

On Building of Opening Laboratory and Campus Practice Base under Construction of School with Characteristic

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Abstract-This paper studies the value of building campus practice base and opening laboratory, namely: improving the quality, cost, foster innovation and improving competitiveness. We can conclusion that it is very important to build the openness laboratory and campus practice base for building high-quality talent. At the same time, we proposed the management model and measures; it will provide a scientific viable management model and measure for opening laboratory and the campus practice base building.

Keywords-Opening laboratory; campus practice base; construction of school with characteristic

I. INTRODUCTION

Strengthening laboratory practice base open and the school building, especially with the open laboratory practice base to build a school, the school is an important way to develop the comprehensive development of talent. National Conference university teaching pointed out: "pay attention to the comprehensive practice teaching, teaching and scientific research more closely to production practices linked, to actively explore and promote the teaching and scientific research, teaching and production work combined with the new situation." [1] the face of technological, economic, and social development put forward new requirements for personnel training, how to better realize the combination of university teaching and research and production, and how earnestly practice teaching under conditions of limited funding, to improve students' comprehensive ability and overall quality and enhance student employability and competitiveness, is an important issue worthy of our consideration.

II. THE ROLE OF OPENING LABORATORY

Open experiment teaching is a new form of teaching experiments, the 21st century is an era of knowledge economy, the knowledge economy relies on new discoveries, inventions research and innovation, which is the core of innovation, innovation depends on the realization of human innovation awareness and innovation capacity. The key innovation is that the talent development of contemporary social science and technology university personnel training proposed for newer and higher requirements - train a large number of innovative awareness and ability of creative talent, so we have the ability to participate in the increasingly fierce

international competition, to ensure an invincible position in the competition. As training creative talents and important position, universities should develop student's ability to innovate its mission to strengthen the cultivation of innovative ability of college students. Open experiment teaching is an established discipline in accordance with the characteristics of the student, the student achieve independence experimental design , self-discipline -based teaching can improve students' practical and innovative ability to improve student learning enthusiasm and initiative give full play to the initiative of students , training to improve students' comprehensive ability and the ability to adapt to different levels of students and requirements, so that students change from passive to active. University Laboratory is engaged in an important place experimental teaching, scientific research, technological development and academic exchanges, and also an important base for training students' creative thinking and innovation ability.

A. The role of two internship base

a)An internship base should become an important place for the implementation of practical teaching

Practice teaching internship base is assumed an important place, teaching practice base, highlighting the combination of teaching, research and production, breaking the pattern of classroom teaching, highlighting both classroom teaching and practice, increasing the proportion of practical teaching. In practice, the teaching process, you can change the teacher-centered teaching methods, highlighting the main role of students, so that teaching and learning. Practice is important to rely on the good base for practice teaching system.

b)Practice base is an important material foundation to ensure the quality of teaching

Improve teaching quality and construction practice bases are complementary, and there is no guarantee of practice base, improving the quality of teaching will become empty, practice base is an important material basis for improving the quality of teaching.

c)Practice base is to improve students' innovative ability of practice base

Practice base with comprehensive, open characteristics, to improve students' ability to innovate has far-reaching significance. Ability students through internships at the base, correct professional thinking, the theory and practice of knowledge and technology combine learned through practice exercises to strengthen the professional knowledge, improve professional application capabilities and to analyze and solve practical production problems.

d) Internship base is the main battlefield of quality education. Practice base with a single subject and purely theoretical teaching function can not be replaced

Such as research capabilities through practice will help improve students' ability to research and innovation ; collaboration features , not individual combat practice , needs groups meet , through the practice of solidarity and cooperation can improve the ability of students ; communication function , practice teaching requires teachers and students between the students have good communication skills, can greatly improve the students' communication , communicative competence through practice . Therefore, practice is to improve students' quality education base for the main battlefield. Only through practice and training base, in order to improve college students' ability to adapt to the environment, interpersonal communication skills, ability to cooperate, thinking skills and ability to innovate, thus greatly improving the competitiveness of college work.

B. Open laboratory practice base and build the value of school

a) Excellent ability requirement

Ability to adapt to the requirements of excellence is the fundamental purpose of open laboratory and practice base to build the school. Outstanding ability to implement education, creating four virtues, especially builders of socialism is to develop excellence in university education mission.

Open Lab and campus practice base to build, is through to the students develop their potential to provide a practical environment and the ability to meet the different levels and students' personal requirements, so that students consciously active learning. By providing choice to the students, the opportunity to improve performance and achieve the implementation of the objectives of excellence ability. And Minister of the Ministry of Education Ji Zhou 2005 Document No.1 in the second national conference of undergraduate college teaching speech on both emphasized that : colleges and universities for undergraduate research facilities open to all , colleges and universities all undergraduate laboratory extended opening time , in addition to the normal school hours , must would like to open ^[2] students. The "superior education and training of engineers plan" is to implement the "Long-term Education Reform and Development Plan(2010-2020)" and "Long-term Talent Development Plan (2010-2020)," the major reform projects, but also major initiative to promote engineering education in China from a big country powers towards engineering education , a large number of innovations designed to cultivate strong ability to adapt to economic and social

development needs of various types of high-quality engineering and technical personnel for the state to take a new road of industrialization , building an innovative countries and this strategy services. This will open laboratory and school practice bases combine excellent engineers in favor of education and training will help improve the level of research and teaching, and help students of exceptional ability, help create outstanding talent.

b) Giving full play the main role of college students

College students are the main open laboratory and campus practice base construction applications, without the enthusiastic participation of the students, with the active support and carefully, put the school laboratory and internship bases will lose real value. Previous laboratory experiments planned in accordance with the design and materials developed by teachers , for students to mentor validation experiments based on plans and intentions, so that all students can only progress by course content and requirements , within the specified time to experiment .

The advantage of this approach is that teaching is simple, in unison.

But the drawback is indeed outstanding: Poor students can not keep up; Ability of students to feel enough, unable to meet the thirst for knowledge; some students just mechanically imitate.

So that the students' enthusiasm and initiative of the question let alone develop personality capabilities. And through the open laboratory practice base combined with the school , students are required by exploring research, personally designed experiments, developed experimental program , select the required test equipment to collect experimental data , summarize and summed up the law to achieve the dual role of experiment and practice teaching. To this end, through open laboratory and practice base to build schools, so that students can fully understand, contact familiar with the various laboratory instruments and equipment for the students to be fully prepared research activities to improve the quality of experimental teaching and practice teaching ; play through the initiative of students , giving students the opportunity to choose the time and content to encourage students to practice time after school hours and combining the practice of combining teaching and experimental teaching , actively participate in the experimental teaching and practice teaching . This can give full play the main role of college students, to stimulate research and practice of college students interested in improving college students to join the research, practice and innovative initiative.

c) Cost savings, improve efficiency requirements

Experimental teaching and practice teaching cost is the experimental teaching and practice teaching into the sum of costs. Experimental teaching and practice teaching costs consist primarily of depreciation of fixed assets, equipment maintenance and management fees, laboratory fees and internship materials purchase loss, experiment and practice guidance staff labor costs and office expenses, utilities and so

on. Traditional experiments, internships separate work system, the cost of each independent expenditure, higher costs, and the openness of laboratory and practice base to build, experiment and practice teaching will combine to integrate resources, balanced, rational use, and give full play resource utilization. You can reach the final cost savings, increased efficiency purposes.

d) Innovative personnel training needs

Comrade Zemin Jiang pointed out: Education is the main base of knowledge and innovation, dissemination and application, but also the cradle of innovative spirit and talent^[3]. From the formation of innovative practice, only through practice the cognitive ability of college students in order to stimulate innovation. Therefore, the combination of experiments and practice can inspire college students learning initiative to train student's rigorous scientific approach, the innovation and courage. Innovation comes from practice, and implement in practice, and the end of practice. Through innovative experimental results and data processing, as well as writing technical reports, you can improve the innovative experimental ideas. College Students independently complete experimental design through innovative engineering design capabilities, ability to ask questions and solve problems found in the work, thereby increasing competitiveness and innovation capability college work.

III. MANAGEMENT MODEL

A. Fund project management model

The so-called fund project management model that reference the National Natural Science Foundation of management. Its content and management process is as follows: Approval of the project by the open laboratory and base construction management committee, signed a contract in the time trial practice space specified in the contract, internships for students to improve the reliability assurance testing to ensure the successful completion of the project.

B. Bidding management model

The so-called bid management model that way by tender to select the appropriate student internship research team conducted tests to ensure the limited resources to take advantage of the conditions to play the effectiveness of existing resources. Its content and process is as follows: Open Lab and base construction management committee published laboratory and field tests internship project tenders by public advocacy mode newspaper, campus networks, and bulletin boards and so on. Student organization based on research internship teams participate in the tender notice and tender their ability to complete the preparations of tenders within the stipulated time and tender. Open Lab and base construction management committee of experts through the opening, evaluation and award procedures, to determine the winning project, and with the signing of the contract.

C. Free and open management model

The so-called free and open management model that is based on the students' practice time to implement the experiment, the content, the device open. Students can follow their own interests, hobbies, contact their laboratory and base their choice experiments and practical content and design of experiment and practice put forward their own access to information, the device of their choice, self-exploration experimental steps to complete their experiments internship program Prepare a report or experimental papers and internship report.

D. Internships and experimental binding mode

And understanding of the teaching experiment, the combination of production practice, to practice, experiment content unity. For example: through visits, basic laboratory equipment and laboratory operations to strengthen understanding and practical knowledge combined internship will focus on understanding dispersed in everyday teaching activities, so you can save awareness training funds; experimental component produced by the manufacturer internship students completed the experiment students complete course experiment or make one-stop, so saving component production costs by component processing costs, while reducing production combined with experimental production practice costs, and achieve a production practice and experimental purposes.

E. Internships and research combine mode

The so-called internships and research model that combines research activities in accordance with cognition practice, production practice, practice characteristics graduation requirements for students at different stages needed to fully participate in. Such targeted which saves costs and reduces training costs of research, while achieving the exercise, student's purposes.^[4]

F. Binding mode of physical and virtual network

The so-called physical and virtual networks that combine model for large equipment or complex training experiment, the base does not have the condition can adopt virtual experiments or network mode, in order to achieve exercise, aim to improve students' practical abilities. Physical and virtual network by means of the binding mode network and remote education platform, students can get more knowledge, but also to break the limitations of time, space, conducive to learning to learn, research autonomy.

IV. MANAGEMENT MEASURES

Open Lab and campus internship bases open to teaching management has brought new problems, increasing the workload of the laboratory and experimental material consumption, and therefore must take appropriate measures to develop sound policies to deal with these problems. Mainly adopt the following measures:

A. *Establish a scientific management system*

Institution -building is an important guarantee for open laboratory and campus practice base construction. Need to develop and improve various rules and regulations on campus laboratory and practice base open, clear management principles, form, organization, implementation, rewards and penalties.

B. *Rational allocation of laboratory and field equipment*

To cope with the laboratory school practice bases open , laboratory equipment should be reconfigured by adjusting the merger, the sharing of resources , which can not only complete a simple basic experiment internship program , but also the completion of large-scale integrated research projects , but also can provide students with practical skills by guarantee ^[5] .

C. *Establishment of a special fund*

Through the establishment of a special fund to subsidize students can participate in an open test material consumption costs required internships and mentoring , management fees and other allowances . Construction of special fund as an incentive approach can improve students 'innovative ability ^[6] , raise teachers' motivation to work .

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Open Lab and campus practice base to build the majority of higher education workers is an issue of common concern, and are making unremitting efforts to this end. With the rapid development of China's socialist market economy, the demand for compound talents more intense, therefore , open laboratory building and campus practice base only continue to adapt to the needs of social development , build a multi-disciplinary integration, resource sharing , can be complex skills practice, it can truly meet the needs of teaching, research and personnel training , in order to cultivate innovative ability, practical ability, high quality and competitive compound talents, improve school level .

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