

Research on the Mechanism and Practice of Discipline Competition to Shape the Innovation Ability of Undergraduates-Taking the School of Management of Wuhan Polytechnic University as An Example

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Abstract:

In recent years, the state has continuously deepened the reform of education and teaching system in colleges and universities, and attached great importance to the construction of subject competition. Subject competition is an important starting point for cultivating college students' innovative ability. After constructing the theoretical analysis framework of innovation ability covering innovative thinking, innovative skills and innovative practice, this paper makes a detailed analysis of the current situation, characteristics and challenges of students' participation in the competition through an extensive investigation of undergraduates' participation in the discipline competition in the School of Management of Wuhan Polytechnic University. Then, by combining quantitative and qualitative methods, this paper scientifically evaluates the significant role and specific impact of discipline competition on the improvement of students' innovation ability. On this basis, with specific cases and experience, this paper discusses how to effectively construct the innovation ability training mode with discipline competition as the core, so as to provide practical reference and theoretical support for colleges and universities in exploring the path of cultivating innovative talents and promoting the in-depth development of education and teaching reform.

Keywords:

Subject Competition, Innovation Ability, Innovation, Entrepreneurship

1. Introduction

In the era of knowledge economy, innovation ability has become an important index to measure a country's comprehensive national strength and international

competitiveness, and also a key driving force to promote social progress and economic development. As the main force of future social construction and development, the cultivation of undergraduates' innovative ability is particularly important. However, the traditional teaching mode often focuses on the imparting of knowledge and the training of skills, ignoring the stimulation of students' innovative thinking and the cultivation of innovative ability, which leads to students' inability to face the complex and changeable social problems and challenges. In recent years, as an effective teaching auxiliary means, subject competition has been paid more and more attention and promoted by colleges and universities. Subject competition can not only stimulate students' interest and enthusiasm in learning, but also exercise students' innovative thinking, practical ability and team spirit in the process of competition [1]. Therefore, it is of great significance to explore the shaping mechanism and practice of discipline competition on undergraduates' innovation ability for deepening the reform of education and teaching and improving the quality of talent training.

At present, many scholars at home and abroad have studied the relationship between discipline competition and innovation ability training, but most of them focus on theoretical discussion and macro analysis, lacking specific and in-depth empirical research and case analysis. At the same time, different universities also have great differences in the organization, management and incentive mechanism of discipline competition, which leads to the uneven effect of discipline competition in the cultivation of innovation ability. Therefore, it is necessary to take specific universities as an example to deeply explore the shaping mechanism and practice of discipline competition on undergraduates' innovation ability, so as to provide experience and enlightenment for other universities [2].

2. Theoretical Basis

2.1. The concept of innovation ability

Innovation ability refers to the ability to propose new problems and solve new problems; it is the ability to continuously provide new ideas, new theories, new methods and new inventions with economic value, social value and ecological value in the field of technology and various practical activities.

Innovative talents should first be talents with all-round development, and comprehensive ability is the basis of innovative talents. People with innovative ability should also have innovative consciousness, innovative thinking, innovative spirit and good innovative personality. They can achieve innovative results through their own innovative labor and make innovative contributions to social development and human progress [3].

2.2. Theoretical framework of research

In order to further explore the shaping mechanism of discipline competition on undergraduates' innovation ability, this paper focuses on innovation ability, constructs a four-dimensional research theoretical framework, and refines it into four specific indicators: innovative thinking, innovative skills, innovative practice and innovative will [4]. Innovative thinking refers to the individual's ability to break the routine when thinking about problems, using non-linear and divergent thinking methods to produce novel, unique and creative ideas, including critical thinking, associative thinking, reverse thinking and other thinking modes. Innovation skills refer to the specific skills required to transform innovative thinking into practical actions, such as

information collection and processing ability, problem analysis and solving ability, teamwork and communication ability, etc. These skills are important guarantees for the realization of innovation ability. Innovative practice : refers to the individual in the actual operation of the use of innovative thinking and skills, the new ideas into the process of specific products or services, is the key step to finally reflect the innovation ability. Innovation will refers to the psychological quality that individuals can maintain firm belief and lasting motivation, constantly overcome obstacles and promote the development of innovation activities when facing difficulties and challenges in the process of innovation [5].

3. Evaluation of the Effect of Discipline Competition on the Cultivation of Undergraduates' Innovative Ability

3.1. Questionnaire design

By considering the training effect of a certain understanding and discipline competition in Wuhan on their innovative ability in the questionnaire, and making the questionnaire as far as possible in line with the real situation of students in the management college, a questionnaire on the innovative ability of students in the management college was finally compiled, with a total of 22 topics.

3.2. Sample collection and reliability testing

In order to understand the effect of academic competition on the cultivation of college students' innovative ability, an electronic questionnaire was used to investigate the students of a university management college in Wuhan. In September 2024, a total of 500 questionnaires were distributed, 400 questionnaires were recovered, and 300 valid questionnaires were screened, with a recovery rate of 60 %.

By setting the trap questions and data analysis, after deleting the trap question error questionnaire and the questionnaire answer is too extreme, the remaining questionnaire is closer to the real situation. In the questionnaire, the gender is 130 boys, accounting for 42 % of the total number, 170 girls, accounting for 58 % of the total number, the proportion is close to 1 : 1 ; there are 70 freshmen, 70 sophomores, 60 juniors, 60 seniors, and 40 graduate students and above, with an average distribution. There are 50 professionals in business management, 50 in accounting, 40 in administration, 40 in tourism management, 40 in big data management and application, 40 in logistics management, and 40 in cultural industry management, which are basically in line with 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1. From the perspective of gender, grade and major, the sample has certain representativeness, which shows that it is reliable and effective to rely on the sample for data analysis.

3.3. Data analysis

3.3.1. Analysis of the basic situation of the respondents to participate in the academic competition

The situation of management college students participating in the discipline competition is shown in the table. From Table 1, it can be seen that in terms of ' whether to understand the academic competition, 50 % of college students learned through school propaganda, and 33 % of college students recommended by others. In terms of college students' understanding of academic competitions, Internet + accounted for 83 %, Challenge Cup accounted for 67 %, social science and

technology marketing competition, enterprise model, business accounted for 50 %, 45 % and 50 %, and students understood more types of academic competitions. Among them, 30 people participated in the academic competition 1-3 times, accounting for 10 % ; there were 50 people in 4-6 times, accounting for 15 % ; there were 120 people with 7 times or more, accounting for 42 %. The number of people who participated in the discipline competition accounted for 67 % of the total number.

Among the students who have participated in the academic competition, 140 students (44 %) agree that they can increase their knowledge in terms of core motivation ; college students who agree that they can improve their ability account for 160, accounting for 54 %. Among the college students who have not participated in the academic competition, there are 60 people who have other activities, accounting for 16 % ; because there are 60 people without suitable companions, accounting for 16 %. This shows that reasonable arrangement of time and find the right partner is the key to participate in the academic competition.

Table 1. Analysis of College Students' Participation in Subject Competition.

Item	Classification	Frequency	Proportion
Do you know the academic competition	school recommendation	150	50%
	peer recommendations	100	33%
	network propaganda	40	13%
	web search	10	4%
Contests of disciplines known to us	Internet + Challenge Cup	250	83%
	challenge cup	200	67%
	National College Students ' Business Comprehensive Ability Competition	150	50%
	National Enterprise Competition Simulation Contest	140	45%
	New Year 's Cup	100	33%
	Social Science Awards Marketing Competition	150	50%
	Cross-Strait Enterprise Operation Competition	50	15%
	Business Management Skills Competition	100	33%
	Study Cup	50	15%
	Number of times to participate in academic competitions	0 times	33%
		1-3 times	10%
		4-6 times	15%
		7 times or more	42%
The motivation to participate in the academic competition is	graduation requirements	30	10%
	Increase credits	90	31%

	Added points for postgraduate entrance examination	3	1%
	Increase knowledge	140	44%
	lifting power	160	54%
	School mandatory requirements	0	0%
	Friend Invitation	160	54%
The reason for not taking part in the students is	Heavy learning tasks	40	13%
	There are other activities	60	16%
	Not interested,	30	15%
	There is no suitable companion	60	16%
awards	each time	30	15%
	Most of the time	80	40%
	A small part of the time	50	25%
	without	40	20%

3.3.2. *An analysis of the influence of the respondents ' participation in academic competitions*

In terms of the most meaningful thing to participate in the academic competition, 140 people (74 %) thought that they could win the competition awards ; there are 130 people who think they can improve their ability, accounting for 71 %. This shows that certain rewards and promotions can effectively promote students to participate in academic competitions. In addition, in terms of award-winning situation, 80 students won the award most of the time, accounting for 40 %, indicating that the management students have strong ability to participate in the academic competition, can well deal with the problems in the academic competition and solve them, and effectively improve themselves.

In the questionnaire, a survey was conducted on college students' perceptions of the impact of academic competitions on themselves. Among them, 120 college students think that the academic competition has improved their ability to think about problems, accounting for 60 % ; there are 130 college students who think that they have improved their innovative ideas, accounting for 65 %. This is a good illustration of the effect of college students' identification with the educational effect of subject competition, especially the cultivation effect of innovation ability.

3.3.3 *Analysis of Survey Respondents' Views on Innovative Abilities*

This survey investigated university students' understanding of innovative abilities and the effectiveness of academic competitions in enhancing these abilities. As shown in Figure 1, 105 students, accounting for 35%, believe that academic competitions are greatly helpful to innovative abilities, while 129 students, accounting for 43%, consider them to be fairly helpful. This clearly indicates that university students recognize the effectiveness of academic competitions in cultivating innovative abilities. In the survey question, "University students participating in academic competitions should focus on innovative abilities", 80 students, accounting for 37%, believe it is very necessary, and 140 students, accounting for 48%, consider it to be

relatively necessary. This suggests that university students acknowledge the important role of innovative abilities in academic competitions and approve of emphasizing the application of innovative abilities in these competitions. By participating, students can enhance their innovative abilities through academic competitions, creating a virtuous cycle of continuous improvement.

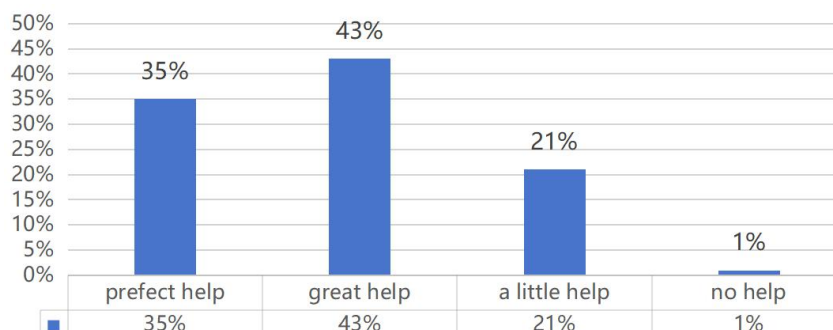


Figure 1. College students think that the influence of subject competition on innovation ability.

3.3.4. Subjective Evaluation of University Students on the Cultivation of Innovative Abilities

In the question, “Subjective evaluation of the importance that universities place on academic competitions”, 70 students, accounting for 23%, believe that their universities attach great importance to academic competitions, while 150 students, accounting for 50%, believe they attach considerable importance. These data indicate that university students perceive their universities to prioritize academic competitions. Additionally, as shown in Figure 2, regarding university students’ subjective evaluations of their schools’ emphasis on cultivating innovative abilities, 105 students, accounting for 35%, believe there is great emphasis, and 120 students, accounting for 40%, consider there to be considerable emphasis. These data suggest that universities are actively leveraging the educational benefits of academic competitions to cultivate students’ innovative abilities.

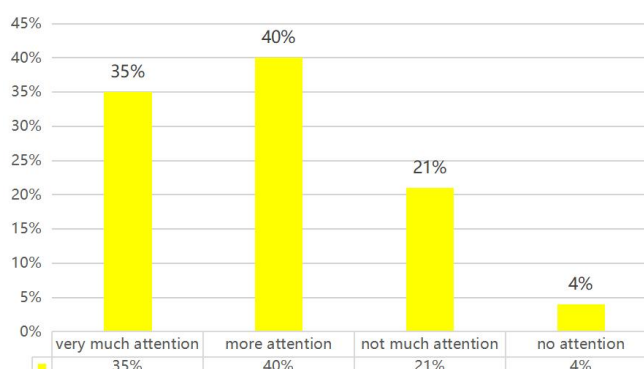


Figure 2. College students’ subjective evaluation of the cultivation of school innovation ability.

3.4. Conclusions and Analysis

Exploring the effectiveness of academic competitions in cultivating innovative abilities, through statistics on students’ participation in academic competitions at the Management College and a survey on the impact of academic competitions on innovative abilities, the following conclusions are drawn:

(1) The immediate benefits for students participating in academic competitions are obtaining competition certificates, which can also increase credits and other advantages conducive to future development. (2) Recommendations from others are the biggest factor influencing students' participation in academic competitions, while having suitable competition partners determines their motivation to participate. (3) Innovative abilities play a crucial role in academic competitions, as these competitions enhance students' innovative practical abilities and exercise their innovative thinking, thereby cultivating their innovative abilities.

4. Practice of Cultivation Models

Through long-term exploration and development, the Management College of Wuhan Polytechnic University has formed a comprehensive and unique system for academic competitions and cultivation models, focusing on the following six aspects.

(1) Implementation Guiding Ideology

Firstly, adhering to the principle of serving students. Regardless of the situation, the healthy development, growth, and immediate needs of students should always be the starting point and decision-making basis for competition work.

Secondly, establishing a consciousness of serving the overall situation. It is crucial to recognize that academic competitions have become key support for fulfilling the fundamental task of cultivating people with morality in the field of higher education, enhancing the quality of talent cultivation, promoting reforms in higher education, showcasing the achievements of teaching reforms in new-era higher education, and assessing the effectiveness of universities' education. They play an active role in helping to build domestic high-level universities with distinct characteristics, serving universities' goals of "successfully striving for doctoral authorization" and "building first-tier disciplines".

(2) Competition Compilation and Analysis

Based on the competition directories in the "2023 National Analysis Report on Competitions for University Students" and the "Collection Results of the Second and Third Batches of Provincial and Above Academic Competition Project Categories at Wuhan Polytechnic University," Conducting the compilation of general and professional academic competitions is carried out synchronously.

General Academic Competitions: A batch of competitions with low thresholds and wide participation are identified from the aforementioned competitions, such as sandbox simulation competitions and Internet+ competitions involving business plans and marketing plans, to maximize the enthusiasm of students across the entire college, or even the entire university, to participate in competitions. At the same time, a project-based operational mechanism drives progress in various aspects of work.

Specialized Academic Competitions: For the specialized and higher-threshold academic competitions related to the accounting, business administration, administrative management, logistics management, tourism management, and cultural management majors at the Management College, a classified management approach is adopted, with relevant students and teachers taking the lead to conduct competition cultivation work within their respective majors.

(3) Competition propaganda organization

Build an online and offline integrated publicity mechanism. Through the offline Youth Forum and Science and Technology Innovation Salon competition propaganda lectures, the basic cognitive framework of the majority of students for various subject competitions is established to understand the competition and mobilize participation in the competition. Take the lecture as an opportunity to establish an online propaganda position for the discipline competition. In the registration stage of various competitions, use good grade group, class group and other publicity wide information platform, the construction of discipline competition propaganda group and each competition organization group. Create a complete system of training and practice mechanism. Competition organization work covers the registration, team, training, training process, the most critical is the quality of training and training effect. Therefore, it is necessary to make the classmates and teachers who really understand the competition responsible for the competition training, and design the training plan based on the actual level and time and energy of the students, distinguish the introductory training from the advanced training, and adopt the periodic training mode step by step.

(4) Competition backbone training

In the final analysis, the subject competition work depends on the subjective initiative of students. Among the many channels to improve the overall competition level of the student group, the most direct and effective is to excavate and cultivate the backbone of the competition. We should pay attention to excavating and cultivating students with high enthusiasm and strong ability in the whole process of the event. Cultivate a group of enthusiastic, hard-working, and award-winning classmates to lead the team in various different competitions, and help new students who have come into contact with the competition to enter the state and improve their level, forming a virtuous circle.

(5) Competition experience inheritance

The inheritance mechanism of competition experience is an important guarantee to ensure the continuous progress of discipline competition work. To be in each. A subject competition working group was established in each competition, and at least one student trainer and several members were set up in each competition. The student trainers are the students who are willing to have the best results and have a higher willingness in the competition, and the other members are the students who have achieved good results or have a better understanding in the party competition. On the basis of mobilizing the participation of the majority of students to the greatest extent, a number of members of the subject competition working group are trained as a step-by-step carrier to ensure that the level of the competition is continuous and the experience is not broken.

(6) Competition risk assessment

In the process of advancing the discipline competition work, we should put an end to bad tendencies such as utilitarianism. Weaken the publicity of incentive mechanisms such as awards and honors, do not take the number of awards as the evaluation orientation and work orientation, and return to the original intention and educational essence of the discipline competition.

5. Conclusions

Based on the extensive investigation and analysis of the undergraduate students' participation in the discipline competition in the School of Management of Wuhan Polytechnic University, this paper deeply discusses the mechanism and practice of the discipline competition to shape the innovation ability of undergraduates. The research results show that the subject competition can not only effectively improve students' innovative thinking, innovative skills and innovative practical ability, but also exercise students' teamwork spirit and innovative will in the face of challenges in the course of the competition. The School of Management of Wuhan Polytechnic University has formed a series of perfect training modes and practical experience in the discipline competition work, including the implementation of the student-centered guiding ideology, the comprehensive collation and analysis of competition projects, the construction of online and offline integrated publicity and organization mechanism, the establishment of a systematic and complete training and practice system, the emphasis on the cultivation of competition backbones and the inheritance of competition experience, as well as the competition risk assessment. These measures provide a strong guarantee for the smooth development of discipline competition work and the full play of the effect of competition education, and also provide practical reference and theoretical support for other colleges and universities in exploring the path of cultivating innovative talents and promoting the in-depth development of education and teaching reform.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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