The Cultivation of College Students’ Creativity and Practical Ability Based on Computer Competition

Ming-Fu Tuo, Hong-Mei Zhang and Qiong Wang

ABSTRACT

It is an effective way to train students' innovative spirit and practical ability to carry out the discipline competition in the course of computer teaching. How the discipline competition to promote innovation practice ability is analyzed. Aiming at some problems in computer teaching, some specific methods for organizing the computer science competition are put forward. Practice shows that these measures not only stimulated the students' interest in learning, cultivate the innovative thinking, practice ability and the team cooperation spirit, but also promote the computer teaching model reform and development of the discipline construction.

KEYWORDS

computer competition, initiative spirit, practice ability, computer teaching.

1. Introduction

Innovation ability has become one of the important indicators to measure the development potential of a country. The key of a nation's innovation ability lies in the cultivation of innovative talents, while the key to the cultivation of innovative talents lies in the institutions education [1]. In recent years, how to cultivate talents with high level and innovative ability has been the major subject of universities and education departments. The ministry of education has made a clear proposal to promote the college students' discipline competition, and the performance of colleges and universities in national competitions should be included in the undergraduate teaching status database of higher education institutions [2]
It is very useful to carry out computer competitions in computer education. It will benefits to promote mutual communication, improve the quality of computer teaching, arouse the students' interest in learning computer knowledge and skills, cultivate students' innovative ability and the team cooperation consciousness, solve practical problems by using information technology.

2. The role of computer competition in cultivating students' innovative practice ability.

(1) It’s helpful to cultivate students' innovative thinking and innovative consciousness by carrying out computing competitions. In college students' computer competition, the contestants usually have to solve the difficult problems in practice. They must use their knowledge to solve problems creatively. Therefore, taking part in the discipline competition will undoubtedly become an important way for college students to develop innovative thinking and improve their innovation ability[3].

(2) The organizational form of discipline participation is benefit to cultivate of innovative ability. To cultivate students' practical ability and the coordinated ability, many computer competitions are half open. Participants can use internet, books, all kinds of documents in competition, and participants usually form a team, for example, Chinese College Computer Design Contest, It is jointly sponsored by the ministry of education China higher education society and the computer science teaching steering committee of the ministry of education. The participants will compete in teams of 3-5 persons per team. Each team may have 1-2 instructors. During the course of the competition, the team members worked together on the same competition subject. This competition model cultivates students' spirit of solidarity and cooperation, coordination ability and innovation ability.

3. The dilemma faced by computer teaching.

Computer courses usually have the characteristics of both theoretical and practical, but it is easy to emphasize theory and light practice in practical teaching. In this paper, we analyze the problems in the computer programming course.

(1) Emphasize the explanation of knowledge and ignore the cultivation of thinking. From the perspective of "teaching", Teachers usually pay more attention on program statements, grammar rules, and despise algorithm thoughts, the analysis of the problem. It is difficult to arouse students' enthusiasm and initiative in learning program design, and it also fails to cultivate students' logical thinking ability, abstract inductive capacity, problem analysis and solving ability.

(2) The maintenance study is the main, the innovation is insufficient. From the perspective of "learning", students tend to focus only on the study of language grammar knowledge, but lack of innovative spirit. When confronted with specific problems, they can not effectively relate the problem to the knowledge they have learned, and the ability to solve professional problems is poor.

(3) The practice content is too formalized and lacks the cultivation of innovation ability. Most of the programing experiments are verification experiments, and the design and comprehensive experiments are few. It is difficult to cultivate students' creative thinking, let alone to solve the comprehensive application problems, which leads to the limitation of practice teaching effect.
4. The exploration and practice of computer competition.

Aiming at the above problems, we try to introduce the computer competition in the course of computer teaching to improve students' enthusiasm, initiative and innovation. The following practical measures are included:

(1) Reform talent training programs and course assessment methods.

The training programs and curriculum standards are reformed based on the analyzing the requirements of various positions on the information skills and qualities of students. Experimental classes are increased. Some comprehensive experiments are added. The student's examination results will refer to the results obtained by the students in the competition.

(2) Strengthen the training of tutors.

In order to guide the discipline competition, teachers must have higher professional skills, more comprehensive knowledge field and ability. To this end, we designate some backbone teachers for special training.

(3) Set up a computer club.

In order to organize and carry out computer competition, we set up computer software club and computer hardware club in 2014. We select club members carefully every year. We hold special lectures and competitions in the club. The clubs provide a platform for undergraduate students to exchange knowledge and study together.

(4) Organize or participate competitions actively.

In the school scope, we carry out Computer Programming Contest and Multimedia Design Contest, etc. At the same time, students take an active part in some influential contests, such as Blue Bridge Computer Programming contest, ACM programming contest, Chinese College Computer Design Contest, Education Robot Competition, etc.

(5) Develop computer contest system.

According to the need of the discipline competition, we developed computer contest system. The latest competition information and various related learning resources are provided on this platform, such as the analysis of the examination questions. Students can also sign up, take part in contest, query contest result by the system.

5. Effect analysis.

In recent years, with the strong support of our school in discipline competition, Students take part in the competition actively. Their teamwork ability and innovation ability have been effectively improved in the competition. Their horizons are broadened. Students have won the national special prize 1, the first prize 8, the second prize 16, the third prize 45; Provincial first prize 64, the second prize of 110.

We have also accumulated some experience in organizing and carrying out discipline competitions, and achieved certain results. We won the national champion school award of the Blue Bridge Cup National Software and Information Technology Professional Talent Contest, the best school award in shaanxi province, and the excellent organization award in shaanxi province both in 2016 and in 2017. Chinese college students computer design competition national competition excellent organization award and the northwest regional outstanding organization award. We have won the excellent organization award of Chinese College Computer Design Contest and the excellent organization award in the northwest region. Two teachers won the national computer competition excellent instructor.
6. Conclusion

In recent years, the practice shows that the computer competition is effective carrier of cultivating students' innovative spirit and practical ability. It is important to cultivate and improve student's enthusiasm, creative thinking and innovation ability, practice ability and the team cooperation spirit. On the other hand, the discipline competition can also drive the improvement of teaching quality, promote the development of the discipline.

REFERENCES