

Research and Exploration of Innovative Talent Training Mode Based on Academic Competition

——Taking Electronic Information As an Example

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Abstract: In order to meet the demand of social and economic development for innovative talents, this paper expounds that the academic competition is an important carrier for the cultivation of innovative talents and plays an important role in the cultivation of innovative talents. In combination with the practice of our school, this paper puts forward some aspects promoted by the academic competition, such as the construction of curriculum system, innovative practice sites, learning platform, competition guidance team, new mechanism, and so on. The innovative talent training model based on academic competition which promotes the cultivation of innovative talents is established.

1. Introduction

The report of the Nineteenth National Congress emphasizes that innovation is the first driving force for development and the strategic support for building a modern economic system. It proposes to speed up the construction of an innovative country and strengthen the construction of a national innovation system. It sets the goal of China's ranking in the forefront of an innovative country from 2020 to 2035. These will inevitably encourage the whole society to actively implement the innovation-driven development strategy.

Colleges and universities are an important force in carrying out the national independent innovation strategy and building an innovative country. In the process of building an innovative country, colleges and universities are shouldering the great responsibility of cultivating talents. Therefore, it is necessary to further strengthen the research of innovation education and reform the training mode of talents. It should be actively to explore the effective way to cultivate innovative talents, and established that a suitable system for training innovative talents as soon as possible [1].

Academic competition is an effective carrier for cultivating innovative talents in college and universities. It is of great significance to develop the academic competition activities, construct the multi-academic competition platform, perfect the academic competition institution and system for training the practical innovative talents and promoting the long-term and effective development of the academic competition [2].

2. The Role of Academic Competition In the Cultivation of Innovative Talents

2.1 Improving Teaching Quality by Academic Competition

In order to improve the students' innovative ability and meet the needs of the competition, a series of reforms such as teaching system and teaching mode will be promoted and the quality of teaching will be improved.

2.2 Cultivating Students' Innovative Consciousness and Ability by Academic Competition

The academic competition activity is the comprehensive embodiment of the students' various thinking processes and the comprehensive application of the students' theoretical and practical knowledge for many years. The academic competition activity is not only the process of serious analysis task ,effective reasoning,accurate judgment and comprehensive application for competition,but also the process of cultivating students' creative consciousness and thinking and stimulating students' creativity [3].

2.3 Improving Students' Comprehensive Quality by Academic Competition

The academic competition requires students not only to have solid professional theory, but also to have the ability of unity, cooperation and division of labor. The development of academic competition is beneficial to the cultivation of students'comprehensive quality.

3. Constructing a New Training Model of Innovative Talents Based on Academic Competition

The New Technical College of Hubei Engineering University insists on the the idea of running a school based on "educating people as the foundation, moral education first; based on local conditions, cultivating characteristics; innovating mechanism, opening up and development" ,carries out the idea of cultivating students' innovative ability in teaching, and explores a new mode of cultivating innovative talents.

3.1 Promoting the Construction of Curriculum System Relying on Academic Competition

Combining with the professional curriculum system, the training model of three-level academic competition is constructed in this paper[4]. In the current talents training program of our college, the curriculum system of each profession is divided into four modules: general education curriculum, professional education curriculum, vocational ability education curriculum and entrepreneurship education curriculum. Professional education curriculum is divided into professional basis, professional backbone courses, professional elective courses.Three-level academic competition and professional education are closely integrated.

3.1.1 General education competition

General education courses mainly include college English, college physical education and other public basic courses. Freshmen mainly focus on the study of general education courses and can be encouraged and organized to participate actively in such competitions. For example: English contest (national English contest for college students), mathematics competition (higher mathematics competition organized by college), etc.

3.1.2 Professional basic competition

Professional basic courses include advanced language programming, circuit analysis and so on. Freshmen and sophomores can take part in basic professional competitions through such courses. Such as: Blue Bridge Cup Software Design Competition Software Group and Hardware Development Group, Bi Sheng Cup, the school organization of the electrician cup competition.

3.1.3 Professional comprehensive application competition

Such competitions require a solid reserve of comprehensive professional knowledge. Junior students have systematically studied major courses and elective courses, and can be organized to participate in such programs. Such as The NXP Cup National University Students Intelligent Car Race, National Undergraduate Electronics Design Contest, Internet + College Students' innovation and Entrepreneurship Competition, China Software Cup University Student Software Design Competition, “Challenge Cup” College Students' Extracurricular Scientific and Technological Works Competition,etc.

3.2 Strengthening the Construction of Innovative Practice Sites

The development of the academic competition can not be separated from experimental practice. Students and guidance teachers need long-term stable experimental training sites, necessary personnel allocating, complete hardware facilities and sufficient funds for experimental consumables to ensure the in-depth development of the academic competition [5].

At present, the school has set up an intelligent car training base, 5 student innovation laboratories, which are all-day open for students to carry out learning and training about academic competition. The open laboratory is managed by special person. The competition experiment consumables funds have been offered by school, which provide a strong financial guarantee for the development of academic competition.

3.3 Building a Competitive Learning Platform

The participation of academic competition requires students to have a solid theoretical foundation and strong comprehensive practical ability. In order to improve the participation of the academic competition, several platforms to improve the students' practical ability are set up to provide a way for the students to compete. The professional associations such as the Electronic Innovation Association, "intangible anime" club have been set up, in which association members are mainly freshmen. The associations mainly engage in home appliances maintenance, electronic products small production, animation production and other activities in order to train the preliminary hands-on ability of students.

Based on the relevant policies of the school to carry out characteristic classes, the current two characteristic classes for sophomore students are electronic information class and computer class. The characteristic classes lasts for one year. Each tutor instructs 2-3 teams to carry out project training. At the end of the training, the qualified person can be trained as the contestant.

3.4 Setting up a More Stable Competition Guidance Team

As the guide of academic competition, teachers play an important role. Because of its own characteristics, competition requires a large number of teachers with professional knowledge, practical experience, relative stability, including multi-professional to be involved [6]. In order to ensure the long effect and effectiveness of the academic competition, the competition guidance team that is mainly composed of teachers with senior professional title, doctor and background of competition need to be set up. Under the organization of the teacher guidance team, the competition project of each profession is carried out methodically.

4 Establishing a New Mechanism of Academic Competition

A complete set of institutions and mechanisms must be established in order to vigorously carry out academic competition [7].

4.1 Management Mechanism

In order to realize the academic competition to be carried out a more long-term and normatively, the school set up the academic competition work leading group. The group leader is the vice-president in charge of teaching and the members are the responsible persons who work in the dean's office, the student affairs office, the finance office, the science and technology department, the logistics department, the league committee and so on as well as each teaching department. The leading group is responsible for the organization and coordination of the various departments during the course of the academic competition. The department of Teaching is responsible for the development of competition projects, such as the formulation of competition implementation programs, the organization and training of competition students, etc. The financial department, the logistics office, the student affairs office, and other functional departments are responsible for the safeguarding of competition funds, competition venues, and student safety in the course of academic competitions.

4.2 Excitation Mechanism

In order to realize the sustainable development of the academic competition, it is necessary to draw up matching incentive mechanism for arousing the enthusiasm of students, teachers and organizational units.

The school issued a series of documents, such as the management of students' awards, the credit recognition methods of students' innovation and entrepreneurship, and so on, which indicated that the students who participated in the academic competitions and won prizes should be rewarded with different standards according to the winning situation. The selection criteria of the top ten students and learning stars highlighted the consideration of the award-winning situation in the academic competition. According to the current system structure of talent training program, academic competition has become an important credit recognition project in entrepreneurial ability module.

During the course of the academic competition, teachers are instructed to determine the workload according to the number of student groups and the teaching time of the students. The guidance teacher who instructs the student to win the prize, will be given to the corresponding standard competition reward. And the result of the competition is considered in the evaluation of teacher's professional title and the evaluation of excellence.

5. Conclusions

In recent years, through The NXP Cup National University students Intelligent Car Race, National Undergraduate Electronics Design Contest, China Software Cup University Student Software Design Competition, China Software Cup University Student Software Design Competition and other academic competition, we have cultivated a group of innovative talents. The academic Competition provides a platform for the application of students' theory in practice, and provides a carrier for the cultivation of students' innovative thinking and ability, which is of great significance in the cultivation of innovative talents.

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References

- [1] Li Jianxia, Zhou Wenhe, Li Zhiwei. Building Subject Contest Platform for Promoting the Innovative Talents Training [J]. Research and Exploration in Laboratory, 2017, 36 (5): 216-218.
- [2] Fan Li, Ding Zhuyu, Tang Xi, Deng Tao. On Construction of Multi-disciplinary competition Platform for cultivating Practical Innovative Talents [J]. Journal of Southwest China Normal University (Natural Science Edition). 2016 (8): 178-182.
- [3] Li Jin-chang, Lin Jia-lian. Promoting the Cultivation of Innovative Talents through Combination of Practical Teaching and Academic Competition [J]. Experimental Technology and Management, 2011, 28 (11): 1-3, 16.
- [4] Song Shuang, Yang Jianquan. Exploration and Practice on the Education Pattern of Innovation and Entrepreneurship Based on Subject Contest [J]. Research and Exploration in Laboratory, 2016 (35): 193-195.
- [5] Yang Mi. Exploration on Discipline Competition to Promote Practice Teaching of Design Specialty [J]. Experimental Science and Technology, 2017, 15 (4): 83-86.
- [6] Yang Zhidong, Chen Xiaoqiao. Exploration and Research of Academic Contests and Innovative Talent Training: Taking Electronic Discipline Contests as an Example [J]. Experimental Technology

and Management, 2017 (33): 15-16.

[7] Qian Jun. Research and Practice on the Cultivation Model of College Students' Innovative Ability Based on Subject Competition [J]. Computer Knowledge and Technology, 2017 / 13 (13): 140-141.