

Original Paper

Application of BOPPPS Collaborative Case Teaching Method in Construction Law Classroom Instruction

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Abstract

This study focuses on students majoring in Engineering Management and explores the teaching model of the BOPPPS Collaborative Case Teaching Method in the Construction Law course. The research involves reforming the teaching model, introducing construction law cases, utilizing online platforms, and improving evaluation methods. The aim is to “activate” the classroom, shifting from traditional teaching to guided learning, achieving a synchronous resonance between teaching and learning. This approach intends to provide students with the time and space to enhance their ability to explore new knowledge and analyze and solve problems. It also seeks to improve students’ awareness of engineering and law, cultivate their innovative abilities, and contribute positively to enhancing the quality of talent cultivation in higher education institutions.

Keywords

BOPPPS Teaching Method, Case Teaching Method, Construction Law

Case-Based Learning (CBL) is designed based on the principles of Problem-Based Learning (PBL). This teaching method is problem-oriented, grounded in typical cases, centered on analysis and discussion, and aims to solve practical problems. It enhances critical thinking skills and emphasizes the application of knowledge in real-world contexts.

The BOPPPS teaching model is a new educational approach that is goal-oriented and student-centered. It includes six teaching components: Bridge (B), Objectives (O), Pre-assessment (P), Participatory Learning (P), Post-assessment (P), and Summary (S). Designed according to students’ cognitive curves, this model focuses on student engagement throughout the teaching process, reflecting the educational philosophy of being student-centered while maintaining teacher leadership.

1. Current Status of Construction Law Course Teaching

The Construction Law course is a foundational subject for the Engineering Management major in the College of Civil Engineering. It possesses strong professionalism, theoretical depth, and practical relevance. This course plays a crucial role in enhancing students' abilities to analyze and solve practical legal issues that arise during the construction process. It provides strong support for cultivating high-level engineering construction talents who possess technical skills in engineering construction, legal thinking in construction, and an awareness of engineering ethics.

The current curriculum system primarily adopts a passive learning model dominated by teacher lectures, with a single evaluation method. Additionally, the Construction Law course contains numerous legal provisions, which inevitably leads to a rote teaching approach during the course. This directly results in insufficient interaction between teachers and students, unclear learning objectives for students, low classroom participation, weak initiative in learning, and inadequate understanding of legal provisions. Consequently, these issues prevent the course from achieving the desired teaching outcomes.

Therefore, it is necessary to explore a scientifically sound and rational teaching model and evaluation method. Research should focus on student-centered teaching approaches that enhance students' autonomous learning abilities, improve evaluation methods, and promote the comprehensive development of students' overall capabilities.

This study focuses on students in the Engineering Management major and employs the BOPPPS model in conjunction with case-based teaching methods to reform and practice the Construction Law course.

2. Exploration of Teaching Reform in the Construction Law Course

Based on the BOPPPS model combined with case-based teaching methods, the Construction Law course system breaks through the boundaries of traditional teaching methods and thinking. It explores various aspects, including teaching models, teaching content, and course evaluation methods, through multi-faceted collaboration and diverse perspectives.

2.1 Establishing a New Teaching Model Based on the BOPPPS Combined Case Teaching Method

Based on the characteristics and teaching needs of the Construction Law course, modern teaching methods are applied appropriately to develop highly impactful multimedia courseware. The BOPPPS combined case teaching method is utilized in the classroom teaching model, where the teaching content is case-based and reasonably distributed across the six components of BOPPPS. A flipped classroom approach is employed in teaching to continually enhance students' independent learning abilities.

2.2 Optimizing the Course Teaching System and Restructuring Teaching Content with a Focus on Construction-related Professional Qualification Examinations

The BOPPPS combined case teaching method is integrated into the teaching of "Construction Law" to establish a horizontal knowledge pathway. This involves case-based and modular teaching content, integrating the curriculum, and logically arranging the chapter sequence. A new interactive learning

system is created that is teacher-led, student-centered, reliant on engineering construction legal cases, and supported by modern information technology, thereby enhancing students' self-learning abilities. Based on the application-oriented talent training model, instructors continuously adjust teaching content and methods according to students' understanding, learning progress, and acceptance abilities using the BOPPPS teaching model. Analytical and application abilities are reflected in the teaching design, making effective use of construction law cases to deepen students' understanding of the course and cultivate their legal reasoning and awareness of engineering ethics.

Students in engineering management will take professional qualification examinations, such as the Registered Constructor examination, after employment. Construction Law is a mandatory subject for these examinations. Therefore, teachers can expand the teaching content by integrating the syllabi and textbooks of these professional qualification exams. In the pre-assessment phase, past examination questions for the constructor licensing exams can be used to assess students' knowledge retention. This also allows students to familiarize themselves with the examination format and key content in advance. By combining this with professional examinations, it increases students' emphasis on the course, thereby enhancing their motivation to learn.

2.3 Establishing a Diversified Evaluation System Focused on Process and Independent Learning Abilities

Changing the single evaluation model, a process-oriented and competency-based evaluation system is constructed, focusing on assessing students' independent learning abilities and their capacity to analyze and solve practical legal problems in engineering.

The evaluation of students' individual performance is calculated as follows: final exam 50% + group case analysis 20% + unit tests 10% + classroom participation 10% + completion of tasks on the online platform 10%.

The final exam format is diversified, transitioning from a single final exam to a variety of assessment methods, including case analysis practical reports, classroom presentations, and scenario performances. In group case analysis, students are randomly grouped by the online platform. Each group selects a topic and prepares a PowerPoint presentation to report their findings. This aims to assess students' abilities in literature research, information integration, language expression, and proficiency in using PowerPoint software, comprehensively evaluating their application of construction law in engineering practice. The case analysis score consists of multiple evaluations: teacher assessment, inter-group evaluations, peer evaluations within the group, and self-assessments.

Scenario performances primarily involve students engaging in role-playing to conduct extensive discussions on legal issues related to construction projects, followed by classroom presentations. This assesses students' understanding of relevant legal provisions, as well as their abilities in legal analysis, problem-solving in engineering practice, and teamwork.

An examination question bank is built on an online platform, from which exam papers are randomly generated during testing, achieving a separation between teaching and assessment. This allows for dynamic control of students' academic processes and establishes a monitoring-assessment-feedback mechanism to promptly correct deviations in the teaching and learning process, thereby promoting teaching and learning through assessments.

Through this evaluation system, deficiencies in classroom teaching and textbooks can be supplemented, enabling a comprehensive and multifaceted understanding of students' learning processes and outcomes, while reinforcing effective monitoring of students' independent learning.

2.4 Establishing a Comprehensive Online Teaching Platform Resource

The online teaching platform resources for each session will include modules such as course case introductions, key knowledge points, video learning, in-class exercises, and extended reading. A complete database will be created, including a case library, question bank, lesson plan repository, and courseware library. This will accumulate practical case studies from construction projects, standard texts for construction contracts, and judicial interpretations of construction contracts to enrich the teaching content. Additionally, statistical results from the online teaching platform resources will be used to evaluate the effectiveness of the research model for this topic.

3. Evaluation of Teaching Effectiveness

Through surveys, the evaluation of classroom teaching effectiveness is conducted from various aspects, including students' interest in participating in classes, improvement in learning efficiency, mastery of knowledge points, ability to analyze and solve problems, communication and expression skills, and satisfaction with the teaching methods. The results indicate that after adopting the joint teaching method, students exhibited a strong interest in learning, a high level of knowledge mastery, and a high satisfaction rate with this teaching approach. Data collected from the online platform, based on participatory learning and post-test phases, reveal that this method allows students to visualize and memorize dull theoretical knowledge while flexibly applying knowledge points to analyze and resolve issues in case studies.

4. Conclusion

The BOPPPS joint case teaching method innovates the classroom structure of the construction regulations course, resulting in a more reasonable allocation of classroom time and clearer teaching objectives. The teaching process is entirely student-centered, making the classroom "come alive" and enhancing students' mastery of knowledge.

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