Discussion on the Building of Master's Practice Base of Architecture and Civil Engineering

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Abstract. Professional Master is a practice-oriented, practice-based support to cultivate high-level application-oriented talents with solid theoretical basis to adapt to the development of enterprises. In this paper, the ways that building of Master's Practice Base for Architecture and Civil Engineering Major were discussed, the ways include building practice base on university's own, university cooperating with enterprise in building practice base and university utilizing enterprise practice base. This paper would provide new ideas for improving the practical ability of Master's Major in Architecture and Civil Engineering.

Introduction

Since the implementation of professional degree education in 1991 in China, the quantity of professional degrees has been increasing, the scale of education has been increasing, a large number of high-level applied talents have been successfully trained, and remarkable achievements have been achieved. With the continuous growth of the quantity of undergraduates, the employment problem is becoming more and more serious. At the same time, in order to avoid blindly enlarging the enrollment of postgraduates, the overall quality of postgraduates is declining. Since 2009, China has gradually expanded the scope of full-time master's major. After more than ten years of development, the quantity and quality of professional masters have developed significantly. According to the statistics of China Postgraduate Enrollment Among the candidates registered for admission in Beijing, the proportion of candidates registered for professional master's degree increased year by year, 43.0% in 2015, 46.3% in 2016, 52.2% in 2017 and 54.7% in 2018 [1]. Document No.1 [2009] issued by the Chinese Ministry of Education clearly points out that the training goal of professional degree was to grasp the solid basic theory and broad professional knowledge in a certain professional (or professional) field, to have strong ability to solve practical problems, to undertake professional technology or management work and to have good professional quality of high-level applied professionals [2]. Although the situation of professional master's development is good, there is still a certain gap between the effect and quality of training and the expectations of the country and society. The main problems are confusion between professional master's and degree master's courses, lack or low quality of practical courses, lack of tutors with practical experience and teaching ability in universities, lack of practical problems in topic selection of postgraduate, practical significance and significance. The application value is low and so on [3]. How to improve the practicality of professional master is an urgent problem to be solved in colleges and universities. Taking the building of master's base of civil engineering as an example, building of professional master's practice base in Architecture and Civil Engineering will be discussed in this paper.

Building Practice Base on University's Own

Professional practice is an important part of full-time professional postgraduate training in universities. Based on the new needs of rapid economic and social development, universities should develop and improve the training of postgraduates (professional degree postgraduates) and improve the quality of training. The General Office of the Ministry of Education recently issued the Notice
on Publishing the First Batch of "New Subjects" research and practice projects, which identified 612 projects as the first batch of "New Subjects" research and practice projects. Tongji University, Shanghai Jiao Tong University and other first-class universities were participated by some units and unit members. This also indicates that the Ministry of Education of China has begun to lay out the building and development of "some new subjects". Universities should focus on training new subject professionals, grasping the connotation of building new subjects, and striving to explore new goals, concepts, models and styles, so as to realize the transformation from theoretical knowledge system of disciplines to research and practice, from single specialty to multi-specialty cooperation, from passive training to active development. The way of exhibition will lay a solid foundation for the future training of talents in the field of practice [4]. For example, in BIM training base of Inner Mongolia University of Technology, university’s teachers aim to promote the development of new subject, start with the actual development of building industry in Inner Mongolia of China, use undergraduate’s spare time to train, grasp the industry dynamics and organize regular lectures by industry experts to improve undergraduates' professional quality, which has been unanimously praised by BIM professionals both university undergraduates and social persons for Inner Mongolia. In this base, high-quality personnel in the field of BIM was trained for other parts of China too. Universities also regularly organize undergraduates to prepare for vocational qualification examinations. Vocational qualification certificates are the certificates of knowledge and skills necessary for workers to engage in occupation. They are often the certificates of qualifications for job-hunting, post-holding and promotion. Graduates of civil engineering universities often face greater life and workplace pressures in the early stage of graduation and it is difficult to complete the corner from campus to enterprise in time. At this time, it will be more difficult to obtain vocational qualification certificate. Universities should focus on reality and timely carry out skills training for undergraduates, such as the training of builders, registered structural engineers and supervisory engineers, so as to improve university’s undergraduates theoretical knowledge level, enhance undergraduates' competitiveness, reduce the pressure of role transformation of graduates, and meet the requirements of rapid development of the building industry.

**University Cooperating with Enterprise in Building Practice Base**

The cooperation between university and enterprise is based on the cultivation of compound technical talents. By utilizing the high-quality educational resources of university and the occupational environment of enterprise, the undergraduates can organically combine the theoretical knowledge acquired in class with the practical knowledge acquired in work, cultivate advanced applied talents with solid theoretical basis and meet the needs of enterprises, and ultimately achieve a win-win situation between universities and enterprises. The Ministry of Education's "Report on the Work of the 2017 National Conference on Education" points out that it is necessary to follow the industrial reform, strengthen the training mode of combining work with learning, and let enterprises directly participate in the whole process of personnel training. Through the co-building of training bases inside and outside the university, the introduction of factories into the university and so on, let "the university is built in the enterprise, the classroom is built in the factory". Summarize and popularize the modern apprenticeship system, clarify the dual identity of apprenticeship, form a long-term mechanism of university-enterprise joint enrollment and joint training, and truly realize the integration of university-enterprise education [5]. The professional master's degree of Hohai University (in China) adopts the “1+1” discipline training mode, in the first year undergraduates studied the basic theory of professional courses on campus, in the second year undergraduates carried out field operation learning on the ground. This type of training mode enables undergraduates to go deep into enterprises, contact and understand the actual industrial production. By participating in enterprise projects, they can combine the theoretical knowledge they have learned in one year with the actual production. In practice, they can constantly improve their theoretical knowledge system and exercise their ability of flexible application of knowledge. In the process of enterprise project research, undergraduates of different majors cooperate to improve their
professional knowledge, professional skills and thinking ability. Under the “1+1” Discipline Training mode, undergraduates not only have a perfect knowledge system and basic professional skills, but also can better complete the docking with the actual work. That is high-quality application-oriented talents with solid theoretical basis and adapted to the development of enterprises. The civil engineering specialty of Inner Mongolia University of Technology cooperated with Inner Mongolia Xing Tai Building Group Co., Ltd. to build a practice base earlier. The master of civil engineering specialty who has grasped basic theoretical knowledge is sent to the practice base regularly. Under the guidance of the enterprise, with the help of the strong practical ability and management experience of the enterprise, undergraduates are encouraged to participate in the daily work of the enterprise hand in hand and face to face. Enthusiasm in learning, putting the knowledge learnt by undergraduates in university into practice and improving the depth of understanding of book theory. Collaborative training between universities and enterprises achieves the goal of killing three birds with one stone. Firstly, the university achieves the original intention of teaching and educating people and training talents. Secondly, the enterprise obtains sufficient labor force in the training process, at the same time, it recruits excellent undergraduates in advance, which saves the time of pre-job training for graduates. Thirdly, the undergraduates are in close contact with practical work and experience rationality in the training process. The importance of combining theory with practice has gained valuable work experience, promoted seamless docking with enterprises, and enhanced the comprehensive competitiveness of undergraduates.

Utilizing Enterprise Practice Base

The practice base independently built by enterprises is a place where the software and hardware resources of enterprises are fully utilized to cultivate undergraduate’s professional skills and professional qualities. Undergraduates practice in the practice base, train undergraduate's ability to analyze and solve problem independently under the actual operating environment, fully give undergraduates the opportunity to take an independent role and provide undergraduates with the opportunity to cultivate their professional habits and professions. Standardize the actual combat environment of production awareness, realize the smooth transition from campus people to enterprise people, and give full play to the role of enterprise practice base in training practical talents. Inner Mongolia Zhong Duo Industry Group and Changsha Yuan Da Housing Industry Group Co., Ltd. jointly built the Helinger Assembly Building Industrial Park of Hohhot, with a total investment of 4.5 billion yuan and an area of about 600,000 m2, which makes the building projects in Inner Mongolia realize the standardization of design, production, building assembly, decoration integration, management informationization and building modernization. Teachers and undergraduates of Inner Mongolia University of Technology actively enter the industrial park for internship by means of tutor recommendation and undergraduate contact. After the undergraduates arrive at the post, the guidance team is composed of industry park leaders, instructors and tutors to help undergraduates make work plans. After completing the tasks, the undergraduates return to university to continue their studies. Through entering the industrial park practice, undergraduates can go deep into the enterprise, make full use of the enterprise resources, study in the actual combat state, and improve the practical ability required in the master's stage. On the one hand, universities provide talents to inject fresh blood and vitality into enterprises. On the other hand, enterprises provide practice bases for undergraduates to improve their professional skills and mutual benefit. University has also set up a special career development center to provide undergraduates with enterprise practice information, plan and implement learning, apply the knowledge learned to practical work, but understand the operation mode of enterprises, industry trends, etc. In the scope of enterprise management, undergraduates should dare to innovate their working methods and put forward feasible technological reform plans. Enterprises should actively guide undergraduates to adapt to the working environment and impart practical knowledge to undergraduates on the premise of guaranteeing their rights and interests. At the same time, they should pay attention to promoting enterprise culture so that undergraduates can enhance their awareness of enterprise culture, be familiar with the mission of enterprises and put the core value of enterprises into practice.
constantly enhance undergraduate professional spirit and dedication, paving the way for undergraduates to become a suitable professional and technical personnel.

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