

# Research on the Cultivation of Environmental Science Talents and the Promotion of Innovation Ability

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**Abstract:** The training and positioning of university professional talents is reflected in the construction of the talent training system. The paper focuses on the connotation of talent training and the construction of a scientific and technological innovation ability training system based on two aspects: the orientation of talent training and the improvement of students' scientific and technological innovation ability. Through the orientation of the training target, the integration of science and education, the combination of "academy and ecological institute", and the "dual tutor system" to cultivate students' scientific research and innovation ability, so as to adapt to the society's demand for environmental professionals.

**Keywords:** Personnel Training; Environmental Science; Scientific and Technological Innovation

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## Introduction

The training of elite talents in higher vocational schools takes high-tech talents as the training goal, and small-scale, intensive training, emphasis on foundation, and strong practice as the training method. Based on the actual needs of China's national conditions and the development needs of the world and the future. Some scholars<sup>[1-2]</sup> based on the actual needs of China's national conditions and the needs of the world and future development, and they believe that the talent training model mainly includes an open talent training model, a heuristic talent training model, a comprehensive quality education model, and an elite education model. Innovative training mode not only updates the original knowledge system, but also innovates the professional system, forming a professional structure of independent technology system in Colleges and universities<sup>[3-4]</sup>. The training model for environmental science professionals is mainly in terms of talent training goals, professional core settings and practical link settings and so on. For example, The environmental science major of Nanjing University implements the training idea of "professional development is based on teaching, cultivating students' general knowledge ability, broadening knowledge, strengthening practical ability, and improving ability and quality". The Environmental Science Talent Model of Zhejiang University is to pay attention to the combination of foundation and specialty, expand students' professional research ability and international vision, and set up international module. The training model of environmental majors in some research universities in the past is to cultivate students' scientific research ability. It is cultivated from the aspects of professional foundation, innovative thinking and scientific research ability<sup>[5-6]</sup>. The environmental science major of Ningxia University uses the academic tutorial system and the reform of practical teaching links to enhance students' innovative ability.<sup>[7]</sup>

## 1. The orientation of environmental science talents training

### 1.1 Combination of training goals and "teaching and scientific research"

Curriculum reform and personalized teaching, the English teaching of some professional courses, the reform of innovative practical courses and project-based teaching mode are the main directions of professional construction and reform at present. In the reform of environmental sciences, great importance is attached to the role of "research" in production, education, and research, and the positioning of talent training is determined according to actual conditions, highlighting or strengthening the role of the Academy of Sciences in the cultivation of talents, focusing on the cultivation of students' innovative and scientific research capabilities, so that students have better abilities. Strong professional knowledge and certain scientific research and innovation research capabilities.

### 1.2 Establishing the curriculum system of practice teaching jointly built by universities and institutes

Continuously improving the existing talent training program, optimizing the curriculum, and building a scientific and innovative talent curriculum system that integrates theoretical teaching and practical teaching is the focus of the current professional construction. Professional construction is mainly curriculum, and practical courses are the main aspect of professional ability training. Curriculum system construction is the basis for the realization of training objectives. The proportion of practical courses will be expanded by 30%, and professional innovation practice credits will be increased, which will fundamentally enhance students' awareness of innovation

and meet the requirements of innovation. The new curriculum system adopts a “four-tier structure” curriculum system structure that combines teaching-learning-research-industry.

### **1.3 Perfecting the mechanism of “double tutor” Teachers**

The “double tutor” system is implemented among freshmen to seniors. The students have two tutors on and off campus to jointly train the students. The teacher of this major serves as the student’s academic enlightenment tutor, and scientific research and innovation academic tutors are served by teachers from the Institute of Ecology of the Academy of Sciences. The professional course teachers are mainly responsible for the students’ professional learning guidance, life and innovation experiment participation in school. Teachers from the Institute of Ecology of the Academy of Sciences provide opportunities and conditions for students to enter laboratories, serve as assistants in scientific research experiments, and provide scientific research topics, thereby strengthening students’ scientific research capabilities.

## **2. Cultivation of College Students’ innovative ability**

### **2.1 Constructing a “four-tier structure” curriculum system based on practice based on the integration of science and education**

A four-in-one curriculum system of basic theory, professional courses, internship practice, and innovation of science and education integration, build a multi-level experimental and practical teaching system, form a college-industry diversified cooperation, and improve the practical teaching system. The laboratory is the heart of a modern university. The college promotes practical teaching with scientific research, carries out characteristic and personalized practical teaching, and the college and the Institute of Ecology jointly cultivate the “three arrows together” experimental and practical teaching method to build a solid foundation “Basic, strengthen professional experimental teaching, improve application practice ability, and stimulate innovative potential” experimental practice teaching system, constructing an innovative research teaching model.

### **2.2 Promoting innovation ability through practical innovation projects and competitions.**

In the current environment of innovation and entrepreneurship, with the National Youth Creation, Challenge Cup and Internet Competitions+ as the main starting point, the focus is on cultivating students’ innovative ability, promoting learning by competition, teaching by competition, and research by competition in environmental science. Students of our major have good results and excellent experience in innovation and entrepreneurship. In recent years, they have won the National Youth Youth Silver Award, Internet + Bronze Award and other good results, and there are also excellent entrepreneurial cases. In addition, it focuses on fostering students’ entrepreneurial awareness with the intersection of environmental and professional characteristics and service-oriented characteristics, and promotes it in various ways in the form of excellent alumni entering the classroom and co-construction of excellent enterprises.

### **2.3 Innovative training chain platform support system**

Pay attention to platform construction and make good use of the advantages of “science and education integration”. Through cooperation with ecological institutes and outstanding enterprises, to build a good practice platform, high-level platform construction plays an important role in cultivating innovative talents. Exploring a scientific and technological innovation system for the whole process of “application of basic research-technology research and development-industrialization”, providing a complete chain support system for innovative talents, and forming a complementary practical training system for laboratories, enterprises, training bases and research institutes.

## **3. Conclusion**

Professional development and training are first reflected in professional positioning and the training of talents. The goal of talent training must closely follow professional development and social needs, accurately position. Therefore, the development of the environmental science major must fundamentally cultivate talents, combine the needs of contemporary society for majors and serve the requirements of social and economic development, and appropriately adjust the training goals of talents and the cultivation of students’ innovative ability.

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