

# Analysis on the Methods of Improving Teaching Quality Based on OBE Concept

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**Abstract:** Based on the outcome oriented education theory (OBE), this paper carries out the reform of the teaching status of the course “Fundamentals of Programming”, and optimizes and improves the teaching quality of the course through the arrangement of teaching practice. The purpose of this paper is to provide reference for the sustainable application of results oriented education theory in higher education curriculum reform.

**Keywords:** OBE Concept; Course Teaching Quality; Optimization and Improvement Method

“Fundamentals of Programming” is one of the most important basic courses for engineering majors in colleges and universities. Generally, C is selected as the programming language, which is the basis for learning other programming languages. To carry out high-quality teaching of “Fundamentals of Programming” is the fundamental of engineering talents training, and it is also an important way to cultivate students’ computer system design practice and application ability. However, C language has the dual characteristics of writing the underlying operating system software and developing the application software in various fields. There are many abstract concepts and theoretical knowledge in C language itself. Therefore, many college students show fear of difficulties when learning the course of “Fundamentals of Programming”. In addition, the teaching concept adopted in the teaching practice of programming course is relatively simple, and the inflexible teaching means and other factors lead to the poor teaching quality of the course. Therefore, it is urgent to explore a new teaching concept and improve the teaching quality of the course “Fundamentals of Programming” with the help of new teaching methods<sup>[1]</sup>.

## 1. Overview of OBE concept

### 1.1 Connotation of OBE concept

OBE concept refers to the educational concept of “student-centered and achievement oriented”. It refers to the educational and teaching activities in the teaching system to achieve the specific learning output of students according to the actual situation of students. Under the guidance of OBE concept, education and teaching activities will pay more attention to students’ learning effect, and reverse design students’ learning process by determining their learning achievement goals in advance, so as to ensure that every learner can achieve learning objectives. According to the connotation of OBE teaching concept, it is of great significance to improve the quality of curriculum teaching<sup>[2]</sup>.

### 1.2 Implementation characteristics of OBE concept

Through the in-depth analysis of OBE concept, OBE teaching concept is to adhere to the student-centered teaching mode. The implementation of OBE teaching concept in teaching practice, on the one hand, can emphasize the consistency between talent training objectives and market demand for talents. In the process of running higher education, the major challenge is the

contradiction between the talent training goal and the actual market demand. The OBE concept, which attaches importance to the practicality of education, takes learning achievements as the starting point and belonging point of training activities in personnel training, so that the trained talents can better adapt to the needs of market development. On the other hand, OBE education concept pays more attention to build a comprehensive curriculum system. Under the traditional education concept, there is the development status of curriculum and curriculum isolated from each other. However, in the present situation of multi-disciplinary comprehensive development of higher education, this kind of isolation teaching situation leads to students' low comprehensive practical application ability, weak innovation and creativity ability, and can not achieve the quality goal of discipline teaching. Under the concept of OBE, it emphasizes the ability standard, pays attention to students' understanding and application of knowledge, and encourages students to use the knowledge they have learned to solve practical problems in life. Therefore, the teaching quality of courses based on OBE concept can be effectively improved, which is worthy of wide promotion in various disciplines education.

## **2. The current situation of the teaching of the course “Fundamentals of Programming”**

### **2.1 Characteristics of the course “Fundamentals of Programming”**

The learning content of C language is the basic knowledge of object-oriented programming language in the future, and it is an important course for computer software system learning. However, the theoretical concepts of C language itself are abstract and complex in programming practice learning. In teaching practice, if students want to master the basic knowledge and practical ability of programming, they must be able to give full play to the initiative of students, and improve their c programming ability by seeing more, thinking more, learning more and practicing more. At the same time, teachers should be able to play their own professional quality in teaching, and adopt teaching language and teaching methods that are popular with students to stimulate students' initiative and creativity.

### **2.2 The current situation of the teaching quality of the course “Fundamentals of Programming”**

It can be said that in the current undergraduate education, higher requirements and goals are put forward for the teaching of “Fundamentals of Programming”. However, in fact, in teaching practice, whether it is teachers, students, curriculum teaching material system, or the teaching management methods adopted by the school, are not conducive to the realization of the teaching objectives of the course in the new era. For example, students passively learn the theoretical knowledge of C language, mechanically carry out programming exercises under the pressure of teachers' usual scores, and complete homework, but they often do not know how to program in the exam. Therefore, on the whole, the teaching efficiency and the teaching quality are low.

## **3. The channel of improving teaching quality based on OBE concept**

### **3.1 Establishing the teaching concept of taking students as the main body, and reconstructing the course objective of “Fundamentals of Programming”**

First, we should set up the teaching concept of taking students as the main body, and stimulate students' learning initiative. Under the influence of the traditional teaching concept, students' initiative and creativity in the study and exploration of the course of “Fundamentals of Programming” are not high. They only carry out learning practice activities under the guidance of teachers, and the teaching quality of the whole course is poor. Under the teaching concept of “I am asked to learn”, students learn passively and can't adapt to the ability requirements of new engineering professional posts. As a result, the basic knowledge, comprehensive application ability and innovation creativity of undergraduates trained in colleges and universities are not strong. Under the guidance of OBE concept, the teaching activities of the course can be transformed into student-centered, and teachers can guide students from “I am asked to learn” to “I want to learn”, so that students can get personalized development and better promote the cultivation of students' innovation and creativity. For example, teachers can use the results oriented teaching concept to carry out the curriculum planning design, starting from the students' learning ability, and effectively improve the students' learning effect.

Second, we should set up a talent training program with the goal of demand to cultivate high-quality applied talents. Under the traditional teaching concept, the theory and practice teaching of the course of “Fundamentals of Programming” are separated from each other. Students' practical application ability is not high, which leads to students' inability to better cope

with market challenges. Under the concept of OBE, the course teaching activities begin to meet the needs of the market, and face the needs of the enterprise's actual post knowledge system, skills and comprehensive quality, and then in turn, guided by these objectives, we can carry out teaching guidance and cultivate high-quality application-oriented talents.

### 3.2 Innovation of curriculum teaching system based on the goal of curriculum training results

Under the guidance of OBE concept, the course of "Fundamentals of Programming" has achieved transformation and upgrading in the process of teaching plan, teaching implementation and teaching evaluation.

First, the formulation of curriculum teaching system is more direct and effective. The formulation of curriculum teaching plan directly affects the realization of teaching achievements. At present, under the guidance of OBE concept, the course of "Fundamentals of Programming" requires students to master the basic theoretical concepts of C language, and be able to carry out simple computer software programming applications with the help of C language. Therefore, in the course design, the proportion distribution of theoretical courses and practical courses is more reasonable and effective. For example, most majors have realized the 1: 1 arrangement of theoretical and practical courses to ensure that students can have enough opportunities to explore the theoretical knowledge of C language programming.

Second, the curriculum teaching activities are more diversified. In the teaching activities, in order to achieve the above goal of teaching results, teachers use various new teaching methods to carry out the theoretical and practical teaching of the course. For example, using the problem-oriented method to guide students to think about various theoretical knowledge of C language, help students sort out the complex and abstract theoretical concepts; using the case teaching method to show the classic C language program to students, and stimulating students' interest in learning; using the discussion teaching method to let students play the initiative in brainstorming and collide with the sparks of ideas; by project-based participatory teaching means, students can participate in the specific practical application to improve the practical ability.

Third, the curriculum teaching evaluation is more diversified. Teaching quality can only be reflected by a certain teaching quality evaluation system. At present, under the guidance of OBE concept, the curriculum teaching evaluation system presents a multi-body, multi-dimensional development. For example, we should establish a student evaluation system so that students can complete the evaluation of the design effect of the whole teaching process of teachers, establish a peer evaluation system so that peer teachers can complete the evaluation of the teaching process by listening to the class, and establish a supervision and listening system to let the teaching supervision group complete the evaluation of the teaching form of teachers. Through these diversified evaluation systems, teachers can optimize and upgrade the teaching process. At the same time, we can also introduce the engineering professional certification, so that the certification standards can be developed in practice and application in the professional curriculum teaching.

## 4. Conclusion

To sum up, the teaching practice of the course "Fundamentals of Programming" is faced with the problems of low learning initiative, boring and complicated curriculum system, and low creativity of teaching innovation. Based on the OBE concept, it realizes the student-centered teaching mode, and launches a series of teaching process based on the specific learning output of students. It can be said that the OBE concept is feasible and necessary in the process of improving the teaching quality of the course. At present, under the guidance of OBE concept, the whole process of curriculum teaching activities in colleges and universities has achieved optimization and innovation from teaching concept, curriculum system design to curriculum evaluation activities. The existing curriculum teaching activities have been continuously optimized, and the teaching quality has been effectively improved by using innovative teaching ideas and various teaching methods. Therefore, the OBE teaching concept is worth promoting in the application-oriented colleges and universities.

## References

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