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Construction on Postgraduate of Multi-element and Fine Examination System in Teaching Practice under Engineering Background

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Abstract

In order to effectively improve the teaching quality of postgraduate education and realize the training of applied technical talents, it is necessary to establish a scientific, reasonable, and practical evaluation system of postgraduate teaching practice. By analyzing the disadvantages of traditional teaching assessment methods for practical postgraduates, it is proposed to set up a postgraduate multi-dimensional and fine developing evaluation system from such aspects as pre-class preparation, double-qualified teachers, cooperative training, teaching evaluation, comprehensive evaluation, improving the quality of postgraduate teaching practice and cultivating high-quality creative talents of application type.

Keywords

Practice teaching; Diversification; Refinement; Examination system.

1. Introduction

To provide intellectual support and guarantee for the cultivation of outstanding engineering and technology talents who will lead the development of technology and industry in the future and adapt to China's industrial development and international competition, the new engineering science symposium 2017 proposed New Engineering Concepts to meet the new opportunities and challenges of the new scientific and technological revolution and industrial transformation, the main contents are summarized as the new concept of engineering education, the new structure of discipline and specialty, the new mode of personnel training, the new quality of education and teaching, and the new system of classification and development [1]. With the profound impact of information and industrialization on the development of all social fields, the rise of new technology and new engineering will bring a new round of technological and Industrial Revolution. In order to cultivate engineering talents who can support the development of industry and have international competitiveness, the service goal of engineering education in China has been transformed from a great engineering education to a great power of engineering education. The basic characteristics of the new engineering discipline are the combination of research and practice, research supports practice, practice promotes research, and there is corresponding theoretical support before practice, and the new problems encountered in practice will be studied again, to form a virtuous circle of Research-practice-restudy-repractice [2]. The idea of strengthening practical teaching in colleges and universities is to perfect the chain of practical teaching, set up the practice bases inside and outside the school, strengthen the construction of the bases, take the initiative to contact local enterprises and research institutes, and deepen the integration of production and teaching according to the current social needs, building a new ecology of Multi-party cooperative education.

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2. The Examination Method and the Malpractice of Present Stage Practice Teaching

2.1. The Teaching Content Updates Slowly

The engineering specialty pays attention to the practice, needs to combine the theoretical knowledge to carry on the related practice operation frequently, must update the teaching content in time, combines the national regulation, the local standard in time to the teaching content renewal, the replacement, keep up-to-date knowledge, skills and equipment to avoid obsolescence.

2.2. One-way Examination Mode

The present stage of postgraduate practice teaching examination mode is single, the level is not obvious, can't reflect the examination diversity and the refinement. In most colleges and universities, the main examination way of the experimental course is to submit the experimental report, and many postgraduates work together to complete the experiment, or to complete the experiment according to the experimental steps, lacking the spirit of independent innovation, and the reports submitted by the same group are not very different, teachers will grade postgraduates based on their performance or knowledge of the postgraduates. The practical teaching plan can not be completed effectively. At the end of the course, most teachers took examination papers to measure their mastery of knowledge and ignored their practical ability. Chen Shiping and others found that practice teaching in famous universities at home and abroad carried out very well and with characteristics. If practice teaching in local universities in China can not be valued and developed, will be far surpassed by the higher vocational colleges and the double first-class colleges [3].

2.3. The Low Importance of Practical Teaching

At present, many colleges and universities only focus on postgraduate theoretical knowledge teaching and pay little attention to practical teaching, which leads to the low level of postgraduates' practice. In some colleges and universities, the combination of theoretical knowledge and practice is not strict enough, and the practical teaching can not reach the expected goal. At the same time, the arrangement of postgraduates' experiment and practice is not reasonable enough. Sometimes the experiment will be arranged after all the theoretical knowledge is finished.

2.4. Lack of Practical Operation and Innovative Ability

The postgraduates only pay attention to the study of their own professional course knowledge, do not pay attention to the training of interdisciplinary and cross-disciplinary knowledge and skills, lack of innovative consciousness, lack of practical operation ability, can't meet the new technology and industrial transformation of the complex innovative talent needs. The degree of cooperation between school and enterprise is not enough, and the practical training base in school is not enough so that postgraduates' practical operation ability is weak. Influenced by the traditional culture, the practical teaching of engineering is of low status, with fewer courses and hours, many teachers are reluctant to engage in practical teaching.

3. Construction of Multi-element and Fine Examination System of Teaching Practice under the Background of New Engineering Course

The main connotation of the diversification of practice teaching mode is the gradual transformation of practice teaching contents and forms to multi-level and project Modular rocket. On the basis of studying the theoretical knowledge of the textbook, the practical cases related to the course are applied and analyzed, to strengthen the coordination and close

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connection between different disciplines, to promote the refinement and gradual implementation of practical teaching, and each link has strict system constraints and norms for each teacher and student, and multi-faceted refinement of practical teaching requires careful planning and strict system, to ensure the effective implementation of the practical teaching plan, taking into account the links and interconnections between the various disciplines, so that the various disciplines can produce the greatest benefits and the postgraduates can acquire a wealth of knowledge, and in practice constantly reflect, record, summarize, feedback the feasibility and practicality of the plan. The teachers make full use of the practice bases inside and outside the school so that every student can participate in them, and test theoretical knowledge in practice, and find out the existing deficiencies and improve them in time, all kinds of disadvantageous conditions and restrictions in practice will urge postgraduates to apply the power of knowledge to solve and bring into play scientific and innovative thinking. The new engineering course adheres to the principles of student-centered and result-oriented, and student-centered is based on the teaching of knowledge dissemination of the subject system, training postgraduates to practice, innovation, high-quality comprehensive ability to meet the new science and Technology and industrial reform era of new engineering talent. Result-oriented is to take the curriculum activities and evaluation of learning output as the main driving force to carry out new engineering talent training in line with social needs, to improve teaching effects, to improve the quality of talent training, to promote student development and employment, enhancing Teachers' teaching ability. In the context of the new engineering course, teacher requirements, teaching organization, teaching methods, teaching content, and so on are different from the traditional teaching, we should improve and adjust the teaching quality evaluation concept, index, and method according to the needs of training new engineering talents, give full play to the role of teachers and postgraduates, and consider the generality and characteristics of teaching and learning, we should establish an evaluation system to adapt to the training of new engineering talents and promote the construction of new engineering courses to ensure a positive teaching atmosphere.

3.1. The Exam of Preparing Before Class

It is very important for teachers to arrange teaching tasks before class, including understanding the teaching content, predicting the problems that may appear in teaching, and dividing the key points and difficulties, only by doing well the preparatory work can the postgraduates absorb the knowledge more fully, combine the explanation with the contact, and explain and review the contents of the explanation so as to deepen the understanding and use the knowledge points, and enhance the effect of the explanation.

3.2. Bring Into Play the Subjective Initiative of Double-qualified Teachers

A double-qualified teacher is an excellent person with the title of senior engineer and professor, rich experience in engineering practice, and solid foundation in teaching. The teacher combines the project case, causes the teaching key, the difficulty vivid image to carry on the explanation, the student is easy to understand.

3.3. Practice Base Construction

Teachers make full use of the practice base inside and outside the school, make every student participate in, test the theoretical knowledge in practice, find the existing deficiencies and improve in time, all kinds of disadvantageous conditions and restrictions in practice will urge postgraduates to use their knowledge to solve the problem, to reflect, record, summarize and feedback in practice, and to exert their scientific and innovative thinking.

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3.4. School-enterprise Cooperation

International cooperation assessment, schools for enterprises to train talents, enterprises to provide internship opportunities for postgraduates in schools so that postgraduates can apply knowledge to practical work, enterprises can make suggestions on the content of school teaching based on student internship performance, and can directly understand the postgraduates to grasp the theoretical knowledge and practical ability for enterprises to choose the right talent reserve. The new engineering department can learn from the experience of the foreign engineering departments, strengthen the cooperation with foreign universities, properly introduce foreign teaching resources and talents, and send teachers and postgraduates abroad for further study.

3.5. The Assessment of Teaching Methods

The diversification and refinement of teaching methods can correct postgraduates' learning attitudes, improve their learning interest, participation and cultivate their ability. Advocate the combination of teaching methods and practice, interest-oriented, practical application as the focus. The teaching method of combining theory teaching with project practice can reform and explore the corresponding courses to meet the requirements of new engineering teaching objectives. With the subject competition driving teaching, the postgraduates absorb the knowledge not taught in the classroom in the competition, find out the problem actively, solve the problem, take the student's performance in the competition as one of the exam contents. Teachers and postgraduates participate in scientific papers, teachers guide postgraduates, combined with professional knowledge to do scientific and technological innovation, the number of postgraduates with teachers to write papers as one of the assessment contents.

3.6. Assessment of Learning Style

The inquiry learning, cooperative learning, and challenging learning can make learning more interesting and provide a strong driving force and creativity. Teacher Xu Shan is good at arousing the student to have a strong interest in the knowledge which studies, can enable the student to discover the question, the inquiry question in the study. Through observation and discussion, we can arouse the postgraduates' desire to explore, arouse their interest in questioning, and make them explore the unknown activities with questions. Group discussion, PPT animation, and other methods can be used to arouse postgraduates' interest, arouse their enthusiasm, and achieve the teaching goal. Through the combination of online and offline, online MOOC, SPOC, and other learning, the use of online resources to study the knowledge points, the online learning effect, review as one of the assessments.

3.7. Teacher Teaching Assessment

The teacher teaching assessment from the department evaluation, school evaluation to the evaluation of postgraduates, parent evaluation. From the evaluation of teaching work to the evaluation of Teachers' character, daily style of work, and so on.

3.8. Other Comprehensive Assessment

The other comprehensive assessment including classroom discipline, examination results, practical performance, and other aspects of assessment. At the end of the course, most teachers took examination papers. Postgraduates with high scores were considered to have done well in their studies and had a solid grasp of knowledge. In fact, such a system would only cause postgraduates to memorize the contents of the books by rote and ignore their practical abilities, postgraduates can not effectively combine theoretical knowledge with practical application. The training of postgraduates' practical application ability can reflect the postgraduates' proficiency in the course content, improve the difficulty of the course study, and make the postgraduates really learn something.

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Teaching evaluation is to evaluate the teaching effect according to the requirement of the teaching objective. It runs through the whole process of teaching activities to check and promote teachers' teaching and postgraduates learning. Constructing a diversified, refined, and developmental evaluation system, emphasizing the establishment of an evaluation system that promotes the all-round development of postgraduates, the continuous improvement of teachers and the continuous development and improvement of curricula, and the establishment of a diversified evaluation system in which multiple subjects participate together, take the evaluation as the starting point, attach importance to the stimulating function and improving the function of the evaluation, encourage, educate and promote the development of postgraduates, and establish the concept of developmental evaluation with the whole development and lifelong sustainable development of postgraduates as its focus.

4. Conclusion

Through analyzing the postgraduate malpractice of the traditional practice teaching examination method, it is proposed that a postgraduate diversified and fine developmental evaluation system should be constructed from such aspects as pre-class preparation, dual-qualified teachers, cooperative training, teaching methods and evaluation, learning methods and comprehensive evaluation, etc. , it can improve the postgraduate teaching environment of colleges and universities, enrich the theoretical and practical knowledge of teachers and postgraduates, bring teaching close to practice, apply theoretical knowledge in practice and discover and solve problems, and help postgraduates build up the spirit of artisan, maintaining a rigorous attitude to study and work can promote the employment of postgraduates, increase the choice of enterprises, and promote the development of colleges and universities, and cultivate high-quality and innovative teaching staff.

Acknowledgments

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