Research on Innovative Ability of Computer Majors Based on Discipline Contest

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Abstract. Based on classroom teaching, the subject competition is used to stimulate students to link theory with practice and develop their ability of independent working. It consists of a series of activities that can help students find problems and solve them in practice, which further enhances their self-confidence in learning and working. The actual situation of promoting the reform of curriculum construction with the subject competition to improve students' innovative ability in practice varies in different universities and disciplines. This paper takes the computer science of Fuyang Normal University as an example to study how the subject competition promotes students' innovative ability in practice and their comprehensive quality as well.

1 Introduction

The subject competition is based on the close combination of classroom teaching, to competition methods, to stimulate student theory with practical and independent work ability, through practice to find problems, solve problems, enhance student learning and work self-confidence series of activities. Combined with the national long-term education reform and development plan (2010-2020) mentioned in the "to improve the quality of higher education and the quality of personnel training," the current major colleges and universities on the subject competition is very important[1]. Because the subject competition is an effective

means and an important carrier to cultivate the comprehensive quality and innovative spirit of college students, it is necessary to promote the construction of school style style, cultivate students' innovative spirit, team consciousness and practical ability to stimulate students' interest and potential for creating a good atmosphere of innovation education Important role; for the training of applied innovative talents, improve the

quality of personnel training has a very important significance.

From the current situation of domestic and foreign research, college students innovation and practical ability training is already a wide range of issues of concern, subject competition for the promotion of innovative ability to enhance the role of college students have also been recognized. However, how to use the subject competition as the carrier, to promote the reform of curriculum construction, and thus promote the cultivation of innovative ability of college students in each university, each professional is not the same specific situation[2]. This thesis takes the computer major of Fuyang Teachers College as an example to study how the computer specialty can enhance the students' innovative practical ability and comprehensive quality through the subject competition.

2 Promoting the Cultivation of Innovative practice Ability of Computer Majors through Discipline Contest

"Participate in the competition, regardless of the results, can fully mobilize the students' subjective initiative, encourage them to hands, innovation, collaboration, proactive, apply their knowledge.

Therefore, should give full play to the competition in the training of innovative talents in the important role. The effect of subject competition on the cultivation of innovative practical ability of computer students is mainly reflected in:

2.1 To promote the professional curriculum system and teaching content reform

Deepening the reform of curriculum system and teaching content, changing teaching methods and teaching methods is an important content of the construction of teaching quality in colleges and universities. The instructor can participate in the whole process of the subject competition, including the selection of the players, the training to the pre-selection guide, the game command and the post-match summary, can find the problems in the daily teaching, the curriculum system, teaching content and teaching methods To improve. Such as students to participate in the Chinese University Students Computer Design Competition requires a strong analytical capacity, innovation, practical ability, and thus in the latest version of the computer (software engineering) professional training program added C language programming, database principles, Java programming , Linux operating system, Jsp project development and other five curriculum design; increase teaching practice in the proportion of teaching, while encouraging students to participate in innovative business projects; encourage students to participate in teaching and research projects, research projects[3]. Through the theoretical knowledge of learning and practical ability, independent thinking ability and psychological quality and other aspects of training, to cultivate students' innovative consciousness and innovative practical ability to promote teachers teaching, research activities, improve the quality of teaching purposes.

2.2 To cultivate students' innovative consciousness and innovative thinking ability

90 after the students are very strong personality, but also very willing to participate in some activities to highlight their own personality. And the school's conventional teaching is difficult to take care of each student's personality differences, coupled with the current teaching methods are relatively simple, resulting in students awareness of innovation and innovation and lack of creative thinking ability. To carry out the subject competition, you can according to the needs of the content and students to accept the ability to hobbies of different treatment, for some better, flexible thinking, handsome students to create certain conditions, so that they are strengthened in the innovation activities Exercise, and further improve the thinking of innovation and scientific research and innovation ability.

2.3 To help students find their own learning defects, improve learning methods

Daily final exam, memory content more, it is difficult for students to find their own learning defects. By participating in the competition, students can understand their knowledge of the degree of knowledge and the lack of use, so that they continue to improve learning methods, from passive to take the exam to take the initiative to learn, after the active reading of reference materials, Research literature, research and research technology, open up professional field of vision, in order to achieve "innovation in the competition, learning in innovation." Applicants have been surveyed in the class, many students are willing to participate in the subject competition, but because the school or secondary level of publicity is not in place, many students are unable to get the relevant information, resulting in the teacher had just called a few Students to participate, not to promote the purpose of the game.

2.4 To enhance students' sense of collaborative combat and competition

Students who participate in the subject competition may not come from a professional, a grade, a class, before each other do not know. By participating in the

subject competition, the original players are not familiar with each other to learn from each other, work together, is conducive to training students to organize, coordinate and enhance the sense of collaborative combat. At the same time the competition itself is a kind of suffering, can test the perseverance of students. The game itself is cruel, there will be win or lose. Through the competition

This can enhance the students brave the first, unyielding competition in the sense of competition, so that students learn to compete, to adapt to competition in the competition for innovation and development[4]. Participate in the game regardless of the outcome of how the players are a valuable experience and wealth, for the future to participate in work, to adapt to the community to lay a solid foundation.

2.5 To build a communication platform between institutions

Participate in the competition, through comparison and learning can be found in the school teaching mode, competition training, competition and other aspects of the lack of security. Through communication with the brothers and institutions, can better promote the understanding of both sides, at the same time for the future study and exchange to provide a good platform.

3 Development Strategy of Innovative Practice Ability of Computer Students Based on Discipline Contest

At present, there are teachers in the university, the pressure of scientific research is big, and the discipline competition is not rewarded. The students' learning initiative is not high and they are not willing to participate in the discipline competition. The disciplines, Which restricts the improvement of the competition level and the improvement of students' innovation ability. Based on the experience of participating in the competition in recent years, the paper summarizes the relationship between the subject competition and the students' innovative practice ability.[5]

3.1 To establish "discipline competition + scientific research project" training mode

"Discipline competition + research project" training model is the school's innovative talents training objectives for the purpose, and strive to improve the practical ability of computer students to innovate. Through the subject competition, scientific research project training, etc., to cultivate a group of students with strong practical ability to practice innovation and entrepreneurship activities, part of the competition or

research project content really hatched into a practical practice of innovative business activities, from the real meaning To improve students' practical ability to innovate. At the same time, students will be in the practice of innovation and entrepreneurship activities accumulated experience to further nurture and enrich the content of subject competitions and research projects to make it richer, more practical, this "subject competition + research project" training model (Figure 2) and innovation and practice to form a mutually reinforcing and mutually reinforcing relationship, so as to jointly improve students' practical and innovative ability.

Fig.3. "four years of competition" of the subject competition learning mechanism

3.2 Constructing the Learning Mechanism of "Four - year Competition" in Discipline Contest

In order to make the subject competition become an effective way to cultivate high-quality innovative talents, we can construct the "four-year competition" subject competition learning mechanism (shown in Figure 3), form a series of disciplines, Competition will focus on the "national science and technology competition - to

raise the level, to honor the honor; school-level science and technology competition - to expand the students benefit, strong ability" to carry out the work of the practice of teaching and competition combined.

The first year is the basic course of study. After the students are enrolled in the school, the instructor will instill the contents of the relevant competition in the course of the student's course and consciously conduct the guidance and coaching. Organize new students to watch the contests of senior students, to promote past competition results, to stimulate new interest in science and technology competition.

The second year is a school-level competition. In the sophomore stage, the teacher will team up according to the student's hobbies and assign a instructor and a number of learning assistants (each of the experienced senior students) to each team. Teachers in accordance with the interests of students in different types of competition content counseling, regularly carry out the relevant knowledge of the course discussion, learning experience and social surveys, in a variety of ways to stimulate students 'interest in learning and improve students' ability to practice innovation.

The third year is the provincial and ministerial level competition. Students who perform well in school competition are selected into a high level competition team to prepare for a provincial or national science and technology competition. Will be selected out of the outstanding students team, to strengthen training, team members work together. This can not only cultivate students 'team spirit but also improve the students' practical ability and innovation consciousness, and finally can cultivate a high level, all-round,

innovative and practical talents. The fourth year "pass, help, with". Senior students in the professional knowledge and experience are relatively rich. With strong ability of students as the core construction project team, senior and junior students, old members and new members of the "pass, help, with" to promote the rapid growth of team members. And finally to promote the development of competition to promote the practice of

students to promote the cultivation of innovative ability^[6].

3.3 Curriculum construction and reform of teaching methods

Establish the daily competition "competition view", according to the subject competition and the students to practice the relationship between innovation and practice ability to revise the professional personnel training program. First, the establishment of innovative practice credits, set up an independent competition elective courses to join the school's interdisciplinary elective courses for students to choose, and in accordance with the needs of the competition to improve the curriculum teaching; the second is to reform classroom teaching methods to class discussion, group debate The ability to imitate to the innovative thinking, innovation ability, improve the overall quality of the direction of transformation; Third, the formation of interest groups, so that students can learn from the simple knowledge of knowledge, Starting from the freshman start, strengthen the database and database construction, pay attention to the usual training for the discipline competition reserve talent.

4 Summary

The article combines the traditional teaching, the college students subject competition and scientific research projects and other innovative activities into the cultivation of practical innovation ability. Through the "subject competition + scientific research project" model, the "four years of competition" learning mechanism and other strategies to cultivate college students innovative thinking and practical problems to solve practical problems, while the subject competition to promote the professional curriculum system and teaching content reform, Professional curriculum construction and teaching methods reform, to cultivate students' innovative consciousness and innovative practical ability, to promote teachers teaching, research activities, improve the quality of teaching purposes

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Innovative Ability of College Students [J]. China Electric Power Education, 10(18):187 ~ 189 (2013)

[6] Zhang Jie. Based on scientific research projects to cultivate independent college students scientific research and innovation ability [J]. Cultural and educational materials, 09(16): 188 ~ 189 (2010)

. Reference

- [1] Xue Yanru. Based on "subject competition" to improve the innovation of college students' ability to cultivate research [J]. Young writers, 24(15): 197 (2011)
- [2] Wang Yun lu. Relying on subject competition, training innovative engineering talents [J]. Popular Technology, 08(20): 227 ~ 228 (2011)
- [3] Zhang Shuqin, Dong Yuejun, Dong Zhiyong. Study on the Cultivation of Innovative Practice Ability of Computer Majors Based on Science and Technology Competition [J]. Computer Education, 17(22): 14 ~ 16 (2010)
- [4] Wang Feng, Wan Zhiping, Ye Shitong, Mo Weijian, Lu Zhimin. Construction of Innovation Team under Scientific Research Project and Subject Competition [J]. Journal of Ningbo University (Educational Science Edition), 01(15): 57 ~ 60 (2014)
- [5] Wang Yicheng, Wang Fangyin, Xiang Wenjiang, Qin Bo Lian, Yu Yougui, Ma Wenxin, Xie Bing. Study and Practice of Cultivating Sci-tech Competition and

Fig.1. The relationship between the subject competition and the student's ability to practice innovation

Fig. 2. "discipline contest + research project" training mode