ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research, volume 99

3rd International Conference on Social Science and Higher Education (ICSSHE-17)

The Exploration of Graduate Training Mode

—Graduate teaching reform based on computer science major

Kang Zhou
School of Math and Computer
Wuhan Polytechnic University
Wuhan 430074, Hubei, China
zhoukang_wh@163.com

Shan Zeng
School of Math and Computer
Wuhan Polytechnic University
Wuhan 430074, Hubei, China
zengshan1981@whpu.edu.cn

***Abstract*—Graduate students are difficult to adapt to the requirements of the internship enterprises and can't be participate in the practice activities of the professional enterprises, so the characteristics and innovation of the paper are to reform the content of existing postgraduate programs from two aspects of the course system and the course teaching and to guarantee the combination of professional skills and professional quality from the college level to professional level. The paper solves the problem of students' adaptability to enterprise and society and solves the problem of improving students' practical skills and cultivating professionalism by the practice of "double division" and the construction of provincial graduate workstation.**

Keywords—Graduate training mode; Three kinds of classes; "Project-driven" teaching mode; "Double division" training mode

I. INTRODUCTION

In recent years, the source structure and type of graduate students have been changing with the growth of graduate students [1-3]. The number of social sources and the number of students who are related to computer technology but have a large gap have been increasing year by year. The percentage of master of engineering and professional master is increasing year by year [4, 5]. It is difficult for production practice to train these students, because the graduate student's production practice is mainly arranged by tutor. It is a problem how to ensure the effectiveness of production practice in improving professional practice skills. During the graduate student's study period, the course teaching is mainly to improve the students' comprehensive professional quality, but is inadequate for the training of students' technical ability, which is the result: the graduate student after the course study is difficult to adapt to the requirements of the intern company and cannot participate in the practice activities of the professional enterprise.

In the face of these challenges, we only change the current training mode to adapt to the characteristics of graduate students, which makes graduate students obtain scientific research ability for graduate students and become our training professional talents, it is the problem that is urgently needed. In order to solve the problem, we propose the reform and practice of graduate training mode in the center of improving the professional skills and professionalism[6, 7], which can achieve "win-win of schools, students and businesses", its meaning of this is that: graduate students are the biggest beneficiaries of the reform of the model; the graduate training of school of mathematics and computer science reach a higher stage of development; the reform of the training model will be the "new business card" of school of mathematics and computer science to promote the graduate recruitment and graduate training; companies find the talent they need.

II. MAIN CONTENT OF REFORM AND PRACTICE OF GRADUATE EDUCATION MODEL

The reform and practice of graduate education model is focus on improving graduate professional skills and professionalism, its main research is as follow.

A. The improvement and optimization of graduate programs and graduate programs

The optimized training plan should make full use of the role of classroom teaching, and make full use of the role of practice teaching in practice.

First, the course system should highlight the function of "three kinds of courses", and the practice teaching should highlight the role of production practice.

Then, the contents of the "three kinds of courses" and their relationship are determined for "Project-driven" teaching to dominant to play the role of the whole in the training of professional skills.

B. For the "three kinds of courses", to select and train teaching staff to identify and implement the method of teaching management

"Three kinds of classes" teachers who are rich practical experience and strong practical ability are selected to form a curriculum system team, and exchange teaching experience to form a stable team.

A good course system needs a strict teaching system to manage and execute. Therefore, we have to do the following.

First, to design reasonable, effective "three kinds of curriculum" teaching management method.

Then, to track the whole process of the course of teaching; to manage the whole process of the course of teaching; to monitor the whole process of the course of teaching.

C. To explore "project-driven" teaching mode

"Three kinds of courses" are designed to train professional skills, and project driven teaching is the best choice. Therefore, we have to do the following.

1) Such courses are carried out throughout the laboratory.

2) Software development to complete the project is the main line of teaching.

3) Apply theoretical knowledge quickly and directly to practice to solve the theoretical problem quickly and grasp the corresponding professional skills quickly in practice.

D. To explore the teaching courses of corporate cooperative practice

Extramural academic advisors take part of professional curriculum, and teach students the expertise and professionalism they need in practical applications directly through the classroom to better finish connecting "theory, practice, and enterprise".

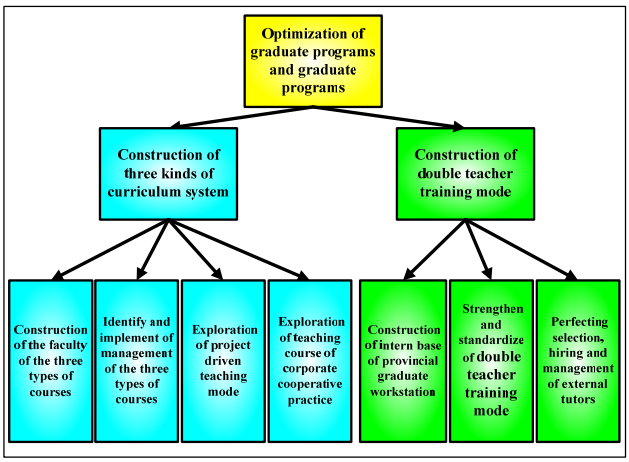

Fig. 1. The main content of the reform and practice of graduate education model

E. To cultivate technology talents relying on the provincial master's workstation as an internship base

The provincial graduate workstation platform provides students with high standards of practice. The technical director and project manager of the provincial graduate workstation are extramural academic advisors. Students are trained by the "double division" training mode to the extramural academic advisors.

F. To strengthen "double division" training mode to make it more formal

The extramural academic advisor should arrange the student suitable internship technical position and train students to have the professional and professional skills necessary for IT enterprises. Extramural academic advisors can determine the student's internship performance, and give credit. Extramural academic advisors can participate in and guide the student's graduation thesis work. The second advisor to the student's graduation thesis is an extramural academic advisor.

G. To improve the selection, recruitment and management of extramural academic advisors

The school of mathematics and computer is selecting and hiring outside tutors for the provincial postgraduate workstations. The selection process for extramural academic advisors and students takes a "two-way choice." Students choose extramural academic advisors based on their direction of development, and extramural academic advisors select students based on the student's existing abilities and expertise. There are no more than six students in the field.

After the student has chosen an extramural academic advisor, the school of mathematics and computer strengthens the management of extramural academic advisors. During the course of the first year of graduate school, extramural academic advisors can guide students to learn about the knowledge and technology of the technology of the enterprise. Then later, the students are mainly under the guidance of extramural academic advisors to develop the project, and finish the graduation thesis.

The main content of the research and practice is shown in Fig. 1, the details of the study are as follows.

III. THE PRACTICE OF THE REFORM AND PRACTICE OF GRADUATE STUDENT CULTURE

In order to realize the research content of reform and practice, we adopted the following main methods, as shown in Fig. 2.

1) Optimize the program of graduate student training and the syllabus, to provide the system guarantee for the professional skills and professional quality education.

2) Mainly construct the teaching system of "three kinds of courses", to lay a solid foundation for the professional skills of graduate students. Specific measures include: Select and train the corresponding teachers; Identify and implement the method of teaching management; Explore the teaching mode of "project-driven teaching"; Explore a variety of corporate cooperative practice courses, etc.

3) Mainly construct "double division" training mode based on the provincial graduate work station. Specific measures include: Cultivate technical talents Relying on provincial graduate work station as an intern base; Standard "double division" training mode; Perfect selection, hiring and management of extramural academic advisors, etc.

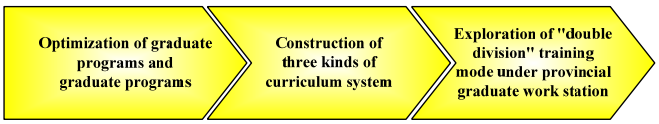

Fig. 2. The main method of the reform and practice of graduate education model

The concrete measures of the reform and practice of mathematics and computer profession for postgraduate education are in the following aspects:

1) Training scheme has formed a curriculum system for cultivating technical skills. The course system is formally

established as the main line of the "three kinds of courses" (Java series, C series, Matlab). The teaching process explicitly calls for "project-driven" teaching methods. The students were asked to study (each student completed a project independently of each course).

2) Mathematics and computer profession is fully engaged in the teaching process, fully preparing the teachers' conditions. Three teachers were selected carefully from the school of mathematics and computer science, which has multiple patents and multiple companies; who is rich in project design and management experience; and who has the strongest scientific research strength of mathematics and computer profession. Mathematics and computer profession asked the three teachers to take a group lesson six months in advance, determine the content and the way of teaching.

3) Mathematics and computer profession is committed to building a graduate workstation. Mathematics and computer profession has successively constructed the three-stage graduate workstation of "provincial - school-school", these workstations provide a sufficient and excellent environment for postgraduates.

4) Mathematics and computer profession is committed to the development of "double divisions" of graduate students. Mathematics and computer profession has selected a number of excellent extramural academic advisors in the graduate workstation.

IV. Conclusion

The characteristics and innovation of this thesis are:

1) Reform the content of existing postgraduate programs from two aspects of the course system and the course teaching. The practice of classroom teaching solves the problem of cultivating and raising students' professional skills.

2) Guarantee the combination of professional skills and professional skills from the college level. Solve the problem of students' adaptability to enterprise and society and solve the problem of improving students' practical skills and cultivating professionalism by the practice of "double division" and the construction of provincial graduate workstation.

Acknowledgment

This project was supported by the Research and Practice Project of Graduate Education Teaching Reform of Wuhan Polytechnic University (YZ2015002) and the Special Scientific Research Fund of Food Public Welfare Profession of China (201513004-3).

References

[1] Zhong Qiquan. The Transition of Teaching Research and Its Task[J], Educational research, 2008, 336(1): 23-29.

[2] Cheng Guangbin, Wang Yongjing. Reflections on a Comprehensive Reform in Master-of-agricultural-extension Programs[J], Journal of Graduate Education, 2013, 18(6): 82-85.

[3] Liu Yan. Problems and Suggestions of Cultivating Talents for Part-Time Master of Agricultural Extension[J], Education Teaching Forum, 2017, 2(2): 84-85.

[4] Zhang Zhiqiang,Wang Lanzhen,Chang Xinhua,Liu Cuiqiong,Sai Jiangtao. Take the Cultivation of Innovation and Entrepreneurship Ability as the Target, Revise the Rraduate Training plan Comprehensively-Based on the Practice of Beijing Forestry University[J], Education Modernization, 2016, 22(8): 91-98.

[5] Ye Yunxia, Chen Mingyang, Yao Hongbing, Fu Yongbing. Analysis on how to Formulate Graduate Training Program[J], China Education Technique and Equipment, 2015, 376(22): 82-84.

[6] Wang Heng, Hua Guoran, Zou Jixiang, Zhu Juan. Research and Practice for Collaborative Training System Facing Enterprise Graduate Workstation[J], China Modern Educational Equipment, 2016, 233(1): 100-102.

[7] Chang Hongmei, Zhou Zonghao. Research of Training Program on Practical and Applied Personnel in Vehicle Engineering[J], Equipment Manufacturing Technology, 2017, (1): 243-244.