



Research and Practice of Talent Training for Postgraduates in Mechanical Engineering Based on Professional Characteristics and School-Enterprise Collaboration

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Abstract. It is an effective way to solve the many deficiencies in the current mechanical professional degree postgraduate education to cultivate professional degree graduate students based on professional characteristics and industry characteristics. This paper firstly summarizes the characteristics and main problems in the process of training postgraduates with mechanical degrees. The comprehensive reform of professional degree postgraduate education is studied from the aspects of strengthening postgraduate ideological and political education, innovating postgraduate training system, strengthening innovation and entrepreneurship education concept, building innovative education training platform, and strengthening training quality process monitoring. Exploring systematic, operable, and scalable methods to promote the quality improvement of postgraduate training in mechanical engineering.

Keywords: Professional degree graduate education · Training model reform · Based on major characteristics and Industry features · Mechanical major

1 Introduction

Postgraduate education undertakes the important task of cultivating high-level talents for the party and the country, and is the highest level of academic education [1, 2]. With the advancement of ‘Made in China 2025’ and the continuous development of economic construction of China, the demand for high-level application-oriented talents continues to expand. The development of professional postgraduate education is the main way to solve the shortage of high-level application-oriented talents in China [3, 4]. Since 2009, China has implemented full-time professional degree and postgraduate education. The CPC Central Committee and the State Council clearly take the development of professional degree graduate education as the development strategy in ‘the national medium and long-term education reform and development outline (2010–2020)’ and ‘the national medium and long-term talent development plan outline (2010–2020)’, and put forward

the requirements of accelerating the development of professional degree graduate education. Subsequently, the Ministry of Education and the Ministry of Human Resources and Social Security promulgated the 'Opinions on Further Promoting the Reform of the Training Model for Professional Degree Graduate Students', which clearly stated that professional degree graduate education is an important part of the graduate education system and a means of cultivating high-level applied professionals. At present, postgraduate education of China is at an important historical moment of transformation from big to strong. At such a historical node, on July 29, 2020, the first national postgraduate education conference since the founding of China was held. After the meeting, the 'Opinions on Accelerating the Reform and Development of Postgraduate Education in the New Era' was released. Actively developing professional degree postgraduate education is an inevitable requirement for building a well-off society in an all-round way and building an innovative country, and it is also an inevitable choice for postgraduate education to serve national economic construction and social development [5].

Since the establishment of the first professional degree in China, the professional degree postgraduate education has been established, expanded, and changed in response to demand, and has experienced a process of development and reform from nothing, from less to more, and from weak to strong. Over the years, driven by national policies, the professional degree postgraduate education has developed rapidly, achieving a double increase in the number of professional degree categories and the number of professional degree students [6]. On the one hand, the professional degree category has grown from a single MBA to 47 in a wide range of industries. On the other hand, the scale of professional degree postgraduate training continues to expand. The number of graduates continues to increase every year, and the proportion of graduates with professional degrees in the total number of graduates has also gradually increased [7].

The scale of professional degree postgraduate education in various colleges and universities continues to increase, which to a certain extent solves the tension between postgraduate education, social and economic development. However, the rapid development of professional degree postgraduates has also led to many deficiencies in the training of professional degree postgraduates in our country, especially the generally weak professional ability of professional degree postgraduates, which cannot meet the actual work needs of related fields and industries. It is necessary to vigorously improve the quality of professional degree postgraduate education and deepen the reform of the professional degree postgraduate training model [8]. Therefore, according to the characteristics of the industry, the characteristics of colleges and universities, and the development needs, it is an important issue to be solved urgently in the current professional degree postgraduate education to explore effective programs for the cultivation of professional degree graduate students based on professional characteristics and industry characteristics.

Different industries and different majors have different characteristics and development needs. Therefore, when building a professional degree graduate training model, the industry and major characteristics should be fully considered, and synergy with industry enterprises should be strengthened. Mechanical degree graduate students should become applied and compound high-level engineering technology and engineering management talents with solid foundation, strong engineering practice ability, and certain innovation

ability [9, 10]. However, the existing talent training mode restricts the cultivation of multi-level, high-quality and innovative scientific and technological talents, resulting in the inability of postgraduates to quickly adapt to the needs of social development, which seriously affects the scientific and technological innovation ability of our country's mechanical majors. How to build a new model of talent training for mechanical professional degree graduate students under the new situation is an urgent problem that needs to be solved at present. At the same time, the Ministry of Education promulgated relevant policies on education reform, indicating that vigorously promoting the collaboration between colleges and enterprises is an effective model that takes colleges and universities as the main body, cooperates with excellent enterprises, and combines theoretical learning in schools with practical training in enterprises [11]. Both the school and the enterprise jointly create a training base that can cultivate the practical ability and innovation ability of postgraduates, which can optimize the integration of the majors and talents of mechanical engineering disciplines in colleges and universities with the technology of enterprises. Unblock the efficient communication and interaction between schools and enterprises in the cultivation of high-level application talents, so that the cultivation of talents in colleges and universities can be seamlessly connected with the needs of talents in enterprises. The school-enterprise collaborative training model enables colleges and universities to directly supply urgently needed mechanical engineering talents for enterprises, and enterprises can create favorable conditions for high-quality employment of mechanical graduate students.

This paper proposes to start from the professional characteristics and school-enterprise synergy, aiming at the training topic of postgraduates majoring in mechanical engineering, firstly summarizes the problems existing in the training process of postgraduates majoring in mechanical engineering, and then starts from strengthening the ideological and political education of postgraduates, innovating the postgraduate training system, and strengthening the education of innovation and entrepreneurship. The research and practice of comprehensive reform of professional degree graduate education in terms of concepts, building innovative education training platforms. Research and practice on comprehensive reform of postgraduate education for professional degrees in strengthening training quality process monitoring and other aspects, explore systematic, operability and scalability to promote the quality of mechanical professional degree graduate training.

2 The Characteristics and Common Problems of the Postgraduate Training Mode of Professional Degree in Mechanical Majors and Other Majors

At present, the training model of professional degree graduate students in the mechanical major is similar to that of other majors. It has the following characteristics: First, the training of professional degree postgraduates in most colleges and universities mainly relies on the original departments, advantageous disciplines, and teachers at the school. On this basis, the professional degree graduate training system has been developed and improved from the academic degree graduate training system. For example, Tsinghua

University's professional degree postgraduate training is fully based on its strong engineering disciplines. All the masters of engineering in the Department of Electronics and Electrical Engineering have been converted into masters of engineering, and the master's program in electronic information innovation and entrepreneurship and energy Internet has been redesigned according to the project system; Fudan University's Master of Finance degree relies on its long history of finance majors and high academic quality faculty [12, 13]. Second, in the reform of the professional degree postgraduate training model, based on the cultivation of applied talents, it is proposed to be oriented by occupational needs, focus on practical ability training, and take the combination of production and education to Establish a professional postgraduate training model with Chinese characteristics that is compatible with economic and social development. Under the guidance of this idea, Major progress has been made in the cultivation of professional degree postgraduates in various colleges and universities in focusing on the cultivation of applied talents. In the long-term educational practice, Shanghai has developed the 'six modernizations' model of professional degree postgraduate education, which clearly emphasizes the requirements of industrialization of training specifications, institutionalization of practice, and 'double-qualification' of the tutor team. By targeting industry standards, organizing professional practices, and hiring industry mentors, they ensure the development direction of professional degree graduate training [13, 14]. Colleges and universities have also generally done a lot of exploration in terms of internship practice and industry mentors. Peking University, Tsinghua University, Fudan University, East China Normal University, Sichuan University, Tianjin University, etc. all generally implement the 'dual teacher system', that is, in addition to professional tutors, there are other industry tutors participating in the training of professional degree graduate students [15]. For example: Tianjin University selects industry experts with rich practical experience as dissertation instructors; Fudan University also requires at least one industry expert to participate in the defense committee of professional degree graduate students. At the same time, it checks the training quality of professional degree postgraduates [9]. Third, the inherent requirements oriented by occupational needs force colleges and universities to change the traditional concept of educating people. Colleges and universities need to strengthen cooperation with enterprises and institutions to expand school-running resources in order to achieve the school-running goal of cultivating applied talents. Tianjin has increased the investment in the joint training base for the integration of production and education, helping colleges and universities to build a three-level joint training base construction system of city, school, and college (department), and form a high-level application-oriented talent training system. With the support of Tianjin Municipality, Nankai University promotes the establishment of two-level practice bases through various forms. Tianjin University positions the practice base as 'the main place for professional practice and an important platform for the combination of industry and academia'. It attracts industries and enterprises to participate in the training of professional degree postgraduates in an all-round way and achieves a win-win situation between schools and enterprises [16, 17]. Tsinghua University has attracted industry experts such as Alibaba and Tencent to participate in the construction of teaching and curriculum systems. At the same time, a series of practical courses such as 'Big Data Practice' of the Big Data Industry Alliance, 'High-end Equipment Practice'

of CRRC Qingdao Sifang and ‘Artificial Intelligence Practice’ of Sense Time have been set up in cooperation [18]. Nanjing University and the government of Yancheng City jointly established the Environmental Protection Technology and Engineering Research Institute. With this as the center, more than 10 scientific and technological innovation platforms and industrial entities have been established, and the collaborative training model has been innovated. Students receive two years of practical training and innovation and entrepreneurship education in the collaborative training base [5].

At present, the training of postgraduates in traditional mechanical majors is faced with some common problems, mainly including:

- (1) The teaching content of the course is outdated, lacking technological innovation and systematic forward-looking. Currently, compared with the current advanced technology, equipment and technology, the teaching materials used by postgraduates of mechanical majors are old and boring. As a result, graduate students cannot be exposed to the most cutting-edge and advanced technologies at home and abroad, which affects students’ enthusiasm for learning and innovative design motivation. Although teachers can add appropriate specific examples as explanation content in the teaching process, it is far from enough to update the entire advanced equipment design and manufacture of mechanical engineering disciplines.
- (2) The curriculum teaching mode is single, lacks diversification, and the interdisciplinary and integration of disciplines are not prominent. Against the background of the increasing enrollment of professional degree graduate students. In terms of personnel training, mechanical engineering generally has classroom teaching model, unified teaching syllabus, unified school system and unified curriculum arrangement, etc. Failure to effectively cross the disciplines of mechanical engineering with information, computer, materials and power and engineering thermophysics. The final graduate students with mechanical degrees are all “uniform products” lacking individuality and specialties.
- (3) Extracurricular practice and technological innovation industry service capabilities are difficult to meet industry needs. At present, there is a general tendency to overemphasize general education in professional degree postgraduate education in my country, which mainly focuses on cultivating students’ basic theoretical knowledge. Supplemented by a certain amount of practical teaching, the cultivation of professional knowledge and practical ability of professional degree graduate students is largely weakened. For more practical mechanical engineering disciplines. If the internship practice cannot be effectively combined with the enterprise resources, it will result in the inability to quickly and efficiently apply the knowledge learned to actual engineering after employment, and it will be more difficult to improve and innovate in engineering practice in the future.
- (4) The assessment and evaluation system are not comprehensive, which is not conducive to the cultivation of professional comprehensive quality and the cultivation of innovative talents. Cultivating professional degree graduate students needs to be practical, exploratory, and original. At present, most colleges and universities still mainly base the evaluation of professional degree postgraduates on the examination results, and the phenomenon of taking the examination instead of the evaluation is

common. Exam results are often linked to the evaluation of postgraduate scholarships and grants, which is one-sided. Most colleges and universities still require the publication of academic papers as a condition of earning a degree, leaving students to spend too much energy on ‘making’ papers rather than on the quality of their studies and research.

- (5) There are still deficiencies in the construction of the mentor team. Existing professional degree talents are mainly cultivated by academic tutors who originally cultivated academic degree talents. The advantages of these teachers lie in their solid theoretical foundation, profound academic skills, and rich experience in cultivating academic talents. However, relatively speaking, these teachers lack practical experience in the industry, and still have shortcomings in grasping industry characteristics and market trends. At the same time, the existing teacher evaluation system still takes academic achievements as the main reference. Due to various reasons such as training objectives, academic training, and schooling system, it is difficult for professional degree graduate students to actually participate in the existing academic activities of their supervisors. This further affects the motivation of mentors. In addition, the existing industry mentors still mainly play an auxiliary role in the training of students and provide less guidance to students. At the same time, there are still imperfect problems such as appointment approval, evaluation, and assessment.

3 Improvement Measures for the Training Mode of Postgraduates Majoring in Mechanics

Aiming at the problem of training postgraduates majoring in machinery, under the action of ‘school-enterprise synergy’, it is necessary to base on ‘major characteristics’ and jointly build an industry-university-research teaching platform. While seeking to improve the training mechanism of school-enterprise collaboration, explore the ‘basic-comprehensive-practical’ three-dimensional practical teaching mode, comprehensively improve the teaching effect of professional degree postgraduate courses, explore professional characteristics and scientific research foundation, and build a teaching team with complementary theoretical skills. Realize the innovation and practice of a new model of postgraduate training for mechanical majors.

- (1) Reform the teaching mode of professional postgraduates and carry out teaching research on diversified and mixed professional postgraduate courses.

Taking the integration of production, education, and research as the main line, it adopts a diversified mixed teaching mode of new technology, new equipment and new technology. Explore the main technical applications of mechanical engineering teaching and scientific research in the fields of high-end equipment such as metallurgical equipment, chemical equipment, electric power equipment, power equipment, marine equipment, agricultural equipment, and aerospace. Lead students to clarify the principles, procedures, functions, characteristics, and functions of various equipment, and strengthen students’ ability to combine theory and practice. With the help of the virtual laboratory or the production and assembly site of mechanical

parts, the problem-oriented and goal-driven teaching concept is adopted, and the relevant theories of the professional degree postgraduate course teaching materials are substituted. Taking the integration of production, education, and research as the main line, combined with the existing new technology, new equipment and new technology, seeking breakthroughs from the diversified mixed teaching mode of curriculum theory teaching, classroom and practical training, schoolteachers and industry experts. Help professional degree graduate students build engineering awareness and stimulate students' interest in learning.

- (2) Optimize the professional postgraduate training plan and establish a joint training mechanism of 'platform co-construction + project cooperation' structure.

Build a school-enterprise laboratory co-construction and sharing platform to strengthen the role of enterprise practice bases. Research the experimental courses and practical training projects that can be offered to postgraduates, guide postgraduates majoring in mechanics to participate in project design, and cultivate their ability to discover, analyze and solve practical engineering problems. Actively connect channels to meet the technical needs of enterprises and strengthen project cooperation with enterprises. Resource sharing is achieved by uniting the resource pools of both schools and enterprises. Promote the participation of postgraduates in project collaboration, complete the efficient training of postgraduates majoring in mechanics while developing scientific research projects, and form a school-enterprise joint training mechanism with 'platform co-construction + project cooperation' as the carrier. Combined with the actual needs of enterprise development, relying on engineering problems or engineering research projects that the enterprise urgently needs to solve, guide students to apply their theoretical knowledge to the actual production process of the enterprise, effectively combine theory and practice, and effectively enrich their practical experience.

- (3) Strengthen the concept of innovation and entrepreneurship education, and explore the deep integration model of innovation and entrepreneurship education and professional education.

Actively explore new models of innovation and entrepreneurship education and make new entrepreneurship education an important way to cultivate innovative talents. Introduce innovation and entrepreneurship courses into postgraduate training programs. At the same time, courses related to innovation and entrepreneurship education are incorporated into professional elective courses, to promote the in-depth integration of innovation and entrepreneurship education and professional education, and to carry out academic lectures on innovation and entrepreneurship. Relying on innovation and entrepreneurship competition, challenge cup, Internet +, graduate student innovation practice series competitions, etc. Invite experts and teachers inside and outside the school to help postgraduates improve their scientific research innovation ability and entrepreneurial awareness and promote postgraduate innovation and entrepreneurship.

- (4) Expand the practice channels of professional postgraduates and strengthen the dual-tutor team based on the 'cooperative education' model.

Raise funds for the training of postgraduates majoring in mechanical engineering through multiple channels, and implement the implementation of dual tutors; establish and improve the dual-tutor selection system and assessment system, so

that the advantages of the dual-tutor system can be brought into full play; strengthen the assessment of practice links to achieve the purpose of engineering graduate students majoring in mechanical engineering; expand the communication channels between college tutors and practical tutors to achieve complementary advantages and joint guidance. Establish an effective feedback mechanism for students' evaluation of teaching, improve the dual-tutor system evaluation system, strengthen the construction of dual-tutor teams, and implement collaborative education. Broaden the communication channels for tutors inside and outside the school, communicate in a timely manner on the difficulties encountered in the process of postgraduate training, implement complementary advantages, and effectively improve the quality of postgraduate training. School-enterprise cooperation, according to economic and social development trends and the machinery industry, the actual needs of enterprises, postgraduate education and teaching reform, curriculum system construction, etc., make research decisions and adjustments to achieve collaborative education.

- (5) Innovate the professional postgraduate assessment system, strengthen the comprehensive quality and ability of talent training.

The design of the postgraduate assessment content oriented to the cultivation of professional comprehensive ability fully reflects its comprehensiveness and scientific nature. The content and form of the examinations of the postgraduate courses for innovative mechanical majors should be diversified, and the dissertation topics and forms should be diversified. Establish a dynamic and diversified assessment and evaluation system of school-enterprise cooperation to strengthen the quality of postgraduate talent training. Explore more practical and original professional degree postgraduate assessment programs and cultivate top-notch postgraduate high-level talents who adapt to the dynamic and diversified assessment and evaluation systems of enterprises and schools.

4 Conclusion

Mechanical degree recipients should become applied and compound high-level engineering technology and engineering management talents with solid foundation, strong engineering practice ability and certain innovation ability. The main measures are as follows:

- (1) In line with the characteristics of machinery, it adopts a diversified teaching method that combines virtual and real and tracks the frontier. Through the introduction of engineering examples, the construction of a real-time supplementary and dynamically updated case teaching library, and a combination of multiple teaching methods such as virtual laboratories, the teaching practice is highlighted.
- (2) Deepen the seamless connection of 'three combinations', implement the talent training model of the school-enterprise association, and fully tap the resources of colleges and universities. Deepen the combination of theoretical study and engineering practice, the combination of on-campus tutors and off-campus tutors, the combination of research topics and engineering needs, and the cooperation with

industry enterprises to build a joint training base for postgraduates and implement practical teaching resources.

- (3) The ‘true’ dual tutor system escorts the cultivation of innovation and practical ability. Through the on-campus mentor enterprise engineering training, training and temporary employment, as well as hiring high-level enterprise experts to serve as graduate students’ corporate mentors, they are responsible for the cultivation of graduate students’ engineering practice ability and technological innovation ability.

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References

1. Li Wei, Yan Guangfen. Retrospect and Prospect of the Development of Professional Degree Postgraduate Education in my country [J]. *College Education Management*, 2021, 15(03): 92-103. DOI: <https://doi.org/10.13316/j.cnki.jhem.20210416.009>
2. Shi Yue. 20 years of research on professional degree postgraduate education in my country: hot topics and frontier discussions [J]. *Modern Education Science*, 2021, (03): 141-148. DOI: <https://doi.org/10.13980/j.cnki.xdjyxx.2021.03.025>
3. Ma Yonghong, Zhang Feilong. International Trend and Enlightenment of Professional Degree Postgraduate Education Development [J]. *Journal of Beijing University of Aeronautics and Astronautics (Social Science Edition)*, 2021, 34(03): 142-150. DOI: <https://doi.org/10.13766/j.bhsk.1008-2204.2021.004>
4. Ma Yonghong, Liu Runze, Yu Miaomiao. Professional degree graduate students in the integration of production and education in China: connotation, types, and development status [J]. *Degree and Graduate Education*, 2021, (07): 12-18. DOI: <https://doi.org/10.16750/j.adge.2021.07.003>
5. Feng Lu, Zhang Zirui, Liu Yuxiao. Analysis of the current situation and future development of professional degree postgraduate education [J]. *Beijing Education (Higher Education)*, 2021, (08): 15-18.

6. Chen Yan, Tie Xiaorui. Research status and trend of professional degree graduate education in my country: Based on the perspective of bibliometric analysis (2000-2020) [J]. Graduate Education Research, 2021, (02): 61-67. DOI: <https://doi.org/10.19834/j.cnki.yjsjy2011.2021.02.10>
7. Zhou Hongliang, Ming Pingmei, Zhang Xinmin. Exploration on the joint training mode of school-enterprise graduate students majoring in mechanical engineering [J]. Education and Teaching Forum, 2021, (15): 169-172.
8. Zuo Chongliang. Research on Quality Assurance and System Optimization of Professional Degree Postgraduate Education [J]. Beijing Education (Higher Education), 2021, (08): 8-14. DOI: <https://doi.org/10.3969/j.issn.1000-7997.2021.08.004> 5
9. Zhang Jiru, Fan Xiaochun, Liu Yuanzhi, et al. Discussion on the innovative model of school-enterprise cooperation mentor team training graduate students [J]. Higher Architectural Education, 2021, 30(02): 30-35. DOI: <https://doi.org/10.11835/j.issn.1005-2909.2021.02.005> 5
10. Yang Qian, Wang Xia. The changes and development logic of my country's professional degree postgraduate education policy in the 40 years of reform and opening [J]. Higher Education Exploration, 2021, (03): 60-65. DOI: <https://doi.org/10.3969/j.issn.1673-9760.2021.03.009>
11. Ao En, Dai Qin, Li Shuhai. A comparative study on the full-time postgraduate training programs for postgraduates in education-taking "subject teaching and mathematics" as an example [J]. Journal of Higher Education, 2021, 7(26): 173-176..
12. Zhang Yongli, Wu Wei. Construction of Quality Assurance System for Professional Degree Graduate Training in Local Universities [J]. Beijing Education (Higher Education), 2021, (08): 19-22. DOI: <https://doi.org/10.3969/j.issn.1000-7997.2021.08.006>
13. Xu Junqiang, Liao Linqing, Luo Yunyun, et al. Serving social needs and implementing the integration of production and education to comprehensively deepen the reform of professional degree postgraduate education [J]. Journal of Chongqing University of Technology (Social Sciences), 2021, 35(07): 145-153. DOI: [https://doi.org/10.3969/j.issn.1674-8425\(s\).2021.07.016](https://doi.org/10.3969/j.issn.1674-8425(s).2021.07.016)
14. Wang Li. The evolution and development trend of my country's professional degree graduate education policy [J]. Higher Education Research, 2021, 42(07): 78-84.
15. Yu Zhaohui. Research on the "Dual Tutor System" Training Mode for Professional Degree Graduate Students [J]. Xueyuan, 2021, 14(09): 80-81. DOI: <https://doi.org/10.3969/j.issn.1008-7508.2021.02.015>
16. Yu Miaomiao, Ma Yonghong, Zhang Le. Ten-year changes in the reform and development of professional degree graduate education in the participation of industry enterprises [J]. China Higher Education Research, 2021, (04): 69-74. DOI: <https://doi.org/10.16298/j.cnki.1004-3667.2021.04.12>
17. Yang Lei, Wu Bin, Liming. Innovative teaching mode of cooperative teaching between corporate executives and university teachers [J]. Degree and Graduate Education, 2021, (08): 28-32. DOI: <https://doi.org/10.16750/j.adge.2021.08.005>
18. Wang Xiaoxin, Li Jingying. Exploration and Research on the Practice and Innovation Ability Training Mode of Professional Degree Postgraduates Based on Project Drive [J]. Industry and Information Education, 2021, (05): 1-4. DOI: <https://doi.org/10.3969/j.issn.2095-5065.2021.05.002>

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