

# Research and Practice on Innovative Ability Training of Applied Talents Based on Extension

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**Abstract.** Extensive talent is a new concept of talent cultivation, which is different from pioneering talents emphasizing innovation and professional talents emphasizing meticulous drilling, but a combination of both. In view of such a brand-new concept of talent cultivation, this paper innovates the talent cultivation mode of undergraduate education in Colleges and universities, and puts forward the idea of cultivating high-quality and applied talents with solid theoretical basis, profound professional accomplishment and rapid professional cognitive ability, which can quickly adapt to and fully integrate into other related industries.

**Keywords:** Extension, Applied Talents, Innovative Ability, Education.

## 1. Research Background

Extenics is a cross discipline of philosophy, mathematics and engineering founded by Cai Wen, a Chinese scholar, in 1983. It uses formalization to study the laws and methods of expansion and transformation of things to solve contradictions. Extenics is one of the basic disciplines for the intelligent handling of contradictions, which explores the basic theories and methods of the intelligent handling of contradictions, and studies the creativity and application of new products and projects to deal with contradictions. Extenics is used in qualitative and quantitative analysis of social sciences. It has the advantages of fine macro-description, accurate micro-description, strong objectivity of research tools, clear thinking, rigorous thinking and concise process.

## 2. Research Questions

Under the mobile network environment, there is a more common phenomenon in College teaching: teachers talk endlessly, students play with mobile phones under the stage. Is it that students don't like learning, or that the teacher's lecture is not lively enough? The convenience, timeliness, richness and interestingness of knowledge acquisition through search engines and other tools have been greatly improved. The original way of relying mainly on teachers'teaching and book learning is undergoing significant changes.

Therefore, in the era of network information, we must explore a new teaching mode to achieve good interaction between teachers and students, between students and the network, and between knowledge and practical application. The goal is to use knowledge and innovatively solve practical problems. Fig. 1 is an analysis of the bottleneck of College Students'inadequate innovation ability.

This topic introduces the theory of Chinese original subject extenics, explores the new teaching mode of Cultivating College Students'innovative ability under the mobile network information environment. Through research and theoretical research, it finds the bottleneck restricting the improvement of College Students' innovative ability in Applied Undergraduate colleges, and draws the analysis chart of bottleneck factors. The model of "knowledge element + extension innovation" has been developed, the sharing and extension practice teaching mode in the information environment has been designed, the training textbooks and software platforms have been developed, a series of practical development training topics have been designed, the content of multi-courses has been linked up, the students have been guided to make rational use of the network and improve the comprehensive operation of knowledge. With ability and innovation ability, the fundamental transformation from mastering knowledge to solving practical problems innovatively will be realized.

The training model of multi-system collaborative innovation application ability is drawn. The model of "knowledge element + extension innovation" has been developed, the sharing and extension practice teaching mode in the information environment has been designed, the training textbooks and software platforms have been developed, a series of practical development training topics have been designed, the content of multi-courses has been linked up, the students have been guided to make rational use of the network and improve the comprehensive operation of knowledge. With ability and innovation ability, the fundamental transformation from mastering knowledge to solving practical problems innovatively will be realized.

Table 1 .Model Diagram of Multi-department Collaborative Innovation Ability Training

Innovation Plan	Innovation Ability	Innovative Methods
Innovative Talents with High Level Thinking Ability	Information Collection and Problem Description	Multi-resource collaboration
Individual Ability Innovation	Extension Set and TRIZ Theory	Multi-method synergy
Multi-Collaborative Innovation in Pan-environment	Analysis of Information Expansion	Innovation Plan N
	Extension transformation of knowledge	Innovation Plan M
	Operation of Innovative Scheme	

### 3. Solutions

1) Deepening the reform of teaching methods with classroom practice teaching as a breakthrough.

For colleges and universities, the reform of improving the teaching conditions of courses is relatively simple, but the reform of teaching mode is much more complex, and the core and key of the reform of teaching mode is how to play the role of the main channel of the classroom. Comprehensive survey results show that the difficulty of classroom teaching reform is how to improve students' participation, which requires that the foothold of classroom teaching reform must be put in the practice link, through the practice link to change the face of classroom teaching. Therefore, the core of teaching reform lies in classroom teaching, and further highlights the practical teaching links, as a starting point and a foothold, gradually opening up. In the exploration of reform, we should focus on several important links: first, the innovation of practice form. The second is the integration of theory and practice. The purpose of practical teaching is to deepen theory. The effectiveness of theoretical teaching needs to be improved and tested by practical links. It is necessary to integrate theory with practice. Third, the reorganization of teaching content. Taking classroom practice as the center requires theoretical content to revolve around the requirements of practical teaching links, break the restrictions of chapters, highlight the comprehensiveness of knowledge, and realize the reorganization and integration of content.

Take the integration of teaching content as the core to ensure the integrity of the curriculum.

Comparing and studying creative teaching modes at home and abroad, incorporating the advantages of both cognitive and constructivist theories, systematically studying the internal links between courses, designing a comprehensive practical training question bank, aiming at solving practical contradictions and competitions, integrating cognitive knowledge and methodological knowledge, and training universities in a double-helix interactive way. Students' innovative ability. The concrete methods are as follows: Firstly, the practical teaching mode of knowledge comprehensive application based on extenics is constructed. The students are trained to use the knowledge to deal with problems by using the knowledge they have learned and the information they have collected as materials and the knowledge of extension innovation methodology as processing

and processing tools. Realize the linkage between cognitive knowledge and extension innovation methodological knowledge.

The contents and methods of students' practical training will be further extended to enterprise practice. For example, students will expand their personal Guinness Records to be the first to find enterprises and participate in brand planning for new energy enterprises, which is approved by the chairman of the company. Using process design to optimize knowledge and draw strategic investment process, it was praised by Vice President Oaks. Counseling students to collect enterprise resources after class, compose more than 1800 enterprise resource trees and become resource dictionaries to deal with problems, so as to realize the linkage between social needs and students' practical activities.

Take the curriculum linkage mechanism as the platform, pay attention to the linkage of teaching innovation.

Linkage mechanism is the intersection point and interaction field of four courses' classroom practice teaching. It is very important to build this platform.

The extension model of innovation capability enhancement can be divided into three aspects: 1) knowledge collaboration. Course knowledge and related information are collected by using primitive theory and ontology technology. Through the primitive database, the material library for innovative practice is constructed to realize the integrability of innovative material. 2) method synergy. Starting with the "three, three and five" methods of extension innovation, and combining with the divergent thinking of existing conditions and objectives, all possible innovative paths are listed, compared and tested one by one. 3) Collaboration of personnel and organizations. Through the process training, the team members can divide their work reasonably, and use the extension transformation theory to process information orderly and collaboratively to formally generate alternative innovative schemes. Finally, the scheme is evaluated and feasible innovative scheme is selected.

Aiming at improving students' identity, we should improve the teaching evaluation mechanism effectively.

The evaluation observation points are mainly determined by the students' identity, and the students' identity as the evaluation index is divided into the observation points of the importance and necessity of the curriculum, the willingness to participate in the curriculum, the interest and attitude in learning. Secondly, to highlight the weight of student evaluation to determine the evaluation system. Delphi method is used for expert consultation to highlight the main position of student evaluation, to emphasize the communication significance of peer evaluation, to strengthen the role of supervision and management personnel in the evaluation process, to rationally allocate weights, and to highlight orientation and pertinence. Strengthen the timely and effective communication of information in the information feedback system, and give full play to its coordinating and promoting role.

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