

Exploration and Practice of Professional Degree Postgraduate Training Mode in Industry Colleges and Universities

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Abstract. by analyzing the problems existing in the cultivation of general professional degree postgraduates in Colleges and universities with industry characteristics, and implementing the curriculum system reconstruction project, collaborative education condition construction project and education quality evaluation mechanism. This paper constructs the training mode of excellent engineers for general professional degree postgraduates in Colleges and universities in the industry. Taking the training of graduate students majoring in "electronic information" of Xi'an Shiyu University as an example, the practical effect is verified: the talent training objectives of the students have reached the orientation of the school and industry, and the practical innovation ability of graduate students majoring in electronic information has been improved; Graduates have been recognized and praised by enterprises. Under the guidance of values, the number of graduate students employed in the petroleum industry and western China has increased year by year.

Keywords: industry characteristic colleges and universities; Graduate degree; Outstanding engineer; Training mode industry characteristic colleges and universities; Graduate degree; Outstanding engineer; Training mode

1. Introduction

With China's economy entering a high-quality development stage and the acceleration of economic and industrial transformation and upgrading, all walks of life have put forward higher requirements for employees' professional quality, knowledge ability and degree of specialization. The transformation from quantity to quality requires higher-level professional education. Professional degree is the product of the development of modern society. The more developed science and technology and the higher the degree of social modernization, the greater the demand for professional degree talents and the more need to develop professional degree graduate education. Colleges and universities with industry characteristics mainly serve the industry and regional economy. Therefore, they have industry advantages and geographical advantages, have made important contributions to China's economic and social construction, and occupy a very important position in the higher education system[1].The postgraduate training of colleges and universities with industry characteristics has industry characteristics. It is generally dominated by engineering majors, and generally consists of industry backbone majors and general majors. Graduate students majoring in the backbone of the industry are generally employed in industry units, while graduate students majoring in general are employed in more fields, so fewer and fewer students are employed in difficult industries such as geology, mineral oil, etc., which seriously affects the development of the industry.

In view of the training mode of excellent engineers and the problems encountered in the training process, many scholars have carried out relevant research work. Zhou Rujin [2] analyzed the differences between current engineering education and excellent higher engineering education in the training process; Lin Jian [3] aimed at analyzing the quality evaluation of "excellence plan" based on engineering education certification; Shi Jing [4] and others deeply analyzed the technical characteristics of new media in combination with the behavioral characteristics of students using new media; Zhu Zhengwei [5] and others explained why China should implement "excellent engineer education and training plan 2.0";Liu Jinlong [6] and others put forward the project-based experimental teaching method to promote the training plan of excellent engineers; Yuan Yan [7] and others elaborated the working mechanism and implementation path of promoting the integration

of industry and education from five aspects: practical education platform, aiming at the problem of disconnection between practical teaching and the development of engineering design technology in the industry; Sun Yanli [8] and others took seven majors of East China University of science and technology as the research object, and analyzed the training quality of students of the "excellence program" from the perspective of academic situation analysis; Bai yanru [9] and others analyzed the bottleneck of the current development of industry education integration, and studied the long-term mechanism of industry education integration from three aspects: National logic, market logic and University logic; Yan Tao [10] and others introduced the methods of improving the comprehensive quality of graduates in the school of civil engineering of Southwest Jiaotong University, so as to cultivate compound excellent civil engineers under the background of new engineering. This paper mainly explores the training mode of excellent engineers for postgraduates majoring in general engineering in Colleges with industry characteristics, analyzes the existing challenges and problems, and puts forward to improve the training quality of excellent engineers for postgraduates majoring in professional degrees through the implementation of "two projects and one mechanism", and takes the master training of electronic information major of Xi'an Petroleum University as an example to analyze the effect after its implementation.

2. Problems Existing in the Cultivation of Postgraduates Majoring in General Engineering in Colleges with Industry Characteristics

2.1 Current Training Mode of Vocational Colleges and Universities Can not Meet the Needs of the Society for Professional Degree Postgraduates

With the arrival of the fifth scientific and technological revolution and technological revolution, it has had a great impact on all walks of life. By investigating the talent demand of the industry for general professional degree postgraduates, it is found that the training mode, knowledge structure and engineering literacy of general professional degree postgraduates in Colleges with industry characteristics cannot meet the industry's demand for general professional degree postgraduates, resulting in insufficient future development ability of postgraduates.

2.2 Graduate Students are Reluctant to Work in Many Industries because of the Difficult Working Conditions

Due to the wide employment field, especially the graduate students majoring in information, most of them prefer to work in prosperous cities. Therefore, the number of graduate students developing in geological, mineral oil and other industries with difficult working environment and the western region is decreasing year by year. The geological, mineral and oil industry is the guarantee of national energy. Because General Secretary Xi mentioned in his speech of Shengli oilfield that we should firmly put the rice bowl of energy in our own hands, it is necessary for graduate students to carry out the guidance and cultivation of values during school.

2.3 Industry Engineering Background of the Teachers of General Professional Degree Postgraduates is Insufficient, and the Promotion Way is not Smooth

At present, many professional degree postgraduate training units in China lack professional teacher teams. The teaching team of professional degree education and academic degree education is basically "a team", and most professional teachers graduate from non-professional colleges and universities. After graduation, they directly enter colleges and universities and quickly obtain the qualification of tutor to guide graduate students. Few schools provide young tutors with learning opportunities with industrial engineering background.

2.4 Utilization of Practical teaching resources outside the school is not smooth, which Limits the Improvement of the Innovation and Practice Ability of Professional Degree Postgraduates.

At present, in the joint training of graduate schools and enterprises, enterprises are not willing to spend financial and human resources on the training of graduate students, and enterprises are more willing to recruit directly. This leads to the fact that most schools cannot implement the one-year enterprise training for professional degree postgraduates, which eventually leads to the fact that professional degree postgraduates cannot undertake work independently immediately after graduation because they do not have on-the-spot training on the production site of the enterprise.

2.5 Difference between the Evaluation of Professional Degree Postgraduates and Academic Degree Postgraduates is not much, which makes it Difficult to Continuously Improve the Quality of Education.

At present, the evaluation of the teaching quality of professional degree postgraduates is still limited to curriculum assessment and graduation thesis evaluation, and a thesis cannot completely evaluate the practical innovation ability of postgraduates, resulting in little difference between professional degree and academic degree postgraduates.

3. Implement the "Two Projects and one Mechanism" to Improve the Training Quality of Excellent Engineers of Professional Degree Postgraduates

3.1 Implementing the Curriculum System Reconstruction Project

When constructing the curriculum system of professional degree postgraduates, first determine the training objectives and graduation requirements in the top-level design according to the OBE concept. The curriculum system design of interdisciplinary integration can be seen from Figure 1. For colleges and universities with industry characteristics, when training professional degree postgraduates in general disciplines, they should not only learn general professional knowledge, but also learn industry background knowledge, but also learn information technology. Therefore, the curriculum system of general professional degree postgraduates in industry colleges and universities is the result of interdisciplinary integration, and the courses offered should focus on the cultivation of practical and innovative ability, At the same time, we should also take into account the learning of new technologies.

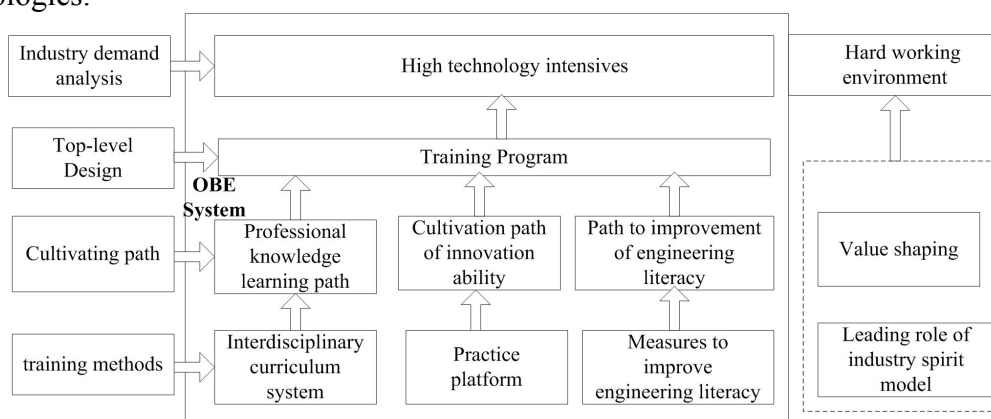


Figure 1. Framework of excellent engineer training program for professional degree postgraduates

3.2 Implementing the Education Condition Construction Project

Relying on this long-term cooperation, we have built a four collaborative education mechanism to form a collaborative education model for outstanding engineers. which includes co-construction, sharing and win-win mechanism, teaching process collaborative participation mechanism, the

university enterprise cooperation sharing mechanism and teaching staff collaborative training mechanism.

3.3 Implementing the Education Quality Evaluation Mechanism

It can be seen from Figure 2 that the multi-party education quality evaluation mechanism is divided into "social evaluation" and "school teaching evaluation". "Social evaluation" mainly collects the ability evaluation of graduates from stakeholders such as the government, graduates and employers. The school regularly collects the evaluation materials of the employer on the graduate students, the spot check results of the dissertations of the degree management offices at all levels and other government departments, and the feedback of the graduate students on the training process of the school. According to the above opinions, the discipline head organizes relevant personnel to form a continuous improvement report and feed it back to the graduate training department of the school. The graduate training department classifies the problems, Feed back to the main body implementing relevant training links; "On campus teaching evaluation" mainly evaluates the learning of graduate students in various teaching links. "In school teaching links" are supervised by experts, peer evaluation of teaching, student evaluation, lecture competition and other links to check the knowledge learning, ability training, literacy improvement and value shaping of postgraduates.

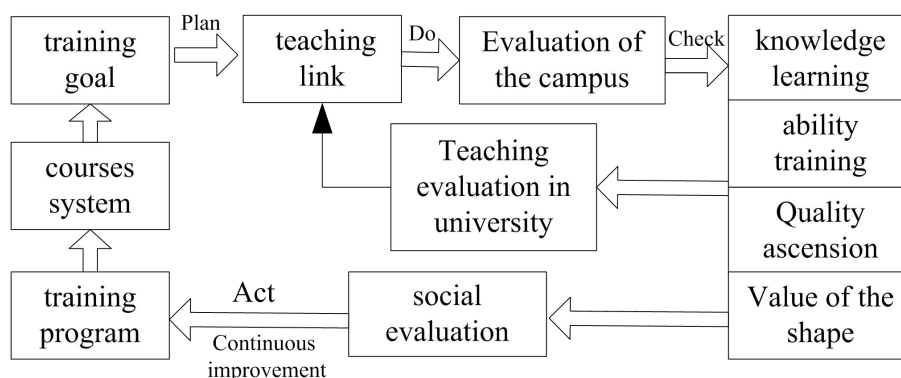


Figure 2. Education quality evaluation mechanism with the participation of stakeholders.

4. Promotion and Application of Achievements

4.1 Cultivation Effect of Master of Electronic Information Specialty the Cultivation of Master of Electronic Information Specialty.

Analysis of the learning effect of graduate students in school, the talent training goal has reached the positioning of the school and the industry, and significantly improved the training quality of graduate students with professional degrees. Through the reconstruction of the curriculum system, graduate students have theoretically mastered multi-disciplinary knowledge, team cooperation and other engineering literacy, as well as the ability to solve complex engineering problems; Through the collaborative education condition construction project, it provides conditions for the improvement of graduate students' ability and literacy. With the support of this better software and hardware conditions, the number of graduate students participating in relevant discipline competitions, published papers and registered patents have increased significantly; Through the education quality evaluation mechanism, the problems fed back by stakeholders are collected in real time and dynamically, and continuous improvement is made to continuously improve the comprehensive quality of graduate students. The quality of professional degree graduate thesis has been significantly improved, and the form of talent training has improved the recognition of employers for students' ability.

4.2 Social Evaluation of Graduates

Graduates have been recognized and praised by PetroChina, Sinopec, CNOOC and other enterprises. Under the guidance of values, the number of students employed in the oil industry and the West has increased year by year. Through the analysis of the employment situation of graduates, the employment rate of the last five excellent classes is more than 95%, of which the number of students employed in petroleum related industries and the west is increasing year by year, which is consistent with the school's goal of positioning to serve the West and the petroleum industry. Feedback from employers shows that students love their jobs, have strong teamwork and communication skills, have a strong sense of innovation and engineering application ability, and can quickly adapt to the needs of their jobs. Many of the graduates have grown into the technical backbone and management talents of the unit. Some graduate students have grown into project leaders after three months to six months.

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