

Research of Individualized Training Mode for Professional Master Degrees based on Double Tutorial System

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Abstract—Chinese universities almost face a problem that is how to cultivate application and engineering degree postgraduates with advanced professional skills. This paper proposes an individualized training mode for professional master degrees based on double tutorial system. It is based on the problems which exist in the process of cultivating professional degree postgraduates. It also thinks that computer technology has character of strong professional practice and multi directions. This paper discusses how to strengthen cultivation of professional master degrees postgraduates from the following aspects. It is respectively formulation of training goal, optimization of curriculum system, establishment of double tutorial system, formulation of personalized training program, establishment of training base and innovation base, paper form reform, supervision of cultivating postgraduates, improving quality evaluation system.

Keywords- professional master degree; computer technology; double tutorial system; individualized training introduction

I. INTRODUCTION

With the rapid development of economy and technology, many practical departments, especially some engineering and technical departments need more and more high-level application talents. In order to promote the effective cohesion about personnel training and social needs, Education Ministry announced that postgraduate education structure in our country will have a major adjustment on March 6, 2009. Postgraduate training mode changed into application. Professional degree postgraduate education will face a promising golden era. The outstanding characteristic of the professional master degree education is close connection between academic character and the professional character. A person who obtains the professional master degree mainly is engaged in work about the application, the high level engineering technology and the engineering management. Both Professional degree and academic degree have different positioning in the training objectives, Therefore, they are different in teaching methods, teaching content, requirement and standard of awarding degrees. However, there are still some problems to be solved in the development of the full-time professional degree master postgraduates in China.

This paper analyzes the problems which exist in cultivation of computer technology professional master degree in the round, Because computer technology has the characteristic of strong professional practice and multi

directions ,we can use individualized training mode for professional master degrees based on double tutorial system to improve cultivation quality of the double tutorial system personalized training mode to improve the quality of computer technology professional degree postgraduates and help postgraduates to find a good job.

II. EXISTING PROBLEMS ABOUT CULTIVATION OF COMPUTER TECHNOLOGY PROFESSIONAL MASTER DEGREE POSTGRADUATES

Most universities have much experience in cultivating many years of academic postgraduates for many years. But now we strengthen the professional master degree postgraduate's education. Different of talent cultivation mode and academic postgraduate's cultivation model is not big. But it does not make substantive changes and there mainly exists the following questions.

2.1 cultivation targets is not clear

The education ministry has a clear directive suggestion to full-time professional master degree postgraduates. However, while the university is first subject of the talents cultivation. Due to the effect of long-term traditional idea, professional master degree cultivation occurs deviation in the process of making and carrying on talents cultivation goal. Some universities even put cultivation objectives and system of academic degree postgraduates into professional master degree. This can lead that professional master degree postgraduates education don't really reveal the cultivation characteristic of application talents.

2.2 curriculum system of light practice and heavy theory

Practicability and comprehensiveness of curriculum system are not good. Curriculum system has too few practical courses, most colleges and universities professional master degree and academic degree postgraduates attend classes and make experiment in same classrooms. Universities lack of systematic cultivation on practical ability of the postgraduate students in the computer application, there is no prominent practice characteristic in cultivation methods and means, which needs to be further improved [1,2].

2.3 Cultivation process breaks away from computer application

Most university teachers are engaged in computer theory research. They lack of development experience in large computer application project and don't understand complexity of large projects in the field of computer.

Teaching process lack of real case analysis and practical development process research. They don't pay attention to theory research results which is related to computer industry demand. The computer enterprises don't participate in the talents cultivation process, which makes postgraduates' practical ability not improve effectively. It can't adapt to practical application of computer technology innovation quickly.

2.4 Off-Campus tutors are more in name than in reality

Off-Campus tutors are another characteristic of computer technology professional master degree cultivation which is different from academic postgraduates. Its main function is to instruct postgraduates' professional practice. However, in the actual cultivation process, we find that there are still a few students not to be arranged Off-Campus tutors for some reasons. Although some postgraduates have been arranged Off-Campus tutors, but they are only the nominal mentor. They don't participate in guidance of postgraduates really. In addition, ways of recruiting Off-Campus tutors have not been standardized. It often uses private relationship by school teacher' links, they don't have any treatment, they have no appointment contract and they don't have binding [3,4].

2.5 Single degree thesis form

The degree thesis is concrete manifestation to postgraduates' cultivation results. It is an important basis to balance whether postgraduates get degrees. The education ministry puts forward in the "some suggestions about how to do full-time professional master degree postgraduates cultivation work better ". It said that full-time professional master degree thesis' form can be varied. For example, it can be research reports, application basic research, planning design, product development, case analysis, project management, the works of literature and art and other forms. However, in practical cultivation, the majority of professional master degree postgraduates' thesis forms are same as that of academic thesis. There are few students choose research reports, product development and case analysis or other papers types. The reason is that thesis form lack of corresponding evaluation system. When the paper is send for the blind trial, experts will often judge thesis according to standard of traditional degree thesis. This will lead that result is no.

III. DOUBLE TUTORIAL SYSTEM AND INDIVIDUALIZED TRAINING

3.1 Double Tutorial System

The overall level of tutors determines the overall quality of postgraduates' cultivation students. It is so called "double tutor system" because is each professional master degree postgraduates has at least two guidance teachers. One is first tutor, held by On-Campus tutors [5,6,7]. On-Campus tutors not only have high academic level but also have experience of engineering practice. And the other is a cooperative Off-Campus tutor, held by enterprise tutor. Off-Campus tutors participate in guidance work of practical process, project research, curriculum and thesis in process of postgraduate cultivation, On-Campus tutors and Off-Campus tutors

cooperate with each other and give full play to their respective advantages and improve the cultivation quality of professional master degree postgraduates.

In order to give full play to function of On-Campus tutors and Off-Campus tutors, universities should sound " Double Tutorial System" management file. Universities can strengthen the deep cooperation awareness between universities and enterprises. Reform tutors evaluation system and strengthen training of professional master degree postgraduates and stimulate enthusiasm of On-Campus tutors and Off-Campus tutors and strengthen cooperation mechanism and supervision of On-Campus tutors and Off-Campus tutors etc. Only in this way, can we ensure implementation quality of "dual tutorial system ".

3.2 Individualized Training

Computer industry not only has strong practicability. It also has extensive application field. Computer technology contains a great number of technologies directions such as software technology and software engineering, big data and cloud computing technology, database and information system, artificial intelligence and pattern recognition, distribution and parallel software technology, embedded computer technology and computer industry control system, computer simulation and virtual reality technology, computer network and other applications.

Professional master degree postgraduates aren't familiar with each direction. There is also no need to know about each direction. In order to enhance the ability of high-end jobs, we should according to specific characteristics of postgraduates and know about postgraduates' interest, expertise and future employment direction. On-Campus tutors and Off-Campus tutors should make a characteristic cultivation case which is fit for every professional master degree postgraduates. Tutors should give personalized training in the process of cultivation.

IV. INDIVIDUALIZED TRAINING MODE FOR PROFESSIONAL MASTER DEGREES BASED ON DOUBLE TUTORIAL SYSTEM

Through researching employment of computer technology professional master degree postgraduates, analyze current training model of computer technology professional master degree postgraduates comprehensively. We formulate individualized training mode for computer technology professional master degrees based on double tutorial system with the characteristics of our school. It is shown on Figure 1.

4.1 Clear training target

Professional master degree is a degree which is to cultivate application, compound high - level engineering technology and engineering management talents especially for large enterprise. Computer management and other aspects of high-level talents. They master basic theory of computer and related basic professional knowledge in this field and have ability of undertaking computer application engineering or engineering management work independently and cultivate ability about carrying on research of computer application.

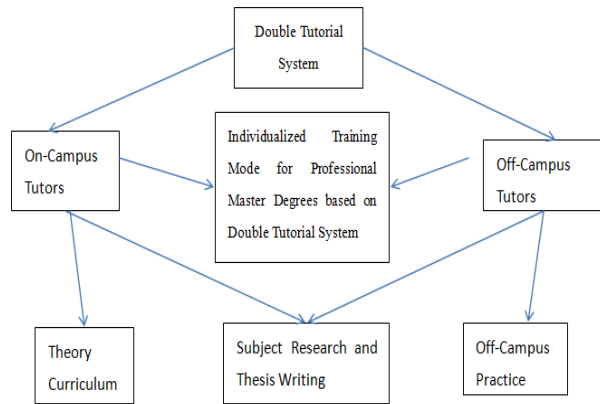


Figure 1. Individualized Training Mode for Professional Master Degrees based on Double Tutorial System

4.2 Optimize curriculum system

Curriculum system directly determines formation of postgraduates' knowledge structure and development of innovation ability. In order to format reasonable knowledge structure and cultivation of innovation ability. Curriculum system setting should not only think about knowledge basis but also consider knowledge integration. We should pay attention to cultivation of application ability of postgraduates [8].

For curriculum setting, we should break old template pattern and make it more free and flexible. We can set professional courses according to professional foundation of postgraduates. For example, if postgraduates meet certain conditions, they needn't to study corresponding courses. We also increase credits proportion of elective course and increase the number of elective courses for every research direction, courses. This can give students greater freedom. They can really choose courses according to their own career planning needs, so as to cultivate personalized application talents which requirements of various careers [9].

For teaching methods, we should reduce the teaching mode of "theory teaching" and pay attention to case teaching and practical research. We can make use of team learning, case analysis methods to promote combination of students' theory and practice and develop students' ability to solve practical problems.

For teaching contents, we should enrich curriculum content from perspective of vocational needs. We should strengthen the construction of teaching material and organize experts to write special materials according to actual situation of professional master degree students and strengthen the curriculum construction of curriculum library. We also need to update and maintain course cases regularly and follow closely the development of society and reflect the actual work situation.

4.3 Establishment of double tutorial system

Establishing double tutorial system can solve scientific research and practical ability of postgraduates. Every professional master degree postgraduate at least has an On-Campus tutor with high academic level, much experience in

engineering practice and an Off-Campus tutor with strong practical ability and responsibility heart [6].

This is good for creating more economic and social benefits. This training mode can make postgraduates improve knowledge and practical ability under guidance of On-Campus and Off-Campus tutors. Postgraduates can early know about production practice and help postgraduates' thesis topics to combine with the enterprise actual production project; it can unify science and technology innovation activity and enterprise's actual production and bring enterprise greater economic benefits, where students can also obtain the corresponding reward, improve their living conditions. At the same time, enterprise can choose outstanding talents in all the students who participate in practice and promote postgraduates' employment. This can produce huge social benefits.

4.4 Individualized Training

Computer technology has characteristics of strong professional practice and multi technical directions. In order to improve cultivation quality of professional master degree postgraduates[10,11]. According to postgraduates' interest, expertise and future employment aspirations, Tutors make a cultivation cases which is suitable for postgraduates' development. The personalized cases include elective courses, internships, research planning, and thesis writing and so on. In addition, we also should pay attention to construction of postgraduates training base and improvement of postgraduates training evaluation system. We find problems which appear in the process of postgraduates training timely and adjust training mode to achieve the goal of cultivating practice and innovation ability of postgraduates.

4.5 Establish graduate practice and innovation base

Professional master degree postgraduates treat profession practice as guidance, pay attention to practice and application. We should cultivate the high level application talents in the field of computer technology engineering. Therefore, it is important to establish the training base and innovation base for the graduate students [12].

Off-campus practice and innovation bases can be established through a variety of ways. On the one hand, and establish university-joint-enterprise training base. Enterprises provide talents training services. At the same time, taking account of the practice base outside university; On the other hand, the college can use its own disciplinary advantages to cooperate with outside enterprises.

4.6 A variety of paper forms

The education ministry put forward various full-time professional master degree thesis form, we should combine with the actual situation of universities and clear full-time professional master degree thesis form and organize internal and external experts to develop the appropriate thesis evaluation system and guide thesis blind experts evaluate professional master degree thesis in accordance with the corresponding type of thesis evaluation system.

4.7 Improve the supervision mechanism of graduate education and training quality evaluation system

4.7.1 Improve the supervision mechanism graduate education

Adhering to the philosophy of “strong supervision, heavy improvement, high development and quality”. We inspect courses teaching quality, degree thesis proposal, medium-term screening, and thesis defense and so on. Supervision work is focus on two major themes. Those are "quality" and "innovation". In order to improve the quality of postgraduates' cultivation, we insist that guidance is first, supervision is second. We seize key links and problems of postgraduate education. Deeply involved in postgraduates training process. Strengthen the inspection, supervision and guidance of every aspect in postgraduates cultivation. This play an important role in cultivating the quality of postgraduate education.

4.7.2 Improve quality of postgraduates' education evaluation system

It includes course studying, practice, tutors evaluation and postgraduates tracking and return systems[8,13]. Through these measures, we timely understand postgraduates training quality and adjust personalized training mode. It is good to cultivate senior application talents.

V. CONCLUSION

Many universities are still in the exploration stage in full-time professional master degree postgraduates' cultivation. It does not form a complete and mature training system. Through several years' exploration, our school has gradually formed a personalized training mode about double tutorial system in computer technology professional master degree postgraduates. We can cultivate application talents which can make use of postgraduates' interest and meet social needs. These students are carried on personalized training according to their own interest under guidance of double tutor system. They are more interested in their professional and technical direction and future work. It is also helpful to improve our visibility and it can improve the recruitment quality of postgraduates. The model can be further extended to postgraduates cultivation of other professional master degree. It is helpful to train more outstanding talents promote construction of national information.

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