhui 232038

ABSTRACT

The teaching reform of lamp design courses under the OBE concept helps promote the development of students' results oriented design thinking, while improving the alignment between teaching content and industry demands. Teachers can introduce project-based methods to enhance students' practical skills and innovative thinking, implement interdisciplinary teaching strategies, and improve students' comprehensive design abilities. In addition, by establishing a continuous evaluation mechanism to ensure the synchronous improvement of teaching quality and learning effectiveness, it can effectively promote the innovative reform of lighting design course teaching under the OBE concept.

KEYWORDS

OBE concept; lamp design course; reform in education

1 Introduction

The OBE concept focuses on students' learning outcomes, promoting a shift in teaching mode from teacher led to student-centered, in order to cultivate outstanding talents who can meet the needs of social and industry development. In the lamp design course, students not only need to master professional design skills, but also have the ability to innovate and solve problems. This paper will explore the application of OBE concept in the teaching of lamp design courses, analyze the profound significance and implementation strategies of the reform. This aims to provide practical and feasible solutions and ideas for the educational reform of lighting design courses.

2 The Significance of Teaching Reform in the Lamp Design Course Under the OBE Concept

2.1 Promoting the Development of Students' Outcome Oriented Design Thinking

The core of OBE philosophy lies in emphasizing students' learning outcomes. This result oriented teaching method is of great significance for the reform of lamp design courses, especially in promoting the development of students' outcome oriented design thinking. Lamp design is not only a part of artistic creation, but also a technical activity to solve practical problems. Designers need to have excellent aesthetic abilities while considering the practicality and technicality of the product comprehensively. The adoption of OBE philosophy ensures continuous attention to the practicality and innovation of design outcomes in the teaching process, enabling students to clarify their goals and outcomes, and thus develop goal oriented thinking in design activities. This greatly enhances the ability to solve complex design problems. [1] In addition, the OBE concept encourages

teachers to comprehensively rethink and design the curriculum structure and teaching content, adjusting around established learning outcomes. After the curriculum adjustment, there is a greater focus on cultivating students' key abilities, such as creative thinking, technological implementation, and market adaptability. The introduction of case analysis, project practice, and team collaboration in the classroom aims to help students combine theoretical knowledge with practical operation through practical teaching, thereby cultivating results oriented design thinking. Meanwhile, the evaluation method under the OBE concept is significantly different from the traditional teacher led grading system. Evaluation design focuses more on students' design process and final results, rather than just process performance or final exam scores. This evaluation method encourages students to continuously optimize their design plans during the learning process, emphasizing the sustainable development and practical application ability of the results. These are important skills emphasized by the lamp design profession.

2.2 Improving the Alignment Between Teaching Content and Industry Demands

Deepening the application of OBE concept in lighting design courses can significantly improve the alignment between teaching content and industry demands. The rapid changes in the field of lighting design require teachers to constantly update course content to ensure consistency with new technologies and market demands. In this context, the OBE concept has become a key strategy to ensure the close integration of educational output and vocational practice. The OBE philosophy emphasizes aligning learning outcomes with industry standards and professional requirements. In the process of reforming the lamp design course, teachers identify key skills and knowledge points recognized in the industry and transform them into learning objectives for the course. For example, with the rise of smart home and sustainable design trends, key elements in these fields have been incorporated into students' core learning objectives, enabling them to apply what they have learned and directly solve practical problems in their work after graduation. In addition, the OBE philosophy encourages teachers to adopt teaching methods that are closer to the actual work environment, such as case analysis, internship projects, and collaboration with industry experts. This provides students with practical opportunities to test and improve their design solutions in a real workplace environment, deepening their understanding of industry needs. The transformation of this teaching method is based on a deep understanding of students' learning outcomes, making educational content not limited to theoretical teaching, but more focused on the cultivation of practical skills. At the same time, the continuous evaluation and feedback mechanism under the OBE concept provides important support for closely aligning teaching content with industry needs. Through continuous evaluation of student design projects, teachers can adjust teaching strategies in a timely manner, solve problems encountered by students in design practice, and continuously optimize course content based on industry feedback. [2]

3 Teaching Reform Strategies for Lamp Design Course under OBE Concept

3.1 Introducing Project Driven Methods, to Promote the Improvement of Students' Practical Operation Ability and Innovative Thinking

In the lamp design course that introduces the OBE concept, teachers can significantly enhance students' practical operation ability and innovative thinking through project-based methods. Project driven learning (PBL) is not only a teaching tool, but also a strategy that places students in real-world problem-solving scenarios, particularly suitable for disciplines that require high levels of applicability and innovation, such as lamp design. The core of this method is to involve students

throughout the planning, execution, and evaluation of the project, delving into every aspect of lighting design. Under this strategy, teachers transform into mentors and coordinators, no longer transmitting information unilaterally, but guiding and assisting students in solving problems. Teachers need to design project themes that meet industry standards, covering the entire process of market research, preliminary design concepts, final product production, and testing. [3] For example, teachers can set up projects around the theme of "sustainable lamp design", requiring students to comprehensively consider multiple aspects such as using the latest environmentally friendly materials, energy-saving technologies, innovative design concepts, and market feasibility analysis. At the beginning of the project, students need to conduct extensive market and technical research to ensure the innovation and practicality of the design. During the project execution phase, students carry out specific operations based on the design proposal, including drawing, modeling, and prototyping. Teachers provide necessary technical support at this stage, such as advanced manufacturing technologies such as 3D printing and laser cutting, while conducting regular reviews and feedback to help students adjust designs and optimize results in a timely manner. In the final stage of the project, teachers should organize a public presentation of students' achievements and invite industry experts for evaluation. This provides students with professional feedback, enhances the practical significance of learning, and comprehensively evaluates their ability to apply the knowledge and skills they have learned.

3.2 Implementing Interdisciplinary Teaching Strategies, to Enhance Students' Comprehensive Design Abilities

Guided by the OBE philosophy, teachers should deeply explore the potential of interdisciplinary teaching to comprehensively enhance students' comprehensive design abilities. By integrating knowledge and skills from multiple disciplines, teachers can significantly promote students' comprehensive thinking and problem-solving abilities in the design process. When planning lamp design courses, teachers need to integrate knowledge from multiple fields such as design, engineering, physics, environmental science, and marketing. Lamp design is not limited to aesthetics and creativity, but also involves fundamental knowledge of materials science, electrical engineering, and consideration of environmental impact. Integrating the basic concepts and cutting-edge theories of these disciplines into the curriculum can help students comprehensively evaluate their functionality, aesthetics, sustainability, and market competitiveness when designing lamp fixtures. In addition, projects designed by teachers should allow students to play different roles, such as designers, engineers, and market analysts. Every student needs to start from their own perspective, understand the importance of perspectives from other disciplines, enhance their communication and collaboration abilities, and experience the power of interdisciplinary integration in practice. [4]

3.3 Establishing a Continuous Evaluation Mechanism, to Ensure Synchronous Improvement of Teaching Quality and Learning Effectiveness

Under the guidance of OBE philosophy, teachers should introduce a continuous evaluation mechanism in lamp design courses. This mechanism is not limited to outcome evaluation at the end of the course, but runs through all aspects of the learning process to ensure that teaching activities are consistent with established learning outcomes. The first step in continuous evaluation is to have clear and quantifiable learning outcomes. In the lamp design course, this not only includes mastering technical skills such as design principles, materials science, and electronics, but also covers comprehensive abilities such as innovative thinking, teamwork, and project management.

Teachers need to establish specific evaluation criteria and methods, such as project presentations, work reviews, team performance observations, and practical operational assessments. At the same time, diverse assessment tools should be used to collect relevant data on students' learning progress, including self-assessment, peer review, teacher observation, and real-time feedback systems. For example, in a semester project, students undergo peer review for the first time after the design concept stage, undergo formal evaluation by teachers in the middle stage, and are evaluated by industry experts at the end of the project. Through this approach, students can timely understand their strengths and weaknesses in the design process, thereby continuously optimizing the design. [5]

4 Conclusion

The application of OBE concept in the teaching reform of lighting design courses has significantly improved teaching effectiveness and effectively adapted to the evolving needs of society and industry. Teachers need to continuously adjust their teaching content, strategies, and evaluation methods to ensure that teaching outcomes can be effectively transformed into students' key abilities. Looking ahead to the future, the teaching reform of lighting design courses should further deepen the application of OBE concepts, develop more adaptive strategies, cultivate lighting design talents with solid professional knowledge and innovative abilities, and contribute to the sustainable development of the design industry and society.

Funding

School-level Quality Engineering of Huainan Normal University in 2022, blended online and offline course "Light Shape Design" (Project Number: 2022hskc35); Anhui Province "Cultural Masters in Jianghuai Region" Cultivation Project in 2022

About the Author

Xin Yang (1989.06-), male, Han People; Huainan City, Anhui Province; a master's degree, a lecturer, the Product Design Department of the School of Fine Arts and Design, Huainan Normal University; research direction: lamp design, product design

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