

Exploration of New Methods for Talent Cultivation in Universities

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Abstract: To realize The Strategy of Building a Strong Aerospace Country and Ocean Power Strategy, it is urgent to cultivate a large number of highly educated talents with correct ideology, solid theoretical knowledge and strong engineering ability. Due to the lack of industry precision of talent training, the traditional talent training mode cannot meet the urgent needs of social development for talents in the defense industry. In response to some problems encountered in the process of talent cultivation in national defense characteristic universities, this article proposes a dual combination talent cultivation model and provides specific solutions to the existing problems. Through practical verification, feedback data indicates that the reform has achieved good results.

1. Introduction

Engineering colleges are important bases for talent cultivation in modern society, and industrial power is a necessary path for socialism with Chinese characteristics^[1]. China's industrial system is complete, but the cultivation of engineering talents is always in the exploratory stage. The supply of talents cannot meet the needs of industrial society development, resulting in a long talent cultivation cycle and low efficiency. Especially in the cultivation of dual-use military and civilian talents, this issue is more prominent. This is an issue that higher education institutions must deeply consider.

2. The Current Problems in Talent Cultivation in Engineering Universities

2.1. The spiritual education process is relatively weak, making it difficult to meet the needs of talent cultivation quality and ideological construction

The traditional engineering talent training system mainly focuses on the construction of students' theoretical knowledge system, and in the ideological construction process, it mainly relies on curriculum theory education^[2]. The form is relatively single and rigid, which is difficult to resonate with students at the spiritual level, resulting in subjective positions and ideal beliefs that are difficult to meet the ideological needs of dual-use talent training in the national defense industry.

2.2. Feedback optimization of training quality has a long iteration cycle, making it difficult to meet the timely iteration needs of the talent cultivation process

Due to the limitations of the separation of schools and enterprises, the traditional process of joint training between schools and institutions is generally a relay in series^[3]. The mentors and student training processes of both schools and institutions have failed to achieve a "full process, full staff, and comprehensive" integration. Feedback on training quality requires several years after graduation and several training cycles to complete the update and iteration process of feedback adjustment. The training quality feedback is not timely, the optimization iteration cycle is long, and

it is difficult to timely target the needs of national defense research talents.

2.3. The cultivation of dual-use military and civilian talents lacks precision, making it difficult to meet the precise needs of the target industries for talent cultivation

The defense industry has a clear classification of the demand for dual-use talents. The traditional talent cultivation process does not have a standardized division of training channels for talent needs in the defense industry, and lacks exploration of students' characteristics in scientific research, organizational ability, hands-on ability, etc^[4]. It has not formed a specialized output caliber for leading talents, scientific research talents, management talents, etc., making it difficult to accurately meet the demand for dual-use military and civilian talents.

2.4. The update of university training platforms is slow, making it difficult to meet the real-time update needs of talent cultivation capabilities

Due to funding constraints in universities, the training platform is unable to adapt to the rapid development of science and technology, which is not conducive to students keeping up with the academic forefront and cultivating practical skills^[5]. This leads to the problem of talent cultivation lagging behind theoretical levels, and the disconnection between personnel training goals and industry needs.

3. A New Path of Talent Cultivation in Engineering Universities

3.1. Comprehensive Design of Talent Cultivation Standards and Industry Needs

The development needs of the national defense industry have put forward new requirements for existing talent cultivation standards. At present, theoretical knowledge is the main teaching content in teaching activities. The national defense industry requires military civilian dual-use talents to not only have theoretical and technical knowledge, but also master relevant knowledge such as the characteristics of military civilian technology, military civilian industry standards, and the development trend of military civilian dual-use technology. New content that is suitable for the development of the national defense industry should be introduced into the existing teaching system to enrich the existing teaching content, and talent cultivation work should be targeted at the needs of society and industry to meet the needs of military civilian dual-use talents.

3.2. Comprehensive Design of Curriculum Ideological and Political Construction and Scientific Research Enlightenment

National defense research projects, represented by the aerospace field, often generate a strong sense of pride and belonging among students due to their special political and military significance. This spiritual and cultural value system directly motivates students to engage in national defense research, forming a virtuous cycle, as shown in Figure 1. On the one hand, national defense research projects and achievements can serve as a display of teaching content, technical practice achievements, and on the other hand, they can also enhance students' patriotism and professional identity through ideological and political courses.

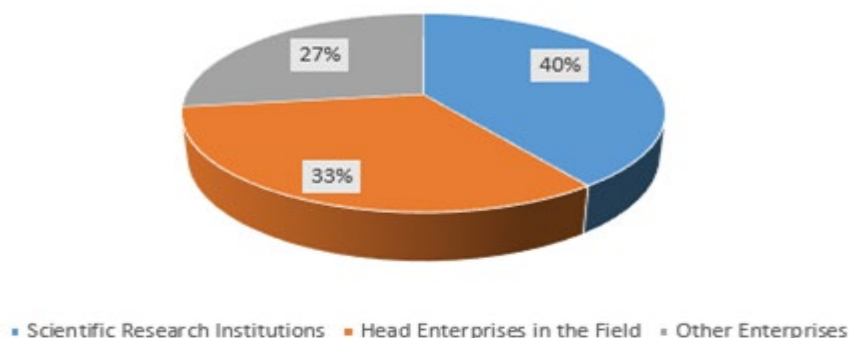


Figure 1 The employment destination of graduates (participate in project practice)

3.3. Comprehensive Design of Discipline and Professional Construction and Industrial Needs

The height of subject construction determines the quality of student training, as well as the perspective of talent cultivation and future sustainable competitiveness. The demand for the national defense industry is a necessary requirement for national development, while also providing a long-term stable market for the export of dual-use talents. Therefore, the construction of disciplines and majors should focus on the needs of the national defense industry and be demand oriented, so that the construction of disciplines can face real problems.

3.4. Comprehensive Design of Teacher Team Construction and Enterprise Backbone Training

The research activities of university teachers mainly focus on academic frontiers, while the research activities of research enterprises mainly focus on technological applications, with different focuses. Under the framework of joint training between military, civilian, school, and enterprise, teachers can jointly carry out major scientific research projects, participate in major activities, and complete major tasks to improve their academic level in scientific research. They can also provide practical foundation and engineering experience for teaching work, and improve the quality of university faculty construction. At the same time, scientific research enterprises can grasp the academic forefront through cooperation with universities, provide new directions for technological development, and achieve rapid growth in the academic capabilities of enterprise talents.

3.5. Comprehensive Design of Campus Technological Innovation and Enterprise Technology R&D

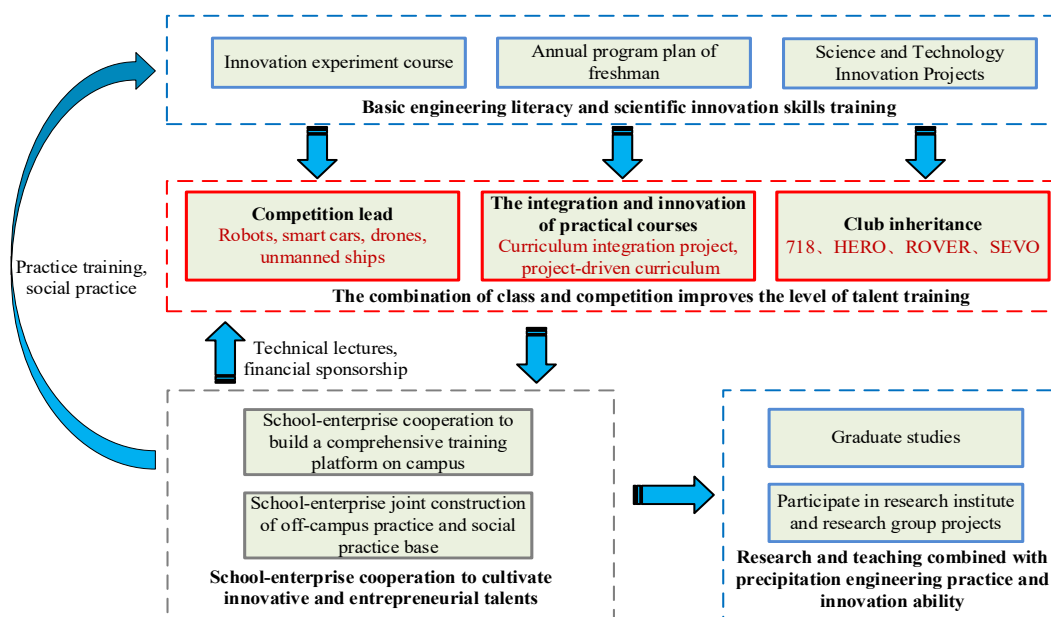


Figure 2 The integration training path on campus technological innovation and enterprise technology research and development

The level of scientific and technological innovation among university students is a reflection of the scientific research level of university teachers. The School of Information Technology has attached great importance to students' scientific and technological innovation work for many years, and has won awards at various levels in various competitions. Therefore, the student science and technology innovation team is a national defense technology research and development force with strong potential. The integration of campus technological innovation and enterprise technological research and development can achieve bidirectional spillover of national defense needs and bidirectional transfer of technological achievements, providing new directions for students' scientific and technological innovation, as shown in Figure 2. Integrating students' scientific and technological innovation activities into the technological research and development process of national defense research enterprises can achieve a win-win situation for both the school and the institution.

3.6. Comprehensive Design of Practical Training Platform Construction and Enterprise Platform Utilization

The process of talent cultivation requires highly collaborative cooperation between universities on the talent supply side and research enterprises on the talent demand side to achieve resource complementarity. Compared to research enterprises, universities have slower updates in practical training conditions, making it difficult to access advanced research platforms during their time in school. However, research enterprises need to include the use of research platforms in the practical ability of talents, so they often need to spend a lot of time on training after students graduate and enter the workforce. At present, defense research and development enterprises have begun to establish research and development institutions in universities, and several defense enterprise research and development institutions have also been established in Weihai Campus. The reasonable utilization of these advanced research platforms can effectively improve the quality of talent cultivation in schools.

4. Conclusion

The engineering talent training model established in this article directly targets the major needs of the country and the actual needs of national defense, with clear training objectives and ability expectations. The practical test results indicate that it can effectively assist in the cultivation of dual-use talents for both military and civilian purposes, and has good reference significance and promotion value for national defense characteristic universities. The results are also applicable to other engineering universities.

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