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# Exploring the Reform of University Education and the Cultivation of Innovative Talents

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**Abstract:** The field of higher education has undergone tremendous changes in the past few decades, and the traditional model of knowledge transfer is no longer sufficient to meet the needs of modern society for human resources. Students need more opportunities to develop innovation, practical problem solving and teamwork skills. Higher education is no longer just about transferring knowledge, but also about cultivating students' comprehensive literacy so that they can stand out in a complex and changing environment. The purpose of this paper is to discuss in depth the strategies for cultivating innovative talents in the reform of college education, with special attention to the measures for building classroom teaching methods, practical teaching system and extracurricular academic and scientific competition mechanism. These strategies are not only the key to responding to the needs of today's society, but also an effective way to improve the quality of higher education. Through in-depth analyses and research, this study aims to provide useful thinking and guidance for educational reform in higher education.

**Keywords:** Colleges and universities; Education reform; Innovative talents; Cultivation strategy

## Introduction

The reform of higher education has always been one of the important issues in the field of education, and one of its core objectives is to cultivate talents with innovative spirit and practical ability to adapt to the ever-changing needs of society and the workplace. In modern society, innovative talents are not only a key factor for national development, but also a driving force for social progress. Therefore, how to cultivate innovative talents in the education reform of colleges and universities has become the focus of common concern in the academic and educational circles.

### 1. Reforming classroom teaching methods to stimulate students' innovative thinking

Reforming classroom teaching methods to stimulate students' innovative thinking is an important part of cultivating innovative talents in the education reform of colleges and universities. This part will explore how to stimulate students' innovative thinking through the innovation of teaching methods. Firstly, we will discuss the role change of teachers, secondly, introduce the method of problem-driven learning, and finally, explore the practice-based teaching model.

Changes in the role of teachers are crucial in education reform. The traditional teaching model emphasises the authority of the teacher, who usually acts as a transmitter of knowledge. However, in the process of cultivating innovative talents, teachers should encourage students to ask questions and guide them to explore solutions on their own initiative, rather than just instilling knowledge. This shift helps students change from passive receivers to active thinkers and creators<sup>[1]</sup>. Problem-driven learning is an effective method to stimulate students' innovative thinking, and teachers can design challenging and practical problems so that students can develop innovative skills in the process of solving problems. This approach can be interdisciplinary, allowing students to draw inspiration from different fields of knowledge and promoting the development of interdisciplinary thinking. By guiding students to ask questions, seek information, analyse data and propose solutions, problem-driven learning helps to develop critical thinking and a sense of innovation.

Another important pedagogical approach is the practice-based teaching model, in which students apply what they have learnt by engaging in real-life projects, experiments and hands-on activities, which help them to translate their theoretical knowledge into practical applications. Practice-based teaching can provide students with opportunities to interact with real-world problems and challenges and stimulate their creative potential. In addition, students' experience of working together and solving problems in real projects helps to develop teamwork and real-world problem-solving skills, which are crucial in the development of innovative talents.

In conclusion, reforming classroom teaching methods to stimulate students' innovative thinking requires a change in teachers' roles, the adoption of problem-driven learning methods, and the implementation of a practice-based teaching model. These strategies contribute to the

effective cultivation of innovative talents in the reform of university education, equipping them with the ability to solve real-world problems and the spirit of innovation.

## **2. Building a practical teaching system and cultivating practical innovation ability**

In the education reform of colleges and universities, building a practical teaching system to cultivate students' practical innovation ability is a crucial strategy. The construction of the practical teaching system needs to take into account the design of the curriculum, laboratory facilities, industry cooperation and other factors in order to create an environment conducive to the cultivation of students' practical innovation ability.

Teachers need to design their programmes carefully to ensure that students are engaged in real-world problem solving in the classroom. This may include case studies, simulation experiments, project-driven teaching methods to stimulate students' active learning and practical skills, and the construction of laboratories and practice sites is also a key factor in fostering practical and innovative skills. Universities need to invest resources in building modernised laboratories and practice sites to provide students with opportunities for practical exercises and experiments. These practical environments should be in line with the industry to ensure that students are exposed to the latest technologies and methods, thereby enhancing their practical innovation ability.

In addition, industry cooperation is an indispensable part of the practical teaching system, and universities should actively cooperate with the industry and establish cooperative relationships with enterprises and research institutes to provide students with practical projects and internship opportunities. This kind of cooperation not only allows students to apply theoretical knowledge to practice, but also cultivates their ability to solve practical problems<sup>[2]</sup>. Finally, the assessment and feedback mechanism is a key component of the practical teaching system. Schools should establish an effective assessment mechanism to monitor students' performance in practical teaching and provide timely feedback and guidance. This helps students to continuously improve their practical abilities and promotes their innovative thinking.

## **3. Building a mechanism for extracurricular academic and scientific competitions**

In the reform of higher education, the construction of an extracurricular academic science and technology competition mechanism is regarded as one of the most important strategies for the cultivation of innovative talents, and this mechanism provides students with opportunities to actively participate in scientific and technological innovation activities, and at the same time stimulates their interest and motivation, which helps them to cultivate their innovative thinking and practical ability. The implementation and impact of this strategy will be discussed in depth below.

The mechanism of extra-curricular academic and technological competitions provides an arena for students to showcase their talents. These competitions usually include a variety of academic and technological fields covering a wide range of topics and issues. Students can choose the areas they are interested in or specialise in to participate in the competitions and showcase their innovations. The opportunity of such competitions can make students study and research harder, thereby enhancing their academic standards and technological innovation.

The mechanism of extra-curricular academic and technological competitions encourages interdisciplinary co-operation among students, and many of the competitions require students to form multi-disciplinary teams and work together to solve complex problems. This mode of co-operation helps students to understand the knowledge and skills of different fields and develop interdisciplinary thinking and comprehensive ability. At the same time, teamwork also hones students' communication and collaboration skills, laying a solid foundation for their future careers. In addition, the mechanism of extracurricular academic and technological competitions provides opportunities for practical problem solving. Students are usually required to choose a specific problem or project and come up with an innovative solution. This process develops students' problem-solving skills and innovative thinking, enabling them to be more confident and creative in facing unknown challenges. Finally, this mechanism also helps share and complement academic and research resources. Students can gain guidance and expertise from their mentors in the competition, as well as interact and collaborate with each other and other competition teams. This sharing and complementing of resources helps to improve the overall strength of the competition team and promotes higher level of scientific research results.

## **4. Fostering scientific and technological innovation teams among university students**

In the reform of university education, the cultivation of college students' science, technology and innovation teams is regarded as a crucial strategy aimed at fostering innovative talents and improving students' innovative ability and practical experience. Science and technology innovation activities in modern society are usually a complex and diverse process that requires multidisciplinary collaboration, teamwork and cross-border communication.

For example, in a university entrepreneurship programme competition, students form interdisciplinary and professionally complementary competition teams to tackle a technology, product or service with promising market prospects. In working together to complete a comprehensive and in-depth business plan, team members must make full use of their respective expertise and collaborate with each other to analyse

data, collate information and formulate strategies. This process stimulates teamwork and enables team members to learn to work collaboratively to overcome challenges and pursue goals together. Science and technology competitions not only cultivate students' sense of innovation, but also hone their teamwork and communication skills.

Science and technology competitions also help college students' science and technology innovation teams to develop a short-term and efficient mode of co-operation. These teams usually focus on specific tasks within a limited period of time, which requires team members to adapt quickly and co-operate efficiently. This task-based cooperation model can significantly improve students' innovation ability and develop their ability to cope with pressure and deadlines. In addition, once a temporary innovation team based on 'task collaboration' is formed, it can be guided and nurtured to become a stable research team. The members of such teams are attracted to each other by common goals and interests, and form a deep cooperative relationship. In such teams, students have the opportunity to be exposed to a wider range of knowledge areas, draw inspiration from the intersection of different disciplines, and develop interdisciplinary thinking and innovation skills. This also provides a strong impetus for sustainable science, technology and innovation.

In conclusion, cultivating college students' scientific and technological innovation team is an important strategy in the reform of college education. Through scientific and technological competitions and other means, students can exercise teamwork and innovative thinking in practice and cultivate innovative talents. This team cultivation mode can not only improve students' innovation ability, but also provide a solid foundation and sustainable power for scientific and technological innovation, which can help to meet the urgent demand of modern society for talents with teamwork and innovation spirit.

## 5. Conclusion

This paper discusses in depth the multidimensional strategies for cultivating innovative talents in the reform of higher education, including the strategies of reforming the classroom teaching methods, constructing the practical teaching system, building the mechanism of extra-curricular academic science and technology competitions as well as cultivating college students' scientific and technological innovation teams, and so on. The research and practice of these strategies are aimed at adapting to the demand for innovative talents in modern society and promoting the further development and improvement of the higher education system. Through the research of this paper we find that on the road of education reform, cultivating innovative talents is a complex and long-term task. Innovation is not only a skill, but also a way of thinking and a life attitude. Therefore, education reform needs to be continuously explored, experimented and improved to better meet the needs of society.

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## References

- [1] Yang Lin, Yin Jun. Discussion and Practice of Applied Talent Cultivation in the Context of Vocational Education Reform--Taking Hope College of Southwest Jiaotong University as an Example[J]. Chinese Science and Technology Journal Database (Full Text Edition) Education Science, 2023(5):4.
- [2] Gong Min. Exploration and Analysis of Reform Strategies of Double Creation Education in Colleges and Universities Oriented on High-Quality Talent Cultivation--Review of Exploration and Research on Innovation of Practical Education in Colleges and Universities[J]. Chinese Journal of Education, 2023(5): I0037-I0037.

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