Research on the Cultivation Mode of Application-Oriented Professional Master in the Two Stages of Production and Education Integration

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ABSTRACT
As a unique degree type in China, a professional master mainly focuses on the unification of technical practice and higher theoretical education. With the development of science and technology, there is an increasing demand for professional masters in China. This paper analyzes the existing professional master training mode, and proposes a two-stage application-oriented professional master training mode based on its shortcomings. In other words, under the background of the integration of industry and education, the training process of postgraduates is divided into two parts: basic theoretical learning and base practice. This process can establish a talent training mode in line with the reality of universities and cooperative enterprises and improve the comprehensive practical ability, innovation ability and scientific research ability of professional master students, and solve practical problems for enterprises.

Keywords: Production-education integration; Professional master; Two-stage; Based on practice

1. INTRODUCTION

Professional master is an application-oriented talent who aims at receiving higher education and high-level vocational training. Due to its unique academic and professional nature, its training mode should not only focus on theoretical knowledge learning, but also pay attention to the improvement of practical ability. In recent years, the state has attached great importance to the cultivation of professional masters, but in the cultivation mode, there are some problems, such as the serious similarity with the cultivation of academic masters, the lack of obvious practical and applied characteristics, and the imperfect joint cultivation system of enterprises, and the poor adaptability of demands[1]. At the end of 2017, the General Office of the State Council issued relevant documents on deepening the integration of industry and education, integrating the integration of industry and education into the national education reform and the development plan of talent training, constantly improving the talent training mechanism, accelerating the construction of higher-level universities, and promoting the integration of industry and education to a new stage[2]. This paper, by learning the relevant experience of master training mode in practice base and combining with the training characteristics and social needs of professional master, makes a beneficial exploration of the next two-stage of application-oriented master training mode in production and education integration base.

2. CURRENT SITUATION OF TRADITIONAL PROFESSIONAL MASTER

The integration of industry and education is an important way for colleges and universities to realize self-appreciation and serve local economic growth, and plays a very key role in the development of college education and the cultivation of skills talents. Under the influence of the new industrial revolution, there is a growing thirst for science and technology research talents with advanced degrees[3]. In recent years, the enrollment scale of professional masters in China has been increasing at an annual rate of about 20%, and the proportion of professional masters in China's graduate student training is also increasing. However, the traditional professional master training mode emphasizes theoretical teaching and neglects the importance of practical teaching, which leads to the disordered training mode of professional master and academic master. After professional master graduates, there is great competition pressure, the theory cannot reach the height of academic master, and the technical ability is far from meeting the standard.

In general, there are mainly the following problems in the traditional professional master training mode:
The talent training program is not well targeted. The training of applied talents based on the ground should have vocational skills and professional application, and the orientation should also meet the development needs of enterprises[4]. However, the current training mode has a low degree of alignment between talent training objectives and talents' interests. Colleges and universities offer too many courses with too much theoretical knowledge and too few skill application modules. Colleges and universities do not make full use of the advantages of the combination of industry and education to develop targeted training programs for individuals.

In the backward teaching process of the construction of AL Qaida, the degree of fit between skill training and theoretical knowledge learning is not high, so it is easy to learn theories, and difficult to apply them to practical operations[5]. Universities lack the ability to reasonably arrange practical operation training for students after learning relevant theoretical knowledge.

Professional master's lack of rational thinking, its positioning fuzzy, no definite skills learning goals for the master, before that there is no specific learning goals and plans for the lack of communication with tutor and theoretical knowledge learning time does not guarantee the place on put together is narrated, put forward the process of graduate student training can be divided into basic theory base for learning and practice two parts of a two-part applied professional master's training mode[6]

3. CHARACTERISTICS OF THE TRAINING MODE OF TWO-STAGE

Since the country began to recruit the first batch of full-time professional degree graduate student, since it has been more than ten years in this decade, unit of each recruit students of the colleges and universities and how to train full-time graduate this problem, many useful exploration and practice, which contain inside the double tutorial system, the joint training system and production practice system.

For professional master students, relying on the combination of industry and education, the two-stage talent training mode enables professional master students to better train practical skills and improve their comprehensive practical ability, application innovation ability and scientific research ability more quickly. At the same time, the training mode enables professional masters to have strong professional theoretical knowledge and excellent practical skills, which is conducive to the professional masters to better adapt to the development of enterprises and society. The study of professional master students is mainly divided into two stages: the first stage mainly focuses on learning theoretical knowledge, learning and getting familiar with scientific research projects from the outside to the inside, and the final purpose is to strengthen students' scientific research ability and principle mastery; The training mode of the second stage mainly relies on the base practice and graduation thesis writing stage. Professional master students enter the school-enterprise joint base to engage in practical learning and complete the project, and then complete the graduation thesis writing work. The goal of this stage is to enable students to better enter society and improve their practical ability. Tutors selected by universities and enterprises participate in the training plan and thesis guidance of full-time professional masters, which not only realizes mutual benefit and complement, but also reduces the distance between students and the society and enterprises.

For school, in two sections of the talent training mode, is beneficial to integration between both sides of the advantages of resources, create a good training environment, is advantageous to the school, make full use of enterprise information such as market demand information and practical technical information resource advantage to cultivate the innovative consciousness and practice ability cooperative promotion “Ji Di Shi” applied master of professional talents. Through service enterprise investment project in colleges and universities, the enterprise unique scientific research level of technology and knowledge into the classroom teaching, has nothing to do to delete the number of elective courses, the construction of the distinctive project curriculum system, increase the quality of classroom teaching, promote the students and the collaboration between enterprises, it's used to improve the quality of practice teaching this way to help students solve the long and allows students to focus their attention on study hard to study science and technology, to better jobs and higher wages.

For companies, in two sections of professional master's training mode of talents cultivation, to shorten the time of the employees familiar with the industry, not easily avoid the new staff training, improve the overall basic quality of company employees, greatly reduce the cost of hiring employees. First university-enterprise cooperation lets enterprises recruit most in need of talents, the school will be according to the requirement of the enterprise adopt corresponding teaching mode to cultivate talent, companies need to the enterprise training excellent staff resources scarce talent and prepare. The second joint between colleges cultivate students, greatly shorten the period between enterprises and employees, during the period of school can realize the enterprise culture and working environment, greatly reduce the enterprise cost for staff. In the third, in the student training phase, university-enterprise united training can enhance students' identity to enterprise culture, to effectively reduce the staff turnover rate.
4. RESEARCH ON THE TRAINING MODE OF TWO-STAGE

4.1. “Two-Stage” Training Objectives

Through school-enterprise cooperation, a two-stage application-oriented talent training program for the base is established. The in-school and off-campus mentor group can provide targeted guidance to students to solve problems existing in various links from theory to practice, so that students can continuously improve their theoretical accomplishment and practical ability in practice. Further improve the comprehensive practical ability, innovation ability and scientific research ability of professional master students, and solve practical problems for enterprises, it's used to promote win-win cooperation and common progress between universities and enterprises.

4.2. Two-Stage Cultivation Content

The training mode of two-stage applied professional master based on the experience of professional master training mode over the years divides the postgraduate training process into two parts: basic theory learning and base practice. Students receive high-level knowledge and theory education on campus, and then enterprises and universities jointly develop highly targeted individual training programs, combined with the local economy and enterprise development situation to carry out practical training. Which is based on fusion education, make two stages base applied professional master plan to explore pattern: The school provides students with information about the production link of the internship enterprise, so that students can understand the enterprise information and get familiar with the enterprise process. By determining the weight of theoretical, practical and scientific research ability and other factors in the two-stage base training of professional master students, the school-enterprise joint establishment of specialized master's talent training program and technical route that meet the discipline requirements.

Explore the fusion of two sections of production and education practice innovation base management mode: Both the school and the enterprise shall jointly study and formulate the management system of professional Master's practice innovation base, and reasonably arrange teachers' guidance and supervision of professional master's innovation work. Research, analysis and development of a comprehensive professional postgraduate self-evaluation mechanism, real-time process record evaluation, supervision and spot check, in practice constantly dynamic adjustment of the management model. Such a management system is of great help to cultivate the comprehensive ability of professional masters to deal with problems, so that the graduate students develop the thinking ability to ask questions and be good at thinking.

4.3. Two-Stage Cultivation Scheme

Take the theory teaching as the center, make the characteristic training plan. In the course learning stage, the university will announce the scientific research projects and related topics jointly undertaken by the school and enterprises to the tutors and professional master students. Graduate students select research topics and guide teachers in order to establish the training program and technical route for specialized master's talents, and study the basic theoretical courses of practical ability and scientific research ability according to the training program. Carry out ground-based practical teaching, guide graduate students to deeply understand the interests between their majors and industries, and cultivate students' practical skills.

With practical practice as the target orientation, it promotes the integrated development of postgraduate knowledge and ability according to the characteristic professional master's talent training program. Professional master's students enter the practice joint training base to carry out research work after completing the theoretical courses. Under the guidance of the university-industry tutor group, make full use of the advantageous resources of the base center to carry out the research. In practice, students should regularly report the research progress to the supervisor group and record the stage self-evaluation report. At the same time, the tutor group should evaluate the feasibility of the student's research work and answer the questions existing in the practice. The supervisor group should also strengthen supervision and timely spot check on the research progress of graduate students, feedback the inspection results to schools and enterprises, and then both schools and enterprises should adjust the management mode according to the actual situation to improve the management mechanism through constant adjustment, it's used to enhance the innovation ability and scientific research ability of professional masters.

5. CONCLUSION

All in all, the cultivation of professional masters should be based on serving the development of local industries and oriented by cultivating high-level professional talents. Through diversified forms, it is necessary to strengthen the cooperative development with local enterprises, deepen the concept of combining work with study, and constantly improve the comprehensive ability of professional master's degree graduates. Fusion two stages under the base of practical production and education professional master's training mode, can better meet the requirements for local economic development and technological progress, and boost the local economy faster growth, will study in the school theory knowledge effectively and fusion of engineering training, improve the professional master's strain capacity and comprehensive ability of engineering practice, not only accords with the essential law of higher education development, and promotes the development of
local colleges and the enterprises long-term and stable cooperation, is good for college students and enterprises.

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REFERENCES

[1] Zhang Junfeng. “The practice of application-oriented personnel Training Mode based on the integration of industry and education,” Quality education in the West, vol. 24, pp. 169-170, October 2017. DOI: https://doi.org/10.16681/j.cnki.wcqe.201724104

[2] Qiu Xiaofang. “The Exploration and Research on the Integration of Industry and Education to Promote the Reform of the Training Mode of Applied Talents,” Heihe Journal, vol.06, pp. 27-28, June 2018. DOI:https://doi.org/10.14054/j.cnki.cn23-1120/c.2018.06.010

[3] Zhen He. “The integration of industry and education with school-enterprise cooperation is the basic path of application-oriented undergraduate education,” Vocational education, vol.01, pp.1, January 2017. DOI: https://doi.org/10.16851/j.cnki.51-1728/g4.2017.01.001

[4] Qian Fenghuan. “A visual analysis of the research focus and direction of production-education fusion,” Contemporary Vocational Education, vol.04, pp. 70-78, July 2018. DOI: https://doi.org/10.16851/j.cnki.51-1728/g4.20180717.013

[5] Gao Yingping, Shao Yanfang, and Li Yahan. “To explore the vocational ability of full-time master of Engineering for enterprises,” Value engineering, vol.32, pp.164-166, July 2017. DOI:https://doi.org/10.14018/j.cnki.cn13-1085/n.2017.32.071

[6] Tang Minggui. “Construction of training Mode for Professional degree postgraduates oriented by Vocational Competence,” Humanities world, vol.24, pp.89-91, February 2017. DOI:https://doi.org/10.16737/j.cnki.rwtx81281190.2017.24.029