Exploration and Application of "Learning by Doing" Model in Higher Vocational Education for Computer Specialty

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Abstract

People have paid more and more attention to the abilities of autonomous learning and comprehensive application in higher vocational education for computer specialty nowadays. In years of teaching practice, the integrated teaching model and the "Learning by Doing" teaching concept are introduced to reform the teaching model, and to explore the teaching model of "students as focus, companies as guide, ability training as main part" in years of teaching practice. This paper takes the Visual Basic programming course as an example to present the concrete teaching method, which has achieved satisfactory results, by means of the application of "Learning by Doing" model.

Key words: "Learning by Doing"; higher vocational; education for computer specialty

1. Introduction

Nowadays the abilities of autonomous learning and comprehensive application in higher vocational education for computer specialty have been paid more and more attention in higher vocational education for computer specialty. However, which teaching model to adapt for promoting students' self-conscious and effi-ciency, and how to build a new computer teaching concept system are still big problems in the education reform nowadays.

Higher vocational education is a kind of higher education that is professional, technical and applied, which takes cultivating talents of high quality facing production, practice, management and service as a main goal. Therefore, the demands of students' practical operation ability in higher vocational colleges are higher than that in common colleges whose aim is to cultivate research-typed talent. Computer specialty is a specialty that is full of practicalness and creativity, and the traditional teaching model of "theory and experiment" cannot adapt to many courses. In years of teaching practice, the integrated[1] teaching model and the "Learning by Doing" teaching concept are introduced to reform the teaching model, and to explore the teaching model of "students as focus, companies as guide, ability training as main part" in years of teaching practice.

2. Proposal of the "Learning by Doing" teaching model

"Learning by Doing" is a kind of teaching model aiming at promoting practice ability and engineering quality of engineering students ，which was put forward by Carnegie Mellon University. "Learning

by Doing" is a teaching model during which students can achieve the goal of "learning" by the process of "doing" on their own[2]. The teaching concept was put forward by John Dewey, a famous educationist in America.

The essence of this kind of teaching model is that promote students' practical ability by raising the proportion of operation practical courses in college curriculum. In the same time, students will adapt to the social demands better and faster with rich work experience.

3. Present situation and problems in higher vocational education for computer specialty nowadays

Compared with "Learning by Doing", problems exist in the teaching model of computer specialty of many higher vocational colleges. Traditional teaching concept lays more stress on students' scores than their practical ability, which leads to the lack of operation ability. Though quality-oriented education is encouraged, most colleges continue the old exam-oriented education in fact. This kind of cultivating model does not accord with the aim of higher vocational colleges. On the other hand, the present knowledge structure of computer teaching continues the traditional one, which takes teaching in classroom as primary, and practicing with computer as subsidiary. On one hand, this kind of teaching model tends to reduce the enthusiasm and initiative of students. On the other hand, the practical ability of the graduate can not meet the demand of companies, and there is an awkward situation that the "second training" is needed for working on their own after the students entering the companies. Not only operation and expenses of the companies, but also development of the graduate will be affected[3].

4. Application of "Learning by Doing" teaching model in higher vocational education for computer specialty

The teaching model, "Learning by Doing", can largely change the traditional pattern of teachers' teaching and students' Learning, which specially accord with practical and engineering course[4]. In recent years of computer teaching, the author is in constant exploration in how to localize the American education system teaching model, and apply it in higher vocational education for computer specialty. Through the application of "Learning by Doing" teaching model, we achieved satisfactory results. Now take Visual Basic programming course as an example to introduce the specific teaching method, so as to peer exchanges and work together to promote the operation ability of the students in higher vocational colleges.

In order to settle the mismatch of original teaching materials and "Learning by Doing" teaching model, we choose suitable teaching materials, organize some excellent teachers, and embark on a series of teaching model reform according to the demand of "Learning by Doing" teaching model. Considering the engineering of Visual Basic programming course, we add a large number of practical experiments during teaching process, and adopt course project containing a number of code with certain function instead of the traditional examination in performance evaluation of the courses. During the teaching material organization, we compile the content that need to be mastered, in addition to the basic knowledge, respectively into each project, and students are requested to finish the project within prescribed time.

Putting the concept of software engineering into the teaching process, can exercise the software engineering accomplishment of students more than make the students obtain knowledge only during

practicing. In the whole project process, a complete process management is necessary, including the initial demand analysis book, analysis and design, coding testing, product launch etc., and all of these must be in strict accordance with the workflow operation of software enterprise. During the process, students completely simulate enterprise project operation, which can effectively achieve docking from the personnel training to enterprise demand, and shorten the gap between the employing and enterprise. Besides, the students can promote each other and discuss problems when practicing, and their autonomous learning ability and team cooperation ability are cultivated. At the same time, the group can effectively reduce the teachers' counseling pressure, so that teachers have time to control the rhythm of the whole class.

Teachers point out the key points of each link before the beginning of each link, and then students finish the project by groups. The students would finish the assignment without difficulty according to the basic knowledge. Students learn by themselves in the project, while teachers provide support and help. After the practical course, students should write project report according to the teachers' demands to summarize what they have learned during practicing. Teachers should correct the reports and give advice in time[5].

At last, the most important is reform of evaluation system and method in order to carry out the "Learning by Doing" teaching model effectively. The evaluation system must consider the students' abilities of practically applying, innovating and settling problems by themselves comprehensively. The examination of Visual Basic programming course contains two parts, including written test and practical operation test. The written test checks the relative basic knowledge, while the practical operation test checks students' operation skills. Also, there is a comprehensive project, of which the scores are given by students' role and behavior in the team. The scores of written test and practical operation test both constitute a half in the final scores, which could effectively balance the basic knowledge and the operation skills.

5. Summary

Through the introduction of "Learning by Doing" teaching model, practical ability and interest in learning of the students are promoted obviously. At the same time, students grasp working skills better, and this lay a foundation for their further job.

What's more, we suggest that the teaching and research team should promote students' learning of some other basic theory continuously in the daily teaching activity, especially some courses about studying methodology. All of the above could promote the students' abilities of thinking, studying, summarizing, and operating by themselves, and help them combine theory with practice.

During the process of "Learning by Doing" introduction, we have encountered some problems. Some students are not accustomed to learn by themselves; some students are lack of self-control, and cannot finish the project on time; some students cannot integrate into the team. However, the general teaching result is satisfactory, and the teaching method is very popular among students.

In the future, we would explore the "Learning by Doing" teaching model in development, and serve the higher vocational education for computer specialty better.

6. References

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