# Research on Effective Strategies of Scientific Research Feedback Teaching in Local Universities

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## Abstract

With the rapid development of China's social economy, the reform of higher education is also accelerating. In order to train high-quality applied talents, local colleges and universities should deal with the relationship between scientific research and teaching, give full play to the role of scientific research in "feeding back" teaching, use the research results of scientific research team to promote the improvement of teaching level, realize the mutual promotion of scientific research and teaching, and achieve the goal of training high-quality applied talents. Ultimate goal.

## Keywords

Institutions of higher learning; Application-oriented Universities; Scientific research; teaching reform.

## 1. Introduction

Nowadays, the international competition is becoming increasingly fierce. The competition between countries and regions is, in the final analysis, the competition of talents, the competition of innovation ability and scientific research level, and the competition of higher education and teaching level. The responsibility of colleges and universities is to cultivate innovators, laborers and promoters who meet the needs of the times for the prosperity and economic development of the country, social progress and human civilization. In order to enhance the overall strength of China's higher education, it is urgent for the country to establish world-class universities and first-class disciplines (hereinafter referred to as "double first-class"). However, the number of colleges and universities that can enter the "double first-class" construction is small, and most local colleges and universities are not included in this list. In order to transform and develop local colleges and universities, improve the quality of applied talents training, and enhance the ability to serve economic and social development, the relationship between scientific research and teaching must be properly handled.

Teaching and scientific research are the basic functions of universities. The development of the times and the needs of the society require universities to change their thinking, provide knowledge, skills and science and technology that meet the requirements of the times, and train applied talents to serve the needs of the society. So, the role of scientific research in teaching has become particularly important. For a university, scientific research and teaching should be integrated, interdependent and mutually reinforcing, and should develop together. The integration of the two is the best choice to optimize the allocation of resources and improve the quality and level of education and teaching in Colleges and universities.

## 2. Analysis of the Reasons for the Problem of "Emphasizing Scientific Research and Less Teaching"

There are many reasons for emphasizing scientific research over teaching, but they are mainly reflected in government policies, university management and teachers' professional development needs.

### 2.1 Guidance of Government Policy

The promotion of university management and the need of teachers' professional development have jointly led to the problem of attaching importance to scientific research rather than teaching in Colleges and universities. The government has substantially increased funding for scientific research, reformed the investment mechanism for scientific research, and guided and encouraged institutions of higher learning to carry out scientific research in the face of national and market demand by adjusting various means such as project evaluation and award evaluation. Under the influence of social and national macro policies, scientific research has received unprecedented attention, while teaching has not been strengthened to the same extent.

### 2.2 Promotion of University Management

The relationship between teaching and scientific research is not well handled in the management of colleges and universities. The policy is driven by interests and tends to research. The evaluation system is unscientific, which promotes teachers to devote their energies to scientific research. This leads to the disharmony between teaching and scientific research in Colleges and universities.

### 2.3 Teachers' Professional Development Needs

Compared with teaching work, teachers' scientific research can bring more benefits, improve teachers' welfare, make it easier to appraise professional titles, and get more recognition from peers and society.

## 3. Research on the mechanism of scientific research back-feeding Teaching

Establish the concept of paying equal attention to teaching and scientific research, and make it clear that teaching and scientific research are one for colleges and universities. The integration of the two is the best choice to optimize the allocation of resources and develop educational science and technology, and construct the mechanism of scientific research feeding back teaching.

### 3.1 Classified assessment of Teachers

Teachers are assessed according to different disciplines. Different disciplines have different requirements for teachers' teaching and scientific research tasks. Internal division of labor is implemented. Some teachers give priority to teaching, some to scientific research, and some to both teaching and scientific research. Give teachers the right to make their own choices, and organically combine setting up posts according to people with choosing people according to positions.

### 3.2 Improving the Title Evaluation System

Teachers engaged in basic subject teaching should not make excessive demands or restrictions on their scientific research achievements. Accreditation of teaching academic achievements of teaching-oriented teachers, such as compiling distinctive textbooks and quality teaching papers, can be used as a basis for evaluating professional titles, which fully reflects the importance of teaching and scientific research. Make the title a comprehensive reflection of teachers' teaching achievement, scientific research ability, knowledge level, teaching style and morality.

### 3.3 Establishing a diversified teaching quality evaluation system

One is to introduce the elements of academic activities into the evaluation system of teaching quality, such as the introduction and dynamic tracking of hot issues in the course by teachers. The second is to introduce teaching factors into the evaluation of teachers' scientific research activities, such as the relevance of research direction to the course, the combination of scientific research topics and teaching, the introduction of the quantity and quality of research results into the classroom, and so on. Through the adjustment of evaluation indicators, teachers are guided to consciously realize the organic combination of teaching and scientific research, thus realizing a virtuous circle.

## 4. Strategic Research on the Teaching of Scientific Research Feedback

Three Reengineering of Classroom Teaching

The first is "the rebuilding of the subject relationship". Teachers take the initiative, step down from the platform, walk into the students, and jointly build a "teaching community" of mutual exchange and equal interaction, break the original rigid teacher-student relationship, and rebuild a harmonious classroom atmosphere.

The second is "curriculum content reengineering". Teachers are encouraged to direct scientific research into the teaching process. Specific measures: first, to establish a real-time updating mechanism of teaching content, encouraging teachers to use scientific research results to update teaching content; second, to establish a working mechanism of scientific research results into teaching materials, encouraging teachers to incorporate the latest scientific research results into teaching materials; third, to establish a working mechanism of transforming scientific research results into courses, and to set up a reflective academic frontier. Elective course.

The third is "teaching method reengineering". The unique knowledge experience function implied in scientific research activities is the most direct and effective resource for the teaching activities to be nurtured by scientific research activities, which can be used to carry out research teaching, experiential teaching and open teaching. Specific paths can be as follows: firstly, starting from creating problem situations, restoring scientific thinking activities, assisting in the corresponding academic discussions and specific cases of debate in the teaching process; secondly, deducing the scientific research process in the classroom; and thirdly, adopting heuristic methods and discussions in teaching content corresponding to scientific research results. Teaching methods of mode and case.

Practice Teaching "Four Levels"

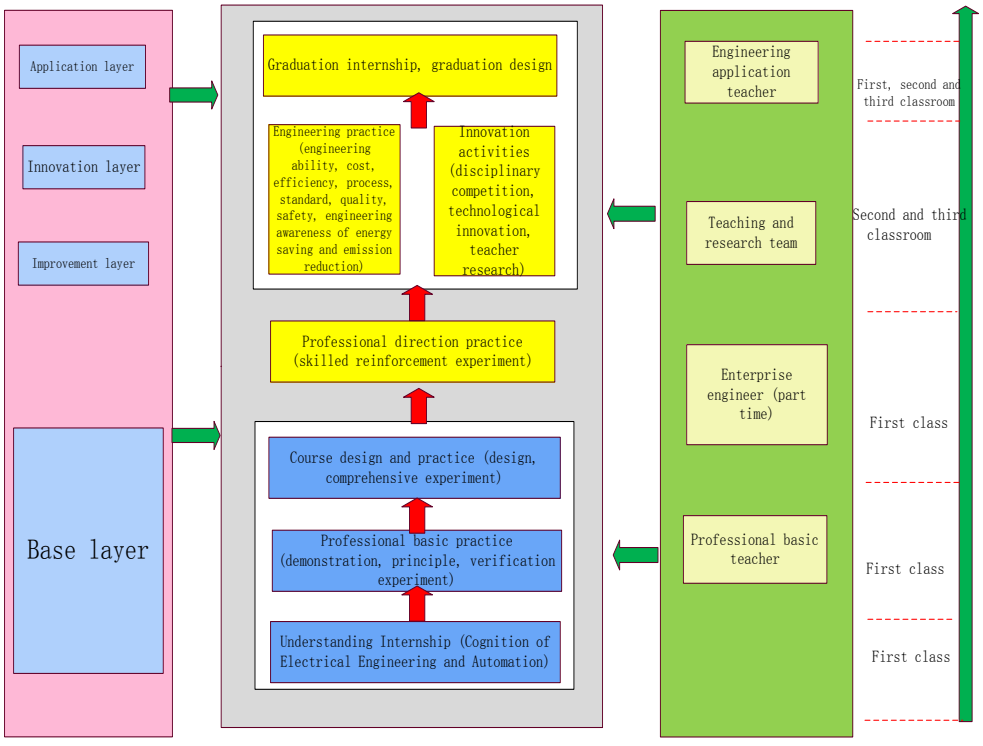


Fig. 1 Practical teaching system of four levels: basic level, improvement level, innovation level and application level

In order to cultivate students' ability to apply the knowledge they have learnt to comprehensive engineering applications and integrated innovation, and with the teaching of the first class, the second class and the third class as the main line, a hierarchical practical teaching system with benign interaction in three classes is constructed according to the four levels of basic level, improvement

level, innovation level and application level. Ability training and scientific research training run through the whole process (as shown in Figure 1).

Four Levels of Scientific Research Training

In order to cultivate college students' practical and innovative consciousness and ability, a four-level scientific research and training system of "state, province, school and college" is constructed and implemented (as shown in Figure 2).

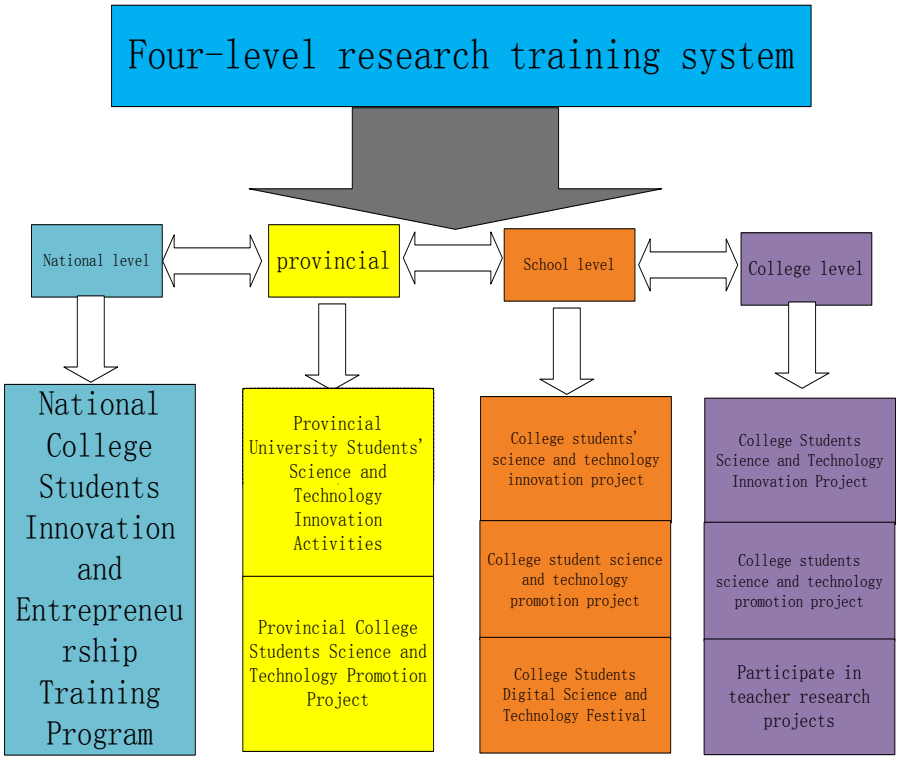


Figure 2 "National, Provincial, School and Academy" Level 4 Scientific Research Training System

Students' participation in grade 4 scientific research projects can be divided into many forms, such as students' presiding over scientific research projects, students' participation in teachers' presiding over scientific research projects and the writing of academic papers. The common point is to find solutions to key problems under the proper guidance of teachers, so that project design and implementation can be carried out more efficiently. In this way, it can not only enhance students' interest in research, but also improve students' innovative ability and comprehensive quality.

## 5. Guarantee Measures of Scientific Research Feeding Back to Teaching

In order to ensure the smooth development of the teaching strategy of scientific research feedbacks, the corresponding safeguard measures are formulated as shown in Table 1.

Table 1 safeguards table

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| Credits for innovative training.<br>Revision of training plan | Clearly stipulate 45-50 credits for practical teaching and 2-3 |
| Establishing Practice System of Scientific Research | The corresponding guarantee system should be established to ensure that students participate in scientific research training at least once in four years.<br>1. Open system of scientific research projects to senior students<br>2. The System of Connecting Students' Extracurricular Science and Technology Activities with Scientific Research Activities |

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| | 3. The System of Scientific Research Assistants for College Students<br>4. The System of Scientific and Technological Innovation Base for College Students |

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