

"Computer System Architecture" Experimental Teaching Reform

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Abstract. This paper points out the problems existing in the computer system structure experiment teaching, analyzes the nature and combines the current situation and previous teaching experience, from the experiment teaching methods, teaching means, laboratory and network platform construction, the structure of the heuristic teaching and multi-level teaching system, experimental result assessment from several aspects, the experimental teaching reform of computer system structure has carried on the exploration, make students to master theory knowledge and experiment skills more further and develop their innovation ability.

Introduction

The computer system structure is a professional basic course of computer science, through the study of this course, make the students master the basic knowledge of computer system and analysis method, know the distribution of computer system hardware and software functions and the structure of various types of machine characteristics and performance evaluation methods. Because of "computer system architecture" the experimental course content is very strong, must complete the course of educational reform, the reform of experiment teaching innovation is particularly important.

Character of the subject and the current situation of the development

"Computer system architecture" experimental courses are mainly composed of software platform of simulation in nowadays, experiment teaching content can be divided into three levels: basic experiment type part (must be done), the design experiment part (choose to do), the comprehensive design experiment part (as the course design and graduation design). Basic type experiments mainly require the students to use VC development platform simulation such as instruction scheduling, the page replacement algorithm, etc after understanding the system theory fully. Design-oriented experiments mainly require students to familiar with and learn to use DLX simulator to analyze and test instruction scheduling. In view of the experimental courses set up, according to the feedback from the student and the author in teaching experiment center master line, the following problems need to solve [1]. (1) Ignore the practical of computer courses, teaching in class period is short, the content is much and complicated, that focus is not prominent. (2) The teaching materials become aging. (3) The development and construction of experimental platform. (4) The students do not take the hardware course learning, and ignore the cultivation of ability. Many students think that this course has repeated with previous curriculum knowledge, lack of systemic development to help on the application of the computer system is small, so the study interest is small [2]. Loopholes in (5) the performance appraisal method, its core is mainly based on the experiment report grades, many students produce lazy psychology.

Experimental teaching reform

(1) The experimental teaching idea transformation

First of all, attaching the importance of experimental teaching preparation, it is divided into the

teachers' teaching preparation and the students' preparation work. Teachers' teaching, mainly is the design of the teaching plan and its experiment. Teachers must write lesson plans, the necessary reform of the experimental process, the experiment is to predict the possible problems and guide. Experimental project in pre - experiment can be found in a timely manner and easy problems in the experiment, and find a solution to the problem in advance; Students' preparation before experimental preview the content of the experiment. Issued after the experiment task, students in teachers should seriously study and access relevant information, write basic program ahead of time, familiar with experimental steps and main point [4]. To not only save the experiment lesson, experiment of prepared reduce don't appear error, and students can in the process of preparing for experiment content have a deeper understanding and thinking.

Second, change traditional experimental teaching concept. Change the students' copying experimental way following steps on books. Teacher should give students more thinking space. Encourage students to carry out comprehensive experiment actively. Comprehensive experiment is to train students' innovative thinking ability and independent learning ability is an important means, in general a group is made up of 3 to 5 students to complete a project, this topic has the certain difficulty and innovation. For the choice of subject, the title be provided by teachers, or by students themselves. Through group discussion and cooperation, joint efforts to complete the experiment, the final research report, and the experimental results. Through the experiment, analysis and problem solving skills, students can promote deepened the understanding of studies, and cultivate the innovative consciousness and team spirit [3].

(2) Strengthen the construction of laboratory construction and net site platform

With the rapid development of network technology and popularization, the construction of network education teaching resources, explore the theory and method of network teaching is the core of teaching theory research. We can make full use of modern education technology and resources to set up a dedicated computer system structure course website. The website mainly includes the following aspects: (1) Theory knowledge, student teachers courseware can be downloaded from the website and related references, a review of classroom knowledge, avoid the utility is too large to absorb the understanding. Put the video of the teacher in the Internet for students to learn if there exist some difficult sections. (2) Online answer, the teacher set the content of each chapter problem sets and answers, the students answer the questions in the limited time, can't download the answers before completion, box will result to the teacher, the teacher according to the feedback information to understand the students' learning situation, focus on tutoring. (3) Experimental courses, provide with the test related resources, design case and software tools needed for the experiment. As far as possible provide abundant experimental case, let the students know more about the course. Finally will present excellent students' innovative experiment, students can put forward Suggestions for designers or other problems, promote mutual learning among students. (4) Share the extension modules, will be related to the learning of the latest data uploaded to the web site, download for all to share. (5) Online FAQ, students ask teacher, teachers give solutions online. Through the network platform construction, not only can let the students to deepen the understanding of the course, and can stimulate students' interest, construction has a profound significance to the development of curriculum.

(3) Introduction of heuristic teaching and multi-level experimental teaching system

Heuristic teaching is refers to the teachers in the teaching process according to the objective laws of teaching and learning, from the reality of students, using a variety of ways, in order to inspire students' thinking as the core, to mobilize students' learning initiative and enthusiasm, prompted them to learn a kind of lively teaching guiding ideology [4].

Aiming at the problems existing in the traditional experimental teaching, we according to the "strengthening foundation, broadening the specialty, paying attention to practice and improve the quality" the policy of constructing "validation - design - comprehensive - innovation" experimental

teaching system, multi-level in each experiment, every experiment set up basic skills authentication type training experiment design and integrated experiment and innovative experiment, three levels of experiment content [5]. After the reform of the experiment, complete teacher assigned the basic skill training of validation experiments and comprehensive experiments firstly to strengthen the students' ability to master the theoretical knowledge. After completing the above experiments carried out on the basis of innovative experiment, in order to stimulate students' creativity.

(4) Specification and reform evaluation mechanism

Experiment result reflects students' practice ability in the experimental process, operation skills and the ability to solve the problem objectively, it is a comprehensive evaluation of students' experimental process, and it is also a means to assure the training goals. Traditional performance appraisal method is the core of performance evaluation is mainly based on the experiment report, not comprehensive and accurate to the students speaking ability to assess, and resulted in many students produce lazy psychology. Based on laboratory experimental results assessing method innovation, let the students to shift their concept of learning actively learning.

Comprehensive performance evaluation content mainly includes the experimental attitude, experiment ability, the innovation and the results from several aspects, such as respectively, in the overall composition of different proportion.

(1) The students' attitude of the experiment reflect the emphasis on experiment, affect the principal role of students in the whole experiment, experiments can reflect the students responsible attitude, good discipline. Mainly reflected in the attendance rate in the experimental process and whether positive earnest to complete the experiment. Experimental attitude accounted for 10% of overall grade.

(2) The experiment ability is in the process of doing the experiment students comprehensive performance of various kinds of ability. Main experiment design, experiment independently, about the problems they can take appropriate solution, experimental ability can not only reflect students on-site practical and operation ability, and can also reflect the students' ability to analyze and solve practical problems. Experimental ability evaluation is the most can reflect the comprehensive performance of students in the experiment, thus accounting for 50% of overall performance.

(3) The experimental innovation refers to students' the idea of unique insights in the whole experiment and experiment. Experimental ingredients of innovation can reflect students' ability of independent thinking and innovative, has important significance for the development of the future, accounting for 20% of the total grade.

(4) The experimental results are the final results of experimental. Mainly including whether the experimental result data is right, the analysis of the experimental field data processing situation, experimental situation, the lab report to resolve the problem in the process of completion, etc., and the experimental results of the whole experiment summary, for the whole experiment is effective and feasible verification, accounted for 20%.

In fact, complete the experiment is a kind of the embodiment of the comprehensive skills. The ultimate aim of our reform is to encourage students to do more and think more, pay attention to team cooperation, under the structure in a computer system to produce to meet the requirements of modern creative talents.

Teaching effect

Through the teaching reform of computer system structure, we have made some achievements, also make the students' comprehensive ability improved. Build the innovation platform for students, use the flexibility of CPLD field programmable and guide students to carry out the scientific and technological innovation in the design, guiding students to participate in the competition and won prizes, not only improve the students' practical ability, and promote the improvement of teachers' scientific research level. This course won the first prize in the school teaching achievements, has received the praise of teachers and students.

Conclusion

Aiming at existing problems in the traditional experimental teaching, this paper analyzes the current situation of subject development and combines previous teaching experience, the experimental teaching reform of computer system structure has carried on the exploration, help students to improve the experimental skills, cultivate innovation spirit and team spirit, enhance computer related specialized undergraduate teaching quality and level of education. Computer system structure of experiment teaching reform has brought a certain achievements, but the development of information technology, put forward new requirements for teaching system constantly.

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