“New Engineering Education” Concept Practice in Civil Engineering Professional

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Abstract. The society is at economic transition stage. The implementation of national strategy and the rapid development of the new economy are urgent needs that need to be supported by new engineering talents, which puts forward new requirements for the engineering discipline knowledge transformation and education reform. The teaching aim of undergraduate engineering education in China is not clear, operational practice teaching link is missing and results on practice teaching present are weakening. Combined with school under the background of new engineering transformation development actual situation, further analysis and discussion for the existing education problems are implemented in the teaching practice for undergraduate civil engineering practice teaching. Form a relatively complete practice teaching system which are suitable for the actual situation of civil engineering professional for applied undergraduate colleges and universities.

1. Introduction
With the rapid development of science and technology, engineering education receives more and more attention by society. With the deepening construction of an innovative country in China, the demand for engineering and technology talents is growing. For engineering category, the number of enrollments, number of students and the number of graduates all accounts for the large majority proportion of the total number of ordinary higher education, which count for one third. This reflects the engineering science and technology talent is the main power of social and economic development in China. At the same time, it also reflected that cultivate engineering talents of science and technology have important significance in the new era of knowledge economy rapid development. Cultivation of talents and the development of science and technology are the basis of education. A new round of acceleration of science and technology revolution and the industrial change provides opportunities also poses a challenge to Chinese engineering education. To improve the competitive power of engineering science and technology talents, China must be committed to becoming a great nation of engineering education and engineering education power and laying the foundation to cultivate a large number of high-quality engineering science and technology talents.

2. Difference between "new engineering" engineering education and traditional teaching mode
Baicheng normal university civil engineering college is the distinct characteristics of college. The final aim is to foster talents who are suitable the socialist modernization construction, who are develop morally, intellectually and physically, who are skilled to master the basic theory of civil engineering disciplines and senior engineering and technical talents with innovative spirit. In recent years, the major of civil engineering college graduates’ employment direction are building construction, highway...
and city roads, railways, bridges, and other department or the construction of the building, management and consulting company, and they are engaged in the design, construction and related experimental detection and management. So, the civil engineering graduates must have the corresponding knowledge structure and ability structure to finish the work on the job tasks.

Based on the training target, in Baicheng normal university institute of civil engineering, the major teaching mode take professional course teaching as the center and pay more attention to the theoretical knowledge taught. Based on the discipline orientation setting, teachers who most teach basic theory and basic knowledge of civil engineering disciplines are insufficient attention to the practice teaching. So, students participating in cognitive practice and curriculum practice class volume is relatively small. In the traditional teaching mode, it is difficult to exercise the students' engineering professional, difficult to exercise the student ability to solve practical engineering problems, difficult to produce for enterprises need for graduates. So, it is difficult to cultivate graduates for enterprises need, at the same time also affected the civil engineering professional talent training quality.

Under the background of new engineering education mode and the traditional teaching mode, the biggest difference is pay more attention to the cultivation of the students practice and innovation ability. To ensure that graduates have related engineering professional quality, have the ability to coordinate and solve engineering problems, teaching model takes actual engineering as the main line and the use of modern teaching means to set up practice teaching platform. Then, set up the main evaluation criteria to value the student's engineering design ability and analysis ability.

3. Training goal of new engineering civil engineering professional talent
The talent is the fundamental guarantee of enterprise organization and even social development. At the core of quality of the talent is innovation ability. The cultivation of innovation ability is the core goal of all kinds of talent cultivation system. From technology development trend of the world, innovation is the core status. The development of the country and its competitive ability is the source of innovation. All countries in the world regard cultivate innovative talents education as important strategic objectives.

Colleges and universities as talent training base, the core task is to cultivate high-level talents with innovation ability. China attaches great importance to the cultivation of innovative talents. Successively on the implementation of "outstanding engineers plan", "the ministry of education learning education plan" and "collaborative innovation" regard the innovation ability training as the core of the project goals. Take developing the students' innovation ability as one of professional talent training objectives in China in the process of revision of the teaching plan, training plan for all professional universities and colleges.

From the construction requirements of the new background and connotation of engineering, to the cultivation of the talent innovation ability have been pay more attention than ever. New engineering construction develop professional talents to deal with innovation ability and the great challenge of new economy.

4. Training path of new engineering civil engineering talents’ innovation ability

4.1 Multidisciplinary cross fusion course system construction
First of all, on the basis of traditional teaching in civil engineering disciplines, in the face of the new trend of development of the social economy and technology, combined with the civil engineering professional disciplines, chemistry, geography disciplines, materials, information technology disciplines, machinery, such as different disciplines, form for civil engineering professional multidisciplinary cross fusion course system after fitting, the innovation and form the corresponding training scheme, teaching outline. To ensure students can have enough knowledge, have a wide field of vision, can construct to conduct innovation activities in the mind of the knowledge structure of the system. Second, update teaching methods and carry out the innovation thinking training activities. Through the introduction of advanced teaching methods and optimization of teaching method, targeted
cultivating students' innovation consciousness in classroom practice teaching link in the form of virtual simulation teaching method and so on. Again, build on each student's personal cultivation mode. Take the innovation ability as primary, explore and establish personal training mode. Finally formed with personalized, targeted training mode.

4.2 Innovation practice activity to promote the cultivation of innovation ability based on professional courses combine with cross fusion

First, the school of civil engineering construct open innovation practice teaching platform. Through the form of market research and business visit to get the latest new technology, new dynamic engineering practice and introduce new technology, new equipment into civil engineering professional practice teaching. Based on the condition of current civil engineering training base, build a multi-disciplinary overlapping practice learning environment and provide students with good innovation activities, such as engraving machine, 3D printer, scanner, reinforced position ground penetrating radar (GPR) and so on the advanced equipment instrument. At the same time from the laboratory management system and so on to carry out innovative and exploratory learning for students. Stimulate students’ interest in professional course to learn and the cultivate of innovative thinking. Second, carry out the innovation practice of the multidisciplinary cross, such as organizing multidisciplinary teachers to design innovative experiment course, designing different forms of civil engineering talents training innovation ability training, organizing students to attend all levels innovation contest events, like "challenge cup", "college student structural design competition" information technology and so on. Through the whole process of continuous innovation practice, improve the cultivation of innovation ability for students majoring in civil engineering.

5."New engineering" engineering education model

To some extent, “new engineering” engineering education mode is not only a teaching reform, but the whole cycle of students, all-round training pattern, is a practice new idea for talent training. As a result, diversified teaching quality assessment system is indispensable. “New engineering” engineering education mode of talent cultivation can’t do without teachers with innovative practice ability. Assess the quality of teaching, namely to evaluate teacher's teaching effect. To do this, it need to establish the student evaluation system. Evaluation is an important teaching evaluation work, and the teaching evaluation of objectivity and justice is the basic premise to improve the teaching quality management system. To more scientific and effective student work, comprehensive evaluate of teachers' basic quality, teaching ability and scientific research level from the teachers' ideological and moral, professional skills, teaching contents and teaching method and so on. Include the evaluation of teachers' teaching performance, leading to the teachers' teaching quality evaluation and peer evaluation of teacher's teaching quality. From another perspective, evaluation from teacher to students should follow the concept of “new engineering”, which main evaluate students' thought, knowledge, personality and ability, and many other factors. With the requirements of innovative engineering and technical personnel qualified, use the diversification of evaluation criteria.

6.Conclusions

In a word, training innovative and cross-border integration ability of civil engineering professionals is the fundamental starting point and the foothold for the “new engineering” implementation of training plan. The “new engineering” itself is still a new thing and only a concept, but also needs to be continued to explore and perfect. But the “new engineering” concept of education which promote engineering education development should be taken seriously. In this situation, civil engineering talent innovation education reform based on the concept of “new engineering” needs to expand to deal with the traditional discipline basic knowledge and basic skills training. Building a more perfect curriculum system, teaching system, in this way, can effectively solve divorces theory problem of teaching and practice teaching in the applied university civil engineering professional and cultivate the innovative talents and comprehensive talents the civil engineering field needs.
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