

# Research on the Innovation of Construction Engineering Cost Course based on OBE Concept

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**Keywords:** construction engineering; cost course; OBE concept

**Abstract:** With the continuous improvement of international engineering quality requirements, OBE concept has become an important method in construction engineering, which has been widely used in the teaching reform of cost course. Based on the OBE concept, curriculum innovation will advocate novel teaching methods and evaluation concepts, which is a "student-centered" education concept. Through the integration and innovation of OBE concept, we will complete the teaching reform of engineering cost course, which will provide better applied talents for the society. First of all, this paper analyzes the necessity of OBE concept to the teaching of engineering cost course. Then, this paper puts forward some questions. Finally, some suggestions are put forward.

## 1. Introduction

OBE is the abbreviation of outbound based education, which first appeared in the American basic education reform in the 1980s and early 1990s. OBE is a kind of education mode around the realization of students' specific learning output, which will realize students' learning output. Therefore, OBE plays an important role in education and curriculum reform. Through the OBE concept, we can expect students' learning output, which will become the center of organizing, implementing and evaluating educational activities. According to the concept of OBE, we should follow the principle of "retrospective design", which will become the design of teaching system. OBE based curriculum design can follow the following steps, for example, first, to define the expected learning output. Second, achieve the expected learning output. Third, evaluate learning output. Students' expected learning output is the teaching goal, which will become the teaching content, curriculum, teaching organization, etc., which will achieve the teaching goal.

## 2. The Necessity of OBE Concept for the Teaching on Engineering Cost Course

OBE concept is a student-centered teaching method, which will be very important for the teaching of engineering cost course, as shown in Figure 1.

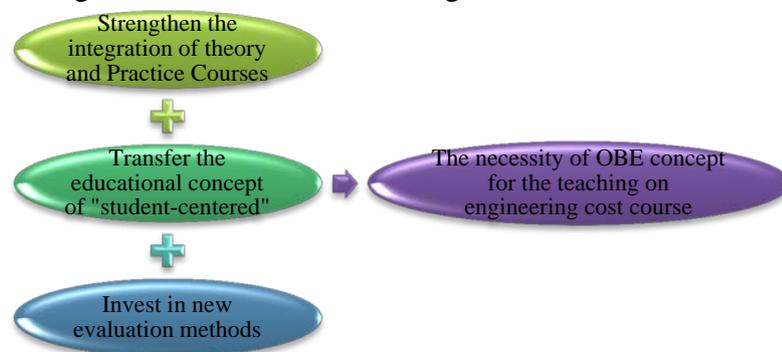


Figure 1: The necessity of OBE concept for the teaching on engineering cost course

### 2.1 Strengthen the integration of theory and Practice Courses

At present, the students of engineering cost in our country generally lack the ability of engineering practice, which is the result of the serious disconnection between the theoretical course

and the practical link. Therefore, colleges and universities should pay attention to the integration of theory and practice courses, which makes the traditional teaching mode not suitable for the current teaching system. Long term theoretical instillation has affected students' ability of innovative thinking, which has seriously affected students' ability of engineering practice. By integrating the OBE concept, the course of engineering cost will be greatly reformed, which will break the driving force of traditional examination. Therefore, students will learn better, which will change the rigid infusion of theoretical knowledge. Therefore, the OBE concept will strengthen the integration of theory and practice courses, which can better change the application of inquiry teaching mode. Through the OBE concept, we can better train students' innovative thinking, which will realize the combination of theory and practice teaching.

## **2.2 Deliver the education concept of "student-centered"**

Influenced by the traditional education concept, most of the construction engineering cost courses in China are "Teacher centered" teaching mode, which is a learning process led by teachers. The traditional teaching mode has seriously restricted students' autonomous learning ability, which will lead to students' lack of reverse innovative thinking. By integrating the OBE concept, the teaching of construction engineering cost course will be fundamentally reformed, which will change the traditional teaching mode. Students will change from passive learning to active learning. However, teacher led learning will be transformed into students' autonomous learning, which will realize students' attention to the process of self-learning. Through the OBE concept, we will deliver the "student-centered" education concept, which will improve students' comprehensive ability, such as engineering practice ability, innovation practice ability, independent learning ability, etc.

## **2.3 Input new evaluation methods**

At present, the evaluation of students' learning effect is still a single test, which is the main means of effect evaluation. At this stage, colleges and universities will quantify many of the main criteria for excellence, such as theoretical course results, scientific research results, school activities, etc., which will lead students to pay too much attention to academic performance. Therefore, many college students ignore the engineering ability of construction cost, which will affect the improvement of students' comprehensive ability. Through the integration of OBE concept, the teaching reform of construction engineering cost course will break the traditional mode. Through the novel evaluation method, colleges and universities will evaluate each student's learning status, which will form a teaching action containing the spirit of criticism, innovation and exploration. The teaching reform based on OBE has broken the traditional single evaluation method of "taking achievement as the core", which will be in line with the stage evaluation of students' learning status. Therefore, this new evaluation method will be more fair and reasonable.

## **3. Problems in the Course of Construction Cost**

A total of 1000 questionnaires were issued, and 983 questionnaires were valid, with an effective rate of 98.3%. The specific analysis is as follows.

### **3.1 Lack of Practical Ability**

Many engineering colleges have begun to realize the importance of general education, which leads to the gradual diversification of curriculum. However, the curriculum structure of some universities is still more important than engineering basic knowledge, which will be difficult to cultivate students' practical ability. According to the survey results, the main problem is lacking of practical teaching, accounting for 77.6%. The second is separation of theory and practice, accounting for 62.5%. Details are shown in Figure 2.

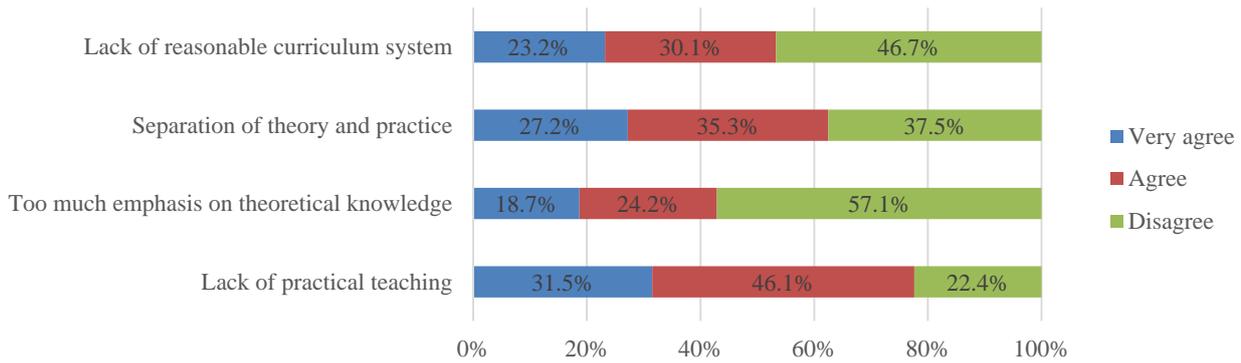


Figure 2: Lack of practical ability

### 3.2 The teaching method neglects the development of students' personality

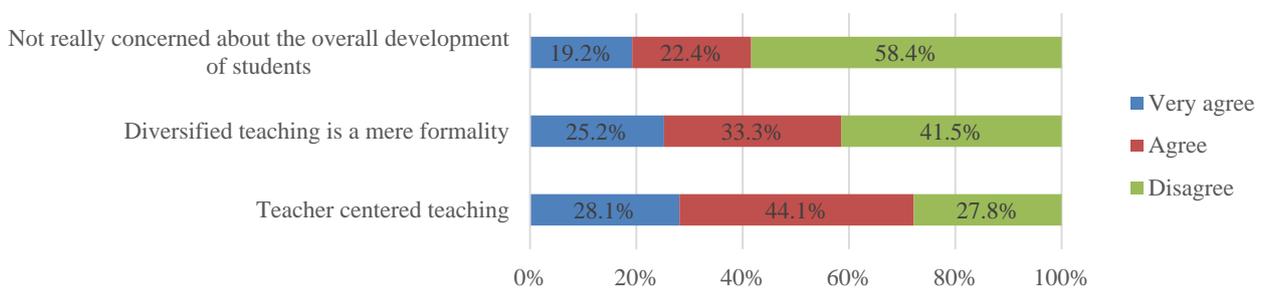


Figure 3: The teaching method neglects the development of students' personality

The teaching methods of some colleges and universities are developing in the direction of diversification, and many kinds of teaching methods will appear in the course of engineering cost, such as situational case teaching, group discussion and analysis, project practice teaching, lecture report, etc. However, the traditional teaching method is still the most important teaching method, which is difficult to reflect the personalized development of students. According to the survey results, the main problem is teacher centered teaching, accounting for 72.2%. The second is diversified teaching is a mere formality, accounting for 68.5%. Details are shown in Figure 3.

## 4. Suggestions for the Course of Engineering Cost Based on OBE

### 4.1 Enhance the practicality of engineering cost Teaching

By optimizing the content of teaching theory, we can enhance the practicality of teaching. Through the practical operation of students, we can verify the solid level of theoretical learning, which will improve the practical ability of students' construction cost, such as process, method, evaluation, etc. Through more contact with practical work, students can improve their practical ability, which will help them to solve various problems and situations. Through practical teaching, we can strengthen the application and operation of cost software for students, which will enhance their learning enthusiasm and subjective initiative.

### 4.2 Improvement of teaching mode

The course of construction engineering cost has a strong theoretical nature, which can easily reduce students' enthusiasm for learning. By improving the teaching mode, we can improve the efficiency of classroom teaching. Therefore, in the construction of curriculum reform, teachers should deeply realize the importance of teaching methods, which can improve the new teaching methods. Through situational teaching method, we can improve the application of computer teaching mode. For example, teachers can set up a certain engineering enterprise situation. By

playing different roles, students will give a reasonable project cost plan. By improving the teaching mode, the construction cost course will be student-centered, which will stimulate students' interest in learning and attract students' attention. By improving the teaching mode, the course of construction cost will be improved, which will enhance the teaching efficiency.

## **Conclusions**

With the development of construction market, the demand of construction industry is constantly changing. Therefore, results oriented education is a process of continuous improvement. The OBE based course of construction engineering cost can continuously improve the training objectives, which will ensure the conformity of internal and external needs and continue to optimize the course system. Before carrying out teaching activities, we must make clear the contribution of the course and its teaching activities, which is the prerequisite for making teaching plans. In the OBE mode, students will become the center of teaching activities, which can realize the transformation of education paradigm, which is from "content-based" to "student-based".

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