

Reform and Exploration on Teaching of Java Programming Course Based on The Concept of OBE

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Abstract: The Java programming course is a professional basic course for computer majors. This course has problems such as unclear teaching objectives, outdated teaching models, and single course evaluation models. In order to change a series of problems caused by traditional education methods, the OBE education concept is introduced into the teaching of Java programming courses, with results as the guide and students as the center, using the OBE concept to formulate teaching goals, refine the course goals, and adopt online and offline methods. The reform of the blended teaching model, the strengthening of school - enterprise cooperation, and the adoption of a diversified curriculum evaluation system. It is found in practice that the teaching concept based on OBE can improve students' learning effect and engineering practice ability.

Keywords: Java programming, Teaching objectives, OBE concept, Course evaluation system.

1. Introduction

OBE (Outcome Based Education) is an outcome - oriented teaching concept, through the reverse course design based on the expected learning outcomes of students [1], to determine the teaching goals of the course, and to carry out corresponding teaching activities, so as to better ensure that the course goals and the Consistency of educational outcomes. The introduction of OBE concept in Java programming course will help to better promote course reform, improve teaching quality, improve students' ability to solve practical engineering projects [2], and narrow the gap between graduates and enterprises' employment standards.

2. Teaching Problems Existing in the Course of "Java Programming"

Java programming is a professional basic course for software engineering majors, and an important course to support the training goals of software engineering professionals. The Java programming language is also one of the most popular languages at present, ranking among the top 3 in various programming language rankings [3]. With the continuous deepening of teaching reform and the country's requirements for improving the quality of personnel training, the traditional teaching model has been unable to meet the needs of high - quality personnel training [4]. At present, the main problems existing in Java programming courses are:

2.1. The goal of talent training is not connected with the enterprise

Although the curriculum has formulated a talent training plan, it has not been matched with the needs of the enterprise. Although the students also learned the relevant knowledge of the professional courses, they did not design the corresponding curriculum system for different positions, which caused the talents to be trained not to correspond to the actual needs of the enterprise, and the students did not know much about the learning objectives of the courses, resulting in low enthusiasm for learning.

2.2. The old teaching mode

The traditional Java programming classroom mostly adopts the teacher-centered educational concept. In the teaching process, the teacher mainly explains the knowledge points, and the students listen below. This teaching method cannot improve students' project practice ability for practical courses. In addition, due to the limited class hours, teachers and students cannot interact well in the classroom, which leads to low enthusiasm for students to learn and cannot help students achieve learning results.

2.3. Single course evaluation system

The traditional curriculum evaluation system mostly uses usual grades+final exams to evaluate students. This evaluation method has a large proportion of final scores. Because the final exams mainly examine students memory ability and test ability, students' independent learning and project practical ability cannot be examined. And this evaluation method is one-way. It does not reflect students' evaluation of the teacher's teaching mode. The lack of this evaluation model is not conducive to the improvement of the teacher's teaching ability, and at the same time, it cannot better improve the teaching effect.

3. Teaching Reform of Java Programming Courses Based on OBE Concept

3.1. Clear and refine course goals

The determination of the training goals should be formulated according to the positioning of the school and the actual needs of the enterprise, and then the graduation requirements are determined by the training goals. The course goal is carried out around the requirements of graduation. Curriculum goals can meet the needs of enterprises for talents. The achievement of the course goal should be determined by the actual learning effect of the student, focusing on the cultivation of students' knowledge and engineering practical ability. According to corporate needs and cultivation goals, the course goals designed by Java programs are refined into the following aspects:

1. Understand and master the Java grammar rules, the basic theory, main principles and thinking methods for object-oriented programming, the development and design of the Java graphics interface program, JDBC-based database application, Java multi-threaded program design, Java network application design and other content Essence

2. With Java encoding and debugging capabilities, it can develop small desktop applications based on window design, event programming and object-oriented programming ideas, as well as multi-threaded network applications.

3. Improve the ability to analyze and solve problems; develop good modeling and follow the habits of engineering norms; develop a down-to-earth and excellence style; cultivate the quality of teamwork and dedication.

4. Make task decomposition according to the development needs of the project, determine the specific tasks of each group member, coordinate the docking of functional modules between members of the group, and cultivate team members to assist the consciousness between the team members.

3.2. Adopt the teaching mode of mixed online and online mixed

Under the traditional offline teaching mode, the classroom is mainly the teacher's explanation of knowledge, and students are only passively accepting knowledge. This teaching model can produce a better learning effect for students with high enthusiasm for learning, but for students with low enthusiasm students In this way, this teaching model cannot produce good teaching effects. However, if you use offline mixed teaching mode [5], students will not be limited by time and space. At the same time, teachers can also use rich teaching resources to carry out a variety of teaching activities to enhance the teaching effect of classrooms. The Java program design adopts the online mixed teaching mode. It is mainly divided into three stages, which are before, class and after-class [6]. Teachers will use the learning platform to build curriculum resources according to the course target construction. First, they must first create courses in learning through the course, then create the corresponding charter of the curriculum, and then recruit teaching videos on the corresponding chapter records, and set up task points for video settings. The uploaded teaching resources will include PPT, reference materials, curriculum goals, curriculum videos, etc., and will also be studying the test questions and case tutorials.

Before the class, teachers will publish task points in learning through learning. Students should complete the task points of the learning video through watching the video. The teacher can also understand the video learning situation of each student through the progress bar, and understand the student's pre-test effect through a small test before the class.

In the class, teachers will use learning to assist teaching activities to replace traditional naming with their learning visas. The group tasks of the platform will also be used to distribute cases to be realized in this section. Students discuss and consider materials independently, set up testing and interactive discussion links, and activate the classroom atmosphere, so that students will focus on the classroom. So as to improve the teaching effect of the classroom.

After the class, teachers can publish homework in learning to understand the achievement of students' curriculum goals through the completion of the students. At the same time, it will also increase the cases of after-class practice in the learning section for students to consolidate the knowledge points they have learned and enhance students' project practical ability.

Through the entire teaching process before, class, and after class, the healthy interaction between teachers and students can be realized. Through the learning records of system students, teachers can better understand the students' learning situation and better adjust their teaching methods. And with the help of the data provided by the background, it can provide strong reference and support for students' quantitative assessment.

3.3. Strengthen school-enterprise cooperation to improve the quality of talent training

Based on the OBE concept of innovative talent training model, strengthen cooperation with enterprises, establish school-enterprise cooperation relationships, set up off-campus practice bases, invite enterprise engineers to teach in school, participate in the designation of teaching goals, jointly design teaching cases with school teachers, carry out teaching resources construction Essence At the same time, teachers are encouraged to go to enterprise practice, participate in the engineering projects of the enterprise, carry out horizontal project research, and serve the local economy. Through school-enterprise cooperation and common education model, teachers and students have come into contact with more real development projects. For teachers, they can improve their teaching skills. For students, they can increase engineering practical ability, better meet the employment needs of enterprises, improve the needs Student employment rate.

3.4. Evaluation method

The traditional Java program design curriculum assessment mode is the usual score+final exam. Among them, 40%of the scores, 60%of the final scores. The proportion of the final scores is too high, and the scores are relatively single. It cannot well reflect the participation of students' classrooms, project practical ability, and classroom interaction. Based on the OBE concept's curriculum evaluation system, it is more concerned about what students can do, how the student's course goals can be achieved, and what students can achieve based on the knowledge they learned.

This course is based on the OBE concept evaluation system is a multi-dimensional and more scientific evaluation method. The assessment method includes process assessment and final exams. Among them, the final exams account for 30%, process assessment accounts for 70%, and process assessment results are composed of classroom interaction, project practice, curriculum participation, and phase testing. Multi-dimensional evaluation methods enable students to actively participate in the curriculum activities, and through the understanding of students' learning situations, provide better reference for subsequent teaching improvements. The specific assessment method is shown in Table 1:

Table 1. Assessment method

Composition	Process assessment							Final grade
form	Homewo-rk	Atten- dance	project	Course video	Partic- ipate	Gr-oup task	test	Final exam
Proportion	10%	10%	15%	5%	15%	5%	10%	30%

4. Conclusion

The OBE concept is used to conduct teaching reforms on the design of the Java program. The curriculum design is reversed with the learning results to determine the teaching goals of the curriculum and meet the enterprise's needs for talent capabilities. Clarifying and refining curriculum goals has enhanced students' enthusiasm for learning. The online mixed teaching mode is used to realize the healthy interaction between teachers and students. Through the full use of teaching resources, the teaching effect is better improved. Adopting a multi-dimensional curriculum evaluation system can better understand the learning situation of students and adjust the teaching methods in a timely and efficient adjustment. After teaching reform and practice, this course has basically achieved expected teaching results.

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