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## Practical Teaching Staff Construction under New Situation<sup>①</sup>

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### Abstract

The practical teaching is a very important component of higher education. It is a special platform which not only integrates abstract and concrete, but also integrates theory and practice. And it is the main channel to cultivate talents with innovative spirit and practical ability. Therefore, the reform of practice education is necessarily the most important work in the present teaching work. In order to achieve the anticipated results, universities should establish diversified mechanism of performance assessment on teacher, establish multi-type mechanism of cultivation on teacher and construct practical teaching teacher staff with reasonable structure.

**Index Terms:** Practical Teaching; Diversified Performance Assessment Mechanism; Multi-Type Cultivation Mechanism; Construction of Teacher Staff with Reasonable Structure

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### 1. Introduction

In the face of increasingly intense international competition, Chinese government proposed developmental strategy of constructing country with innovation to promote economy and society to develop fast and healthily. In order to achieve this strategic target, universities which had been taken as the most important base for cultivating innovative person were placed more social responsibilities and anticipation [1]. Chinese higher education law pointed out explicitly: the duty of higher education was to cultivate high-level professional personnel with innovative spirit and practical ability, develop science technology and boost socialist modernization. The practical teaching, a very important component of higher education, is a special platform which not only integrates abstract and concrete, but also integrates theory and practice [2]. And it is the main channel to cultivate talents with innovative spirit and practical ability. The duty of the modernized laboratory is

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not only imparting knowledge, but also performing knowledge innovation. Therefore, the quality of practical teaching plays great influence on talent training.

## **2. Reform Taken by Universities**

In recent years, difficult employment of college graduates made educational managers to gradually realize the great gap between talent training and social demand. With further development and gradual perfection of market economy, the model of talent training in university is transferred from “knowledge type” to “knowledge-ability type” and from “examination-oriented education” to “quality education”. Strengthening practical teaching, putting emphasis on ability training, and applying theory to practice had become a common understanding. Therefore, many universities had paid more and more attention on the reform of practical teaching, and taken some effective measures. They are as follows:

Firstly, universities had been fully aware of the practical teaching reform’s necessity, significance and urgency. They had attached great importance to practical teaching and taken some effective measures to improve the position of it in undergraduate teaching work.

Secondly, universities had provided opening environment and atmosphere for practical teaching through opening content, opening time, opening form, opening hierarchically and opening classified. The students had chance to participate activities in laboratory in their spare time, gaining skills in practice and enhancing their abilities. This opening teaching form provided students with wide broad scope to study by themselves, develop their individual personalities, and improve comprehensive quality. And it was proved to be the main method to cultivate innovative talent and innovation ability.

Fourthly, universities had established practical teaching system beneficial to innovative talent training based on the reform of laboratory management system and operational mechanism.

Finally, the experiment course was gradually independent from the theory course in the talent training plan, and they had no longer been taken as the attachment of the theory course. This measure improved the position of experiment in the whole teaching system, and meanwhile attracted attention from teachers and students.

## **3. Existed Problems and Reasons**

After successive years of reform, the enthusiasm of both teachers and students were increasing greatly, but there remained a considerable gap between the actual effect and the anticipated effect. Moreover, in the process of reform, the greatest obstacle was found to be not from students but from teacher. The main reason was that the quality of teachers in universities could not keep up with current reform. The problems are as following:

### *3.1. Weak Innovative Consciousness of Teachers*

Higher education managers and teachers had been provided with traditional education idea and teaching method when they were students for almost twenty years. So, it was very difficult for them to fundamentally transform themselves on consciousness quickly. The teaching activities taken by teachers are not only the process that imparts pure knowledge to students but also the process that exerts a subtle influence on the thought of students. In practical teaching, only the teachers with innovative consciousness can take various teaching means to stimulate students’ innovative consciousness, innovative thinking and innovative interest.

### *3.2. Weak Practical Ability of Teachers*

At present, the scientific research strength had become the measure of the strength of a university. Therefore each university, especially the first-class research university, had attached great importance to the scientific

research work. On one hand, when universities enrolled new teachers, they often paid great attention on educational experience, academic title, the scientific research ability of the applicants. And the scientific research ability was measured by the quantity and the quality of scientific research paper published by these applicants as well as scientific research project undertaken by them. Therefore our country's university teachers, especially the middle-aged teachers, were mostly from one school gate to another school gate. They were often called "double gate teacher". Most of them had master and the above degree, mastering solid elementary knowledge and having deep basic theory foundation. But they actually lacked modern project consciousness and project experience. In addition, performance assessment on teacher in universities highlighted achievements in scientific research while paid less attention on achievements in teaching, which caused the fact that teachers' pressure on scientific research too great to put their energy on practice reform. They had little chance and time to accept project exercise.

#### **4. Practical Teaching Staff Construction**

##### *4.1. Building Innovative Consciousness*

The creative idea and creative consciousness are the key factors in practical teaching of academic education. The promotion of student's quality and the growth of students' ability could not change suddenly, and they should be achieved through a process from quantitative change to qualitative change. These progresses are obtained in each daily teaching part and many beneficial activities [3]. Therefore, teachers must realize the importance of innovation and establish innovative consciousness. Firstly, in teaching, academic teachers should revolutionize their teaching idea, teaching content and teaching method according to different teaching objects and the requirement of society for cultivating innovative talents. Secondly, in scientific research, academic teachers should realize that innovation is the life of scientific research, and should closely track the front of international and domestic scientific research to obtain the innovative research results.

##### *4.2. Establishing Diversified Performance Assessment Mechanism*

The radical reason to cause practical ability of teachers to be weak was that our country or society evaluated a university on the basis of its scientific research strength. And the scientific research strength of an university was measured directly by the quantity and the quality of published scientific research paper and undertaken scientific research projects. Therefore, it was inevitable that all universities should pay more attention on scientific research than on teaching, when they evaluated performance of their faculty [4]. Under this mechanism, it was easy for academic teachers to ignore teaching and talents training, as well as find research project from social practice. And finally, the students could not satisfy social demand. But higher education's most important task is to cultivate students who fit in with the needs of the society. so, if the current situation needs to be changed fundamentally, our country ought to adjust indicator system of performance evaluation of a university, which can make universities adjust their performance assessment mechanism. For a university, it should establish diversified performance assessment mechanism for academic teachers to meet the need of both talents training and scientific research. Teacher will be divided into two types, one is teaching type and the other is teaching-scientific research type. In the evaluation of teachers who belong to teaching type, universities should pay more attention on their achievements in teaching than on their achievements in teaching scientific research. For instance, in the aspect of teaching, universities should consider the quality of teaching research paper and teaching research project, textbooks construction and practical activities participated by student coached by teacher. And in the aspect of scientific research, universities should consider the cooperation between college and enterprise, industrialization of scientific research achievements and authorized patents.

In the evaluation of teachers who belong to teaching-scientific research type, universities should pay more attention on their achievement in scientific research than on their achievements in teaching. For instance, in the

aspect of teaching, universities should consider the quality of teaching research paper and teaching research project, the innovative practical activities participated by student coached by teacher. And in the aspect of scientific research, universities should consider the quality and the quality of scientific research paper as well as scientific research project. In diversified performance assessment mechanism, university should pay great attention on new teachers' practical ability when a university formulates policy of talent introduction and employment interview in addition to their educational experience and scientific research ability. Every university, especially the university with engineering specialty, should invite senior technical staff with long-time engineering experience from enterprises. After they accept necessary education theory and teaching method training, they can join academic teacher troop or can be invited to be part-time teachers.

#### *4.3. Developing Multi-type Cultivation Mechanism*

The teacher cultivation was an important way to improve the quality of teachers. Currently, teacher cultivation mechanism in university was not perfect, and it could not keep up with the development of higher education and society [5]. Firstly, in the aspect of cultivation idea, it was generally considered that the task of teacher training was to improve teachers' educational experience and scientific research ability. Secondly, in the aspect of training way, teachers were often sent to domestic and foreign well-known universities to acquire further education and perform academic exchanges. Its starting point is still teachers' scientific research [6]. Certainly, after establishing diversified performance assessment mechanism, the cultivation idea and way would definitely change along with it. Teacher in different type would have different evaluation index as well as different training way and training goal. Teachers in teaching type should be trained through multiple ways of industrial, academic and research cooperation. For example, they should be sent to enterprise to accept engineering practice training periodically and should be encouraged to participate in scientific and technological project, technological transformation activities. Teachers in teaching-scientific research type should be sent to domestic and foreign well-known universities to acquire further education and perform academic exchanges.

#### *4.4. Constructing Structure Reasonable Teachers Staff*

The task and duty undertaken by the practical teaching teachers decided that compared with theoretical teaching teachers, they had different request on both troop structure and individual quality [7]. Therefore, universities should construct structure reasonable teacher troop according to the plan of practical teaching system. Practical teaching system of many universities had proposed that students should be cultivated by multi-level which includes the following three levels: foundation, application and innovation. And then universities should construct teacher troop for practical teaching with rational division of work and obvious advantages. Teachers should be divided into teams according to curriculum group. Each team has teaching type teachers and teaching-scientific research type teachers as well as certain amount of laboratory technicians. As a result, three-level structure should be formed as teaching scientific research teacher, teaching teacher, and laboratory technicians. The teaching-scientific research teacher's tasks include laboratory plan and construction, practical teaching system plan and construction of current curriculum group, experiment content setting of innovation level. They should refine and simplify some scientific research achievements in the front of their discipline, and change them in to experiment case for undergraduate course. This way could ensure that experiment content is advanced. And The teaching teachers' tasks include assisting the teaching-scientific research teachers in laboratory plan and construction work, textbook construction, experiment content setting of application level. They should introduce problems in engineering practice to experiment course to ensure that the experiment content has practical value. The tasks of experiment technical personnel include compiling teaching program and instruction book of experiment curriculum, counseling the student to do experiments in foundation level and constructing laboratory soft resource. On one hand, the experiment course content must be

closely associated with theoretical teaching. On the other hand, it must be integrate with scientific research, application development and the industrial front. Only in this way can experiment case possess exuberant vitality [8].

## 5. Conclusion

China proposed higher requirement for the reform of practical teaching and its effect. Except that practical teaching course make students understand the basic theory and master basic experimental technique, the practical teaching course should pay attention on developing the students' innovation ability, and simultaneously attach importance to the cultivation of self-confidence and diversified thought. The purpose is to promote students' sustainable development and lifelong learning capability. In order to achieve such educative purpose and effect, universities should have a high level and high quality teacher troop in practical teaching. But the situation of present teachers in practical teaching had restricted the innovation education advancement seriously. Therefore, universities must establish diversified mechanism of performance examine on teacher at first to ensure the enthusiasm of teachers. Secondly, they should develop multi-type mechanism of cultivation on teacher to guarantee the ability and energy invested by teachers in practical teaching. Finally, the structure reasonable teacher troop for practical teaching should be constructed on the basis of the above measures to safeguards the successful implementation of educational reform effectively.

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