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Reform of Practical Teaching Method of Civil Engineering Specialty under the New Engineering Discipline

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Abstract: *The teaching reform of "new engineering" is in full swing. The practical teaching method of civil engineering majors is guided by the policy of "developing both work and study", and helps students better tap their potential in the new practical teaching system. At the same time, we should constantly improve the requirements of the civil engineering industry for innovative and applied talents. Therefore, as the main place to cultivate professional talents, colleges and universities should explore the disadvantages of the existing teaching mode and strengthen the reform of practical teaching.*

Keywords: *New Engineering, Major in Civil Engineering, Practical Teaching*

1. Introduction

The construction of "new engineering" is inseparable from the "consistency of research and practice", that is to say, to infiltrate the implementation research and practice into the whole process of problem exploration, the time reform and construction of new engineering should rely on organizing and trying the newly conquered practical projects, broadening the perspective, deep excavation, and promoting the reform and construction with a solid foundation. At present, college teachers in China do not pay enough attention to engineering practice teaching. They put a lot of energy on project research and papers, and can not achieve the unity of research and practice, which is not conducive to the improvement of engineering teaching quality in China.

2. Problems in practical teaching of civil engineering major

Now most colleges and universities are paying more and more attention to the cultivation of students' practical teaching ability in the process of civil engineering education. However, due to the great influence of the traditional teaching mode, major colleges and universities in Henan have achieved a breakthrough transformation in a short time, and the practical teaching methods they are implementing cannot match the changes in local industrial talent demand in time.

2.1. Relying on traditional teaching mode

Civil engineering major is an applied discipline with strong practicality. As the cradle of cultivating senior talents, the teaching concept of civil engineering major in colleges and universities should closely focus on the concept of practical teaching to cultivate students' practical application and innovation ability. However, in reality, it is just the opposite. Most colleges and universities still cannot get rid of the shackles of traditional teaching models, and the existing teaching models still have single form and old content. There are many disadvantages such as no systematic practical teaching. The teaching of civil engineering has always focused on the cultivation of wide caliber and general knowledge ability. [1]Under the influence of this consensus teaching mode, civil engineering majors in major colleges and universities have opened a variety of theoretical knowledge courses, and their practical project courses include civil engineering experimental design, construction organization course design, graduation design, production practice and other rich projects. Although this wide-ranging teaching method can allow students to have full access to basic knowledge and is very beneficial to the cultivation of high-quality civil engineering talents, now major colleges and universities cannot achieve a good scientific connection when implementing this wide-ranging teaching mode, and there is a lack of scientific and systematic arrangements, resulting in college teachers and students being unable to clarify their teaching and learning objectives and blur the key points. If you can't really understand and implement the

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knowledge content of a certain aspect, you can't skillfully apply the knowledge you have learned. For civil engineering majors, professional theory and practical teaching are inseparable and indispensable, but at present, colleges and universities do not highlight the position of practical teaching in the actual teaching arrangement, and only pay attention to the teaching of basic knowledge. Practical teaching courses account for a small proportion of class hours. At the same time, the traditional teaching mode is relatively simple for the teaching of professional basic knowledge, and there is a lack of interaction between students and teachers. Basically, teachers speak and students listen. Memorizing textbook knowledge by rote cannot fully understand textbook knowledge. Those abstract theoretical knowledge is not easy to understand, and students are difficult to turn theoretical knowledge into application ability.

2.2. Imperfect practical teaching conditions

The perfection of practical teaching in colleges and universities is directly related to the results of students' practical teaching. Now, although most colleges and universities have built practical teaching bases, trained professional teachers of practical courses and a series of practical teaching management systems, these guarantee measures have more or less some defects.

Weak practice base construction. Some production, time learning and course assignments of students majoring in civil engineering need special practice bases to support completion, but the construction time of professional practice bases is generally relatively long, and the construction process is not simple. Most colleges and universities cannot meet the construction of professional and comprehensive practice bases due to lack of funds, nor can they carry out healthy and good cooperation with relevant practice teaching enterprises. Under the background of the development of new engineering, the demand for high-quality talents in the civil engineering industry is increasing. Although the expansion of college enrollment can solve the requirements of the industry for high-quality talents to a certain extent, it still cannot solve the problem of insufficient practical ability of talents.

The construction of teaching staff is not perfect. Professional teachers of civil engineering should have high discipline quality and strong practical ability. But now affected by many factors, the practical ability of professional teachers in some colleges and universities can not meet the teaching needs. On the one hand, the large-scale enrollment expansion of colleges and universities has led to the mismatch between the strength of teachers and the source of students. The lack of teachers has directly led to the large-scale recruitment of professional teachers in colleges and universities. Such large-scale enrollment expansion of teachers may have deficiencies in teaching experience, and the experience of engineering practice is even less. [2]On the other hand, the evaluation of teachers in colleges and universities is mostly focused on academic aspects, only seeing the scientific research results and ignoring the evaluation of practical teaching ability. This biased evaluation method will naturally lead to the incomplete development of teachers' quality.

Imperfect practical teaching management guarantee system. The traditional assessment of theoretical knowledge covers many ways, such as written examinations, in class tests, papers and assignments, but the assessment system of practical ability is just the opposite. Now colleges and universities usually arrange students to different learning units for the assessment of students' practical ability, so it is difficult for teachers to have access to students' practical ability to show the effect, and it can not play the role of supervision and guidance.

3. Methods to improve the quality of civil engineering practice teaching

Improve the quality of civil engineering practice teaching should not only pay attention to the update of the training program, and from the source to improve, also should pay attention to the improvement of a series of links in the practice teaching process, including teaching content, teaching methods, etc., more to ensure sufficient teaching resources, so that students' practice teaching has enough support force and development platform.

3.1. Top level design: optimize the training program of practical teaching

In the context of the development of new engineering, colleges and universities should be based on reality, take the training direction of civil engineering as the starting point, and refer to the training standards of civil engineering to optimize and update their current training programs. Specifically, it is to focus on the training of civil engineering application-oriented talents from the goal; Starting from the teaching concept, practice and theory complement each other, and neither is indispensable; We can start

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with the teaching content, and improve the proportion of practical teaching. The teaching content has key points and highlights difficulties, refuse homogeneous teaching, and deliver personalized high-quality talents for the engineering industry.

Focus on the construction of multi-level engineering practical teaching system, deepen the reform of the existing practical teaching content, improve the practical teaching system. The practical ability, innovation ability and comprehensive application ability of the core engineering technology are taken as the important focal point of practical teaching. Civil engineering should condense its own practical teaching characteristics, and combine the practice and learning closely with engineering practice The various practical subject competitions and social practice projects closely related to practical teaching are important support points for practical teaching. In terms of the content and form of practical teaching, students' basic practical skills, professional operation skills, comprehensive operation skills, and practical innovation skills should be supplemented. To strengthen the students 'usual course operation experiment and practice activities, the students' curriculum design and graduation design to improve requirements, encourage students to actively participate in social practice experience and all kinds of subject competition, the civil engineering basic theory knowledge and professional technical ability and engineering practice teaching effectively together, and improve the multi-level engineering practice teaching system.

3.2. System construction: improve the practical teaching mode

The teaching content of civil engineering major is relatively complex, the proportion of theoretical knowledge is large, and there are many symbols and related structural regulations involved. Therefore, professional teachers in colleges and universities need to innovate the traditional teaching content, simplify and optimize those complex contents on the basis of ensuring students' proficiency in basic knowledge. From the perspective of students, the combination of theory and practice is the best teaching effect.

The transformation of teaching methods can also enhance the effect of practical teaching. Teachers continue to innovate their teaching methods with social changes in the process of teaching, so as to improve students' application ability. For example, integrating demonstration teaching method and project teaching method into practical teaching to improve students' practical ability, and heuristic teaching to cultivate students' practical thinking[3].

We should pay attention to students' ability to solve practical problems. Some colleges and universities can officially introduce management systems on practical teaching standards to assess and manage students. For example, they can cooperate with internship enterprises to establish a perfect practical teaching monitoring system, and open feedback channels for the quality of practical teaching in the hospital; At the same time, we can irregular spot checks are carried out in the process of practical teaching, so as to strengthen the supervision of practical teaching results.

3.3. Joint training: enriching practical teaching resources

Under the background of new engineering, we should develop the teaching mode of industry university research. Industry university research refers to combining students' learning, scientific research and industrial development, enriching teaching resources in colleges and universities with the mode of combining schools and enterprises, and improving the construction of practical teaching bases in colleges and universities, so as to build a more effective practical learning platform for students. At the same time, colleges and universities can establish a good cooperative relationship with enterprises outside the school, and use local industry resources to cultivate students majoring in civil engineering. School enterprise cooperation can provide more practical work opportunities for students to feel the charm of the industry in their actual work, learn more practical knowledge, and accept the guidance and education of high-quality talents who have been employed in the industry, so as to exercise their practical ability. Finally, we can make good use of industry resources can also enrich the faculty in the school to a certain extent and make up for the lack of professional teachers. Colleges and universities send internship talents to the society. After the completion of this practical course, the civil engineering major will also establish an image in the industry, have a stronger social influence, and be conducive to the enrollment and employment of the school in the future.

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3.4. Teaching reform: Strengthen teaching quality supervision

In order to complete the practical teaching objectives and achieve the practical effect, we must standardize the working procedures, clarify the quality responsibility, establish and perfect a complete and strict teaching management system and quality evaluation standards, and provide norms and basis for the scientific management of practical teaching. By establishing school, enterprise mentor composed of practice teaching examination team compiled scientific norms and consistent with talent training scheme practice skills appraisal rules, in the process of practice teaching, teachers leading teaching and students' subjectivity practice to organically together, college to strengthen the management of practice teaching, clear practice teaching quality of responsibility, and form the subject of rich, multiple evaluation of practice teaching quality monitoring system, so the quality of practice teaching link can be effectively guaranteed. Each school can according to the specific situation, according to the school conditions to determine the specific management system, such as teaching evaluation system, academic early warning and guidance system, practical teaching supervision system, so as to further standardize the management of practical teaching, and promote the stable and healthy development of civil practice teaching.

In the process of practical teaching, it is necessary to change the traditional single evaluation and assessment method, combine the process evaluation and the result evaluation into one, and strengthen the feedback and evaluation of all practical teaching subjects on students' practical teaching quality. Should pay special attention to the practice teaching implementation of the process inspection, at the same time students online evaluation and peers, experts, college to strengthen the practice guidance teachers teaching assessment, perfect the two-level supervision system, ensure periodic and continuity of communication between practice subject, practice enterprise to timely feedback students practice dynamic, multidimensional, three-dimensional comprehensive quality evaluation system can establish a perfect practice teaching quality evaluation system, and improve the quality of practice teaching.

3.5. Promoting teaching by competition: open practice and training platform

Colleges and universities should maximize the benefits of practice and practical training platform resources inside and outside the university, Create an integrated training platform mechanism with the main campus training base and the auxiliary social practice base, In the process of campus practice and practical training platform management, To be flexible in your management style, Expand the opening time of the practical training platform, Enrich the practical content of the platform, Encourage students to actively choose different practical training platforms for experiments, practical training operation and skills training according to their own interests and hobbies, In the management of off-campus practice bases, To develop a reasonable plan for off-campus practice and practical training, Strengthen the richness of the practical training content, In the perspective of financial support to increase the construction of quality practice training base, So as to ensure the practical effect of students' practice and training.

4. Conclusion

In short, the teaching idea of combining work and learning can improve students' innovation ability, thinking ability and problem-solving ability. Only when it is applied to the new engineering system can it follow the development strategy of the new era. Therefore, schools should get rid of the shackles of traditional teaching models, improve teaching conditions, and optimize practical teaching training programs, in order to improve practical teaching models, enrich practical teaching resources, and actively cultivate a group of new-type technical talents with strong practical and innovative abilities for the country.

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