

Research and Practice on the Cultivation of Innovative Talents in Transportation Based on Discipline Competition

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Abstract

With the rapid development of the transportation industry, cultivating innovative talents in transportation is becoming more critical. As one of the important ways for colleges and universities to cultivate innovative talents, discipline competition can effectively improve the quality of talent cultivation. Therefore, taking the subject competition as the carrier, this paper analyzes the significance of the subject competition for the training of innovative talents in transportation and points out the problems existing in the current training mode. It also puts forward the training guarantee system of innovative transportation talents based on discipline competition from four aspects: improving the management methods of discipline competition, strengthening the integration of discipline competition and curriculum teaching, establishing a new system of "three modernizations" discipline competition and consolidating the construction of teachers' team integrating competition and teaching, to provide a valuable reference for the training of innovative transportation talents.

Keywords

Subject competition; Transportation; Innovative talents; Security system.

1. Introduction

The transportation industry is one of the critical components of national economic development and has a vital strategic position. At present, its industry's market potential and development prospects are extensive, and it is urgent to speed up the cultivation of innovative and applied talents [1]. However, the most prominent problem of the traditional teaching mode is single, which leads to the lack of students' innovative spirit and creative ability. Although in recent years, China has paid more and more attention to the cultivation of College Students' creative ability and consciousness, an important issue still faced by the primary transportation education in colleges and universities is how to cultivate innovative talents with solid professional basic knowledge, high practical ability, and complete comprehensive quality to promote the further development of transportation industry and social economy. As an indispensable part of talent training in Colleges and universities, discipline competition is one of the crucial means to improve college students' innovative consciousness and ability effectively [2]. In addition to investigating the application of students' knowledge points and deepening their understanding of professional knowledge, to a certain extent, it can also improve students' innovative literacy and practical ability, broaden students' horizons, make up for the shortcomings of the traditional teaching mode, promote the transformation of teaching achievements and the improvement of teaching quality.

Given this, taking the transportation specialty as an example and driven by relevant discipline competitions, this paper explores the training system of innovative talents in transportation, aiming to provide new ideas for the training of innovative talents in transportation and support the training needs of high-level talents in transportation.

2. The Significance of Discipline Competition for the Cultivation of Innovative Talents in Transportation

Discipline competition is a meaningful way to cultivate innovative talents in transportation and an essential means to enhance students' innovative and practical abilities. At present, the training mode of transportation innovative and applied talents based on discipline competition in transportation colleges and universities is shown in Figure 1. As an essential participant in the transportation discipline competition, students can broaden their knowledge and improve their comprehensive quality through college teachers' guidance to meet the training requirements. At the same time, they can effectively feedback the training effect to teachers, which is conducive to grasping the training direction accurately and focusing on students, timely adjusting the teaching plan to effectively promote the implementation of the teaching reform of transportation specialty. In addition, students' high-quality competition results can also be transformed for enterprises and institutions. As the prominent position for talent output of colleges and universities, enterprises and institutions can provide students with a practice base and specific competition guidance to promote the improvement of students' self-level and comprehensive quality.

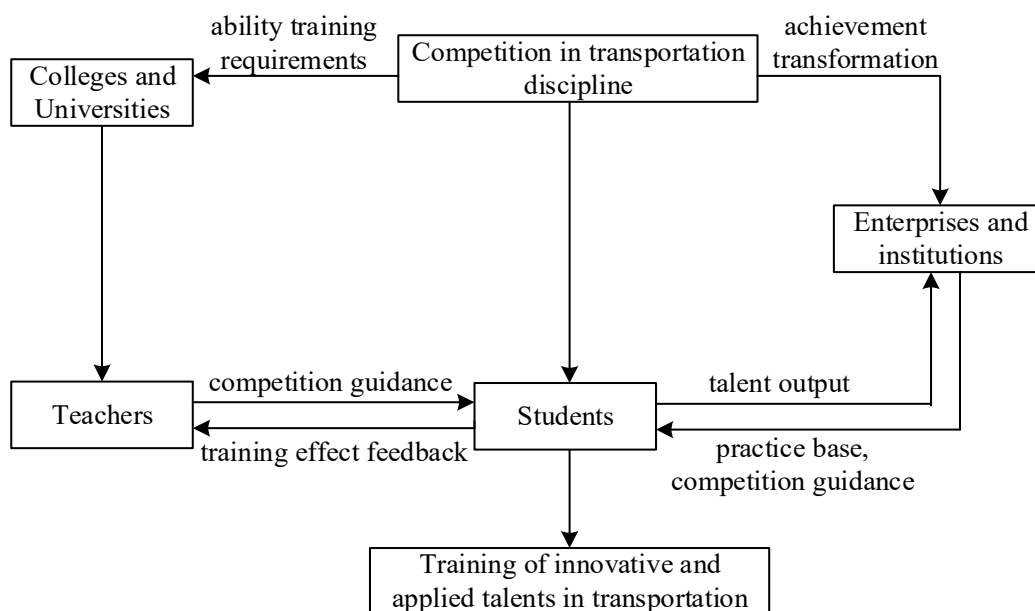


Figure 1. Training mode of innovative and applied talents in transportation based on discipline competition

As an essential practice and innovation platform, the significance of discipline competition for the cultivation of innovative talents in transportation mainly lies in the following three aspects [3-5]:

(1) Improving the innovation and practical ability of students majoring in transportation

Transportation disciplines have typical interdisciplinary characteristics. The discipline competitions based on them are extensive and challenging, requiring students to apply their professional theoretical knowledge and methods to specific practices. Students should be able to develop their thinking, imagination, creativity and innovation to propose solutions or methods with novelty, feasibility and a certain degree of completion for a topic or theme that follows the frontiers of science and technology. The whole process is full of challenges and dilemmas that need to be explored continuously, but it helps to improve students' innovation and practical skills.

(2) Improving the comprehensive quality of students majoring in transportation

The transportation discipline competition takes the group as the unit. The participating students should give full play to their subjective initiative and pay attention to the communication with team members, close cooperation, rational division of labor, and jointly solve the problems encountered. This process can improve students' self-ability to find, analyze, and solve problems and exercise students' awareness of teamwork and communication ability, which is conducive to improving students' overall quality.

(3) Promoting the employment of students majoring in transportation and school-enterprise cooperation

In participating in the transportation discipline competition, students entirely use their knowledge, and their practical ability and comprehensive quality are trained. They stand out in the competition, meet the social demand for innovative and applied talents, and are easily favored by employers, which can improve students' employment competitiveness and promote students' employment to a certain extent. At the same time, enterprises can also discover and excavate qualified personnel through competitions and reach a long-term cooperative relationship with schools, contributing to the synergistic development of industry-university-research.

3. Current Situation of Training Innovative Talents in Transportation Discipline Competition

With the development of the transportation industry, the demand gap for high-end innovative talents is growing. More and more organizers have added relevant discipline competitions for transportation majors or transportation-related topics within the scope of the original discipline competitions. Therefore, students majoring in transportation can participate in a growing number of course competitions, including the National Competition of Transport Science and Technology for Undergraduate Students, China 'Internet plus Transportation' Innovation and Entrepreneurship Competition, China College Students' 'Internet plus' innovation and Entrepreneurship Competition, National Contest On Logistics Design by University Students, 'Creative Youth' Student Innovation and Entrepreneurship Competition, etc. Colleges and universities are also paying more and more attention to the development of relevant disciplinary competitions, giving strong support in terms of funding, facilities and equipment conditions, and making efforts to increase the participation rate of students. However, studies have shown that the willingness of engineering college students to participate in disciplinary competitions in China is not high [6]. The following problems still prevail [7-9]:

(1) Transportation subject competitions are not closely related to the teaching of associated courses. Traditional teaching methods are single, and the teaching content of transportation courses is based chiefly on teaching theoretical knowledge, lacking unique content for subject competitions, resulting in most students not understanding the competition and quickly becoming intimidated, not daring to try. Besides, it also tends to result in the lack of comprehensive knowledge of subject competitions and the low participation rate of students.

(2) The practical teaching mode does not meet the requirements of transportation discipline competition. The common problem in teaching in Colleges and universities is emphasizing theory over practice. In the transportation discipline, although there are relevant practical internships, such as visits, investigations, and curriculum design as the extension and expansion of curriculum teaching, most of them are superficial, and students' practical ability has not been effectively exercised. However, due to the characteristics of transportation discipline, the competition based on this puts forward higher requirements for students' innovation, multidisciplinary knowledge integration, and application ability. Under the current

practical teaching mode, it is not conducive to the formation of divergent innovative thinking, which makes it difficult for students to meet the requirements of the subject competition.

(3) Teacher's poor practical ability and low enthusiasm in guiding the competition. Teachers' practical teaching ability and the level of guiding discipline competition directly impact the quality of practical teaching and talent training [10]. Many college teachers generally lack engineering practice background and experience in transportation colleges and universities. Secondly, teachers often have several jobs and give scattered and random guidance to students, which significantly impacts the competition results. In addition, the competition cycle of transportation discipline is long and complicated, many students' ability is insufficient, and the school lacks corresponding incentive measures, so teachers' enthusiasm to guide students to participate in the competition is not high.

4. Training Guarantee System of Innovative Talents in Transportation Based on Discipline Competition

4.1. Improve the Management Methods of Discipline Competition

The management method of subject competition is one of the necessary guarantees to guide students to participate in the competition. Colleges and universities should improve the management methods of disciplinary competitions including students' innovation and entrepreneurship credit recognition, open laboratory management, etc., and encourage students to compete collaboratively across majors in order to expand the scale of transportation disciplinary competitions and further improve students' enthusiasm for participation. At the same time, a particular person's responsibility system will be established for different events. Under the guidance of discipline competition management measures, the existing resources are maximized to provide primary competition conditions for participating students, such as laboratories, related facilities and equipment, and software support.

4.2. Strengthen the Integration of Subject Competition and Curriculum Teaching

Colleges and universities should deeply analyze the teaching contents involved in the transportation discipline competition, adjust the syllabus pertinently, integrate typical competition cases, improve the correlation between the discipline competition and relevant curriculum contents, bring competitions closer to students and integrate them into the curriculum, and stimulate students' imagination and creativity to the greatest extent. Based on changing the course assessment method, teachers should gradually take the students' creative application of the learned knowledge as the actual content to improve teaching quality and teaching level. The practical activities limited to cognition and internship should be innovated and improved. Based on integrating the knowledge of discipline competition, more practical hands-on links should be added to form a practical teaching system of the transportation profession with competition as the core to exercise students' practical ability and subtly improve students' comprehensive quality.

4.3. Establish A New System of "Three Modernizations" Discipline Competition

A new system of academic competitions with crediting of competition results, teaming of instructors and crossover of competition members should be established to provide a solid guarantee for the implementation of academic competitions [11, 12]. In order to improve the enthusiasm of students to participate in the competition, colleges and universities can convert the competition results into credits, give corresponding rewards to excellent works, and encourage instructors to develop in a team and specialization. Furthermore, due to the characteristics of transportation discipline, a good transportation solution often requires the

support of multiple majors such as transportation, logistics, machinery, planning, information, electricity, accounting, management, economics, etc. Consequently, the competition members contain different specialized subjects and grades to form an interdisciplinary team, which can improve the quality and standard of the competition works.

4.4. Consolidate the Construction of Teaching Staff Integrating Competition and Education

The excellent competition results achieved by students cannot do without the guidance of teachers. By adopting the way of "going out and coming in," universities should regularly organize teachers to participate in academic exchanges in the transportation industry of universities inside and outside the province as well as practical exchanges in enterprises, insist on introducing excellent teachers with high scientific research level and innovative solid thinking, and optimize the structure of teachers to form a young and sustainable growing faculty echelon. Finally, experienced teachers are selected to form a subject competition guidance team to actively guide students to participate in subject competitions and establish a sound self-improvement mechanism for teachers to comprehensively improve their competition guidance level and promote subject competitions toward healthy and sustainable development.

5. Conclusion

In the new era, colleges and universities must pay attention to the reform of the training mode of transportation professionals to transport more excellent professionals for the transportation industry. Relying on the innovative talent training mode of discipline competition can fully exercise students' innovation and practical ability, improve students' comprehensive quality and accelerate employment. Therefore, colleges and universities should improve the guarantee system for cultivating innovative talents in transportation based on discipline competitions, and provide organizational and institutional guarantees as well as financial support for students' participation to facilitate the further development of China's transportation industry.

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