Key Issues in the Process of Environmental Engineering Program Reformation in the Universities of China

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Abstract. Taking environmental engineering as the research object, the paper proposes systematic solutions to the main problems existing in the construction of environmental engineering major and applied talents in applied universities, and tests them in practice to explore the full range of college students in the process of transformation and development. The training mode is based on the combination of in-class and extra-curricular education, school-enterprise joint practice training, and the implementation of differentiated training for students’ characteristics and needs. Finally, the training requirement of environmental applied talents with certain innovative spirit and ability and strong practical ability can be achieved.

Introduction

China’s general higher correction is under the dual task of transforming to apply technology universities and carrying out comprehensive education reform. Among them, major transformation is an insurmountable problem and key link for schools to face new situations and new tasks[1,2]. In view of the fact that the major transformation process is influenced by many factors such as the history and cultural traditions of the school, the major foundation of the discipline, and the situation of teachers and students, the major transformation process has become very complicated. Therefore, it is essential to carry out major transformation practice activities step by step, and the solution of some restrictive factors in the process of major transformation is the key to accelerate the development of major transformation[3,4]. Through years of major construction, this paper proposes solutions and tests for the key problems in the process of major transformation, in order to provide reference for the major transformation and curriculum construction of universities in and outside the province.

Overview of Environmental Engineering Major Construction in Applied Universities

In some foreign developed countries, applied universities strive to establish major closeness and social needs, and serve local economic construction. The major scale matches the domestic industrial scale and the needs of society for talents[5,6]. For example, in Switzerland, major settings of applied universities are closely integrated with local economic and social development. Major education has major orientation, and curriculum and subject selection are also combined with reality. In Germany, major construction of applied universities is mainly carried out in the following aspects: teacher training, internship practice, curriculum construction, equipment matching, teaching management, quality assurance and other aspects are coordinated with industrial structure and social needs. The major settings and adjustments of applied universities in the United States are also closely integrated with market demand and industry orientation.

The major construction of colleges and universities in China mainly focuses on major construction and evaluation, major development and adjustment[7,8]. In the absence of advanced thinking in major construction, it is difficult to keep up with the pace of economic and social development. The major talent training program, training model, curriculum system, teaching
material construction, teaching methods and the construction of teaching staff are still lacking in
systemicity.

In 2002, the Ministry of Education of China proposed the orientation of talent training in
undergraduate colleges to train applied talents. In 2013, the Ministry of Education decided to
establish a technical university (college) alliance and a local university transformation and
development research center to conduct research, evaluation and consultation on the hot and
difficult issues of local university transformation and development.

As a strategic emerging industry in China, the environmental protection industry has
contradictions between its transformation and upgrading and the environmental talent training
model, and it needs the environmental major to carry out transformation and development. At the
same time, the development of environmental engineering profession also faces important
opportunities and challenges. In this context, improving the quality of environmental application
major talent training is an urgent problem to be solved. Through the adjustment of major training
programs, the improvement of teaching modes and methods, and the deep cooperation with
enterprises in various environmental protection industries, we will explore practical solutions to key
problems in the development of transformation, and cultivate a solid environmental theory
foundation and rich engineering. High-level applied talents with practical experience serve China's
environmental protection industry.

Key Issues and Solutions

Top Design for Applied Talent Training

Transforming the traditional educational teaching concept, introducing social forces into the
top-level design of applied talent training, continuously soliciting and absorbing the opinions of
domestic and foreign industry experts, and integrating into the revision of applied talent training
programs and syllabus, through theoretical courses and experiments, courses The practical teaching
links such as design and internship complete the general training of application ability, and
complete the individualized training through training, summer innovation practice and graduation
design.

In the process of transformation and development of environmental engineering, the revision of
the training program fully refers to the opinions of domestic and foreign university experts and
process enterprise technical personnel, fully taking into account the needs of enterprises for talents
and realizing the deep participation of industry enterprises.

School-enterprise Double-teacher Training and Deep Integration

The composition of college teachers from the school gate to the school gate is a common
phenomenon in colleges and universities, which has resulted in the status quo of teachers with high
theoretical level and low level of practice. Exploring the effective ways and incentives for young
teachers to face the society, to fully engage with actual projects, to achieve the transformation of
scientific research results, and to improve their own practical quality. At the same time, for
enterprise teachers, we will take measures such as research, undertake corporate courses, guide
practice and improve treatment, and strengthen the input and integration of enterprise teachers.

In the teaching process, he paid attention to the retraining and improvement of teachers. He has
sent 9 people to participate in the national environmental engineering major engineering
certification training, 12 people participated in the national environmental course forum, and 6
people participated in the MOOC and micro class training. In the process of transformation and
development of environmental engineering profession, six cooperative enterprises have hired six
part-time teachers to undertake the task of cognition education and corporate courses in the training
program, and hired 6 corporate instructors to undertake various practical training and curriculum
design. The joint instruction of graduation design/thesis has formed the enterprise curriculum and
internship, training, graduation design, etc., which are mainly composed of enterprise teachers and
supplemented by teachers in the school. The curriculum design is based on the teachers in the
school and the teachers supplemented by the enterprise teachers. System pattern. Effectively improve the effect of application-oriented personnel training and the quality of personnel training.

**Continuous Investment of Enterprises in the Process of Standardization of Practice Base Construction**

Earning profits is the driving force behind the company, and supporting education is more about dedication. The construction of college students' practice base has always been a difficult point that plagues the application of talents in colleges and universities. The safety issues of the one-child college students, the management of enterprises and the technical strength in accordance with the input of school standardization construction are the difficulties in the key points. Therefore, exploring effective ways to increase the importance of enterprises and increase investment channels and safeguard measures for base construction is crucial for the cultivation of applied talents.

"Win-win" is the foundation. Maintaining the healthy development of the practice base, the school-enterprise win-win is the most fundamental driving force. Through interns, the company solved the problem of insufficient staff and eased the cost of labor. Through the technical strength of college teachers, it made up for the lack of R&D investment and formed complementary advantages. The university solved the seamless integration of student practice and production, and the students got the truth. At the same time, teachers also explore the technical needs of enterprises from the front line of production, and then carry out scientific research in a targeted manner.

"Step by step" is the means. It is unrealistic to implement the teaching management of colleges and universities to the enterprise. If it is not good, it will cause the company to resent and resist. It is necessary to ensure the internship effect of the students and to comply with the various management procedures. It is necessary to gradually deepen, follow the enthusiasm, carry out construction step by step, and advance little by little. Therefore, the construction of the practice base cannot be urgent, it must be steady and steady, step by step, let the business leaders and technicians have a process of understanding and recognition.

"Developing with contribution" is a spiritual lead. Both the school and the enterprise are cooperating in the spirit and attitude of contributing to development. The university invests in funding, invests in technology research and development, and invests in emotions. It solves practical problems for enterprises. Enterprises invest in basic conditions. The instructors are equipped with input, investing in the corporate culture, providing complete internship training conditions for the school and students, and leading the cooperation to continue and benign development with the spiritual world.

**Management and Assessment of “3+1” Students**

Through the standardization of teachers in the school and the practical guidance of enterprise teachers, the dual-teacher system strengthens the teaching management of “3+1” training students and guarantees the quality of training. At the same time, the training effect evaluation of the training students is linked with the major certification and the assessment of the post, which completely solves the problem of the integration of the curriculum assessment and practice and application.

The construction and management of the off-campus practice base should be managed by the school, the hospital and the department. The Academic Affairs Office is the competent department responsible for formulating macro-level construction and management rules and regulations and coordinating related matters. The college is responsible for the construction and management of the base. It is responsible for the specific implementation and formulation of the internship teaching and management documents suitable for the major characteristics of the internship plan, internship outline, etc., and the implementation of the internship tasks to ensure the quality of the internship teaching. Specialist and managers hired by the company serve as part-time teachers or instructors, participate in the development of program formulation and syllabus, undertake the task of corporate courses, guide students in practice and process management and assessment; and at the same time increase the existing major teachers. Double-skilled training, selected teachers to go to the enterprise for practice and training.
Conclusion

China's major transformation is still in its infancy and development stage. It must continue to invest and explore, but also keep pace with the times and be forward-looking. In particular, the transformation and development of the environmental engineering profession requires more timely adjustment of strategies, in line with social needs and the new situation of education, such as "new engineering" education, "Internet + major", "black odor water" comprehensive management. Therefore, major construction ideas, curriculum content, teaching mode, teaching methods and assessment models need to be adjusted in time to cultivate better speciality.

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