

Exploration of Building Technology Education Mode in Higher Vocational Colleges

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Abstract: In the current educational environment, paying attention to the cultivation of students' comprehensive quality, in order to enhance students' spiritual realm and ideological level, has become an important content of education reform. This article takes the strengthening of students' responsibility as the starting point, combined with the advanced education mode, aims to cultivate the correct values in the professional skills training of students and become professional engineering talents with exquisite technology and lofty morality. The research focuses on the training of students majoring in architectural engineering technology in higher vocational colleges, and explores the construction of core quality training models and vocational education professional training models, to enhance the comprehensive quality of students and cultivate compound talents with excellent academic achievements and good spiritual outlook. The implementation of these educational concepts provides solid support for the education quality of higher vocational colleges and the all-round development of students, promotes the role of higher vocational colleges in the new era, and is also an active attempt of engineering higher vocational colleges in improving the quality of education and comprehensively enhancing the quality of professional students.

Keywords: Construction engineering technology; Education method; Personnel training mode; Teaching means

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1. The current situation and challenge of construction engineering education mode

At present, the education model adopted by higher vocational colleges in the construction engineering technology major is mainly based on the discipline-centered teaching method. However, this model is facing the challenge of changing social needs, the allocation of teachers and the diversification of students' needs ^[1]. To overcome these challenges, colleges and universities need to reflect deeply and adopt corresponding improvement measures, so as to cultivate construction technicians with strong practical ability and high comprehensive quality.

In the current educational environment, the specialized education of construction engineering technology is facing unprecedented challenges. With the rapid development of science and technology and the constant change in the industry, higher vocational colleges must realize that the traditional teaching mode can no longer

meet all the development needs ^[2]. To better adapt to the changes in the development of the industry, colleges and universities must adjust the curriculum and teaching content in time to ensure that students can master the professional knowledge and skills that meet modern requirements. Society has put forward higher standards for the quality, safety and environmental impact of construction engineering technology projects, which requires colleges and universities to keep pace with The Times and constantly update the teaching content to cultivate the comprehensive quality and ability of students ^[3].

In terms of the number of teachers, there are some problems and limitations in the specialized education mode of construction engineering technology. The aging of the age structure of the teachers leads to the lagging of the teaching idea and the single teaching method ^[4]. Through training, teachers can understand the latest educational concepts and teaching methods, improve their teaching ability, and better meet the needs of students ^[5].

From the perspective of students, the specialized education model for architectural engineering technology majors has shown its limitations in several aspects. Educational institutions have not invested enough in cultivating students' practical operation ability and innovative spirit, which limits students' adaptability and creativity in practical engineering projects ^[6,7]. In order to change this situation, colleges and universities should put more effort into practical teaching and increase the number of laboratory and internship links so that students can master professional knowledge and skills in practice ^[8].

In addition, students also need more psychological support and guidance to help them better cope with challenges and pressures and maintain good mental health ^[9,10]. Colleges and universities should establish a sound psychological counseling and service system to provide students with timely help and support ^[11]. Meanwhile, students also need more systematic and personalized career planning guidance to improve their job competitiveness and future career development potential ^[12]. Colleges and universities should provide career planning courses and consulting services to help students understand industry trends and employment prospects and make reasonable career development plans ^[13,14].

In short, the specialized education model of construction engineering technology majors needs constant reform and innovation to adapt to the changes in industry development and the needs of society ^[15]. By adjusting the curriculum, strengthening teacher training and improving student support, more construction engineering technical talents with professional knowledge and skills can be cultivated to make greater contributions to the development of the industry and the progress of society.

2. Innovative research on the teaching model

The educational model represents a comprehensive concept of education, whose purpose is to provide students with comprehensive guidance and support in ideological, academic, and career development, to help them achieve balanced growth and progress. This educational model includes the following levels of roles.

The professional guidance team is composed of young and middle-aged backbone teachers, who focus on students' academic progress and employment gap after graduation, and provide students with personalized guidance, including professional course learning, skill competition participation, innovation and entrepreneurship activities. These young and middle-aged backbone teachers are the core force of professional education and are directly responsible for guiding students' learning process. Industry tutors are senior experts from the industry, who are responsible for guiding students to understand the actual situation of the industry and career development trends and promoting the effective combination of theoretical knowledge

and practical application. Outstanding alumni who have graduated as part of the industry mentors share their successful experiences and stories with students and offer practical advice to help students broaden their career horizons and enhance their employability. Through their experiences and growth, the current senior students are able to better understand the challenges and needs that new students may face, and provide them with practical advice and support. They not only give guidance on their studies, but also care about the freshmen's adjustment to life, emotional development and mental health, and help them establish good living habits and social relationships. Newly enrolled students are often curious about new things and knowledge, showing strong adaptability and being able to quickly integrate into new learning environments and social circles. As they adjust to their new learning environment and academic challenges, new students may feel the pressure to adjust their learning pace to meet the requirements of the new subject and provide positive guidance.

With the cultivation of students' spiritual qualities as the core, the school uses various channels to understand students' cultivation aspirations and personal needs for vocational skills development, to establish a spiritual quality cultivation connection between teachers and students. In the process of teaching, the school gradually builds up educational implementation paths for different majors and job levels, to consolidate the emotional basis for the cultivation of spiritual quality between teachers and students. In the later stage of student training, the school strengthens the counseling work and establishes an open expert guidance and mutual aid system to provide support for students. In the continuous follow-up, the school provides students with additional training course resources on time to deepen their ideological education.

3. Structural analysis of the educational model

With a focus on cultivating students' spiritual literacy, the school provides diversified insights into students' cultivation intentions and needs for professional skills growth, thus forming a solid bond between teachers and students. At each stage of education, the school pays special attention to the design of special training paths for different majors and positions, so as to consolidate the foundation of the cultivation of spiritual literacy between teachers and students. After the completion of the education phase, the university has strengthened its mentoring work to ensure that the guidance and support system of experts remains open to help graduates improve their skills and career development and to face challenges together with them.

It also cultivates the academic quality and vocational skills of professional tutors and business tutors to improve their understanding and grasp of educational concepts and policies. Establish an emotional connection between professional and business mentors and students, and enhance the trust and closeness between students and mentors through listening, caring and supporting. Establish a core engine between professional mentors and business mentors and incoming freshmen, aiming to provide comprehensive cultivation and guidance for newly enrolled students. Professional tutors are responsible for providing professional guidance on skills training, imparting practical operational skills, and ensuring that students have excellent professional skills. As experts in the industry, corporate mentors share practical experience and career development advice to help students better integrate into the workplace culture and working environment. As experienced seniors, they provide support and assistance in study and life, share personal growth and practical advice, and help freshmen integrate into college life smoothly. This collaborative mechanism aims to provide students with all-round support to promote their all-round growth in academic, skills, and career development so that they can better adapt to social needs and career challenges.

It aims to cultivate the educational and teaching ability and practical experience of professional tutors and

business tutors and improve their understanding and application of educational concepts and policies. It can establish a good relationship between professional tutors, business tutors and students, and enhance trust and interaction between students and tutors through listening, caring and supporting. It also provides professional training and guidance so that tutors have rich educational experience and talent cultivation ability, and can provide personalized guidance and support to students. A team cooperation mechanism for tutors can be established to improve their teaching level and professionalism through mutual learning and communication. Corporate mentors, as experts in the industry, share practical experience and career development advice to help students better understand industry dynamics and job prospects. As experienced seniors, they provide support and assistance in study and life, share personal growth and practical advice, and help new students integrate into university life smoothly. This collaborative mechanism aims to provide students with all-round support, promote their all-round growth in academic, practical and professional development, and enable them to better adapt to social needs and career challenges.

4. The initial implementation of the professional education model for construction engineering

The education mode of higher vocational colleges in the construction technology major, especially for the direction of construction technology survey, has played an extremely important role. In this professional field, students not only need to master theoretical knowledge but also need to have practical skills. Therefore, the application of the education model is particularly important. Through the application of this educational model, students majoring in building technology can get a comprehensive education and guidance. They are not only enhanced in professional knowledge and skills but also enhanced in professional quality. This model promotes students' integrated development in professional knowledge, technical ability and career adaptability, laying a solid foundation for their future careers.

The application of education mode in construction technology major in higher vocational colleges, especially in the direction of construction technology survey, has played a key role. In this professional field, professional tutors are responsible for implanting professional knowledge and practical skills to students, ensuring that they have mastered the core concepts and practical operation ability of surveying technology. Industry mentors, as experts in the industry, provide valuable practical experience and insight into industry trends to help students better understand the direction of future career development ^[16].

Through the application of this educational model, students majoring in construction technology can obtain comprehensive education and guidance, which not only enhances their professional knowledge and skills but also improves their professional quality. This mode promotes the comprehensive development of students in professional knowledge, technical ability and career adaptability, laying a solid foundation for their future career. Through teamwork and experience-sharing, students not only progress academically but also get exercise in teamwork and professional adaptability. This initial attempt at an education model has provided valuable experience for higher vocational colleges to cultivate professionals in construction technology and a practical reference for future education improvement and innovation.

5. Conclusion

Through trying and implementing the education mode of architectural engineering technology major in higher

vocational colleges, it effectively promotes students' overall progress in academic, and vocational skills and team cooperation. Professional tutors, enterprise tutors and experienced seniors provide guidance to students, forming a multi-angle support system to help students better adapt to the requirements of study and practice. This multi-tutor cooperation mechanism not only improves students' learning effectiveness but also enhances their teamwork spirit and innovative thinking. Future improvement directions include further refining the education model, strengthening cooperation and communication among tutor teams, and promoting in-depth exchange and sharing of experience, to expand the model to more professional fields and provide stronger support for students' development and professional progress. The attempt and implementation of this education model has contributed valuable experience and insights to the teaching activities of the architectural engineering technology major and laid a solid foundation for cultivating professionals with more market competitiveness.

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References

- [1] Shen F, 2023, Research on Teaching Reform of Building Engineering Construction Technology Course in Higher Vocational Colleges. *Neijiang Science and Technology*, 44(9): 111–112.
- [2] Yu B, Yu J, Xiong Y, et al., 2023, Research on the Application of “Divided Classroom” Teaching Mode in the Course of “Building Construction Technology” in Higher Vocational Colleges. *Science and Technology Wind*, 2023(22): 137–139.
- [3] Liu Y, 2023, Exploration of Employment-Oriented Ideological and Political Construction in Higher Vocational Courses: A Case Study of Construction Engineering Management. *Modern Vocational Education*, 2023(1): 17–20.
- [4] Zhou C, Lin W, Shi Y, et al., 2022, Research on the Application Model of Micro-Course and Online Open Course in the Course of “Construction Technology of Building Engineering” in Higher Vocational Colleges. *Guangdong Vocational and Technical Education and Research*, 2022(4): 69–71 + 89.
- [5] Mu X, Zhu L, Hu B, 2022, Research on Modular Teaching of Practical Training for Higher Vocational Architecture Major: A Case Study of “Building Construction Technology” Course. *Shanxi Youth*, 2022(15): 81–83.
- [6] Zhao P, 2022, Reform and Creation of Course Assessment Method under the Background of “Smart Construction Site”: Taking “Building Construction Technology” Course as an Example. *Education and Teaching Forum*, 2022(13): 66–69.
- [7] Li Z, 2021, Discussion on Application of Prefabricated Building Construction Technology – Review of Prefabricated Building Construction Technology. *Building Structure*, 51(22): 150.
- [8] Liu T, 2021, Exploration of Online and Offline Mixed Teaching: Taking Building Electrical Construction Technology Course as an Example. *Modern Vocational Education*, 2021(43): 48–49.
- [9] Gou S, Yang Y, 2021, Diagnosis and Improvement Practice of Assembly Construction Course for Architectural Engineering Technology Major in Higher Vocational Colleges. *Journal of Yangling Vocational and Technical College*, 20(3): 77–80.
- [10] Shen H, Peng Z, 2021, Research on the Practice of Ideological and Political Classroom of Prefabricated Building

- Construction Technology in Higher Vocational Colleges. University, 2021(32): 37–40.
- [11] Wang H, Li H, Diao W, 2020, Analysis of Innovative Ability Cultivation in Higher Vocational Construction Courses. *Housing and Real Estate*, 2020(36): 243–244.
- [12] Zou X, Chen J, 2020, A Study on the Application of Constructivism Theory in Higher Vocational Education: A Case Study of Building Engineering Safety Technology and Green Construction Teaching. *Career*, 2020(30): 27–28.
- [13] Yang T, Chang C, Zheng J, 2019, Teaching Reform and Practice of “Building Construction Technology” Course in Higher Vocational Colleges. *Industry and Technology Forum*, 19(20): 183–184.
- [14] Cao S, Wang W, Wang H, et al., 2020, Research and Practice on Teaching Reform of Construction Organization Design Course Based on BIM Technology. *Modern Vocational Education*, 2020(24): 140–141.
- [15] Liu D, 2020, Design of Project-Oriented Curriculum Based on Work Process – A Case Study of Construction Equipment Monitoring System Engineering Design and Construction Course. *Modern Vocational Education*, 2020(35): 148–149.
- [16] Yao Q, Wen S, Liu X, 2020, Exploration and Practice of Vocational Construction Prefabricated Talents Training under the Background of Construction Industrialization. *Modern Vocational Education*, 2020(19): 73–75.

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