

# Discussion on Talent Training Mode of Engineering Cost Major in Higher Vocational Colleges

Zhe Yang<sup>1\*</sup>, Yuan Zhong<sup>2</sup>, Hong Ye<sup>1</sup>

<sup>1</sup>Wuhan Technical College of Communications, Wuhan 430065, Hubei Province, China

<sup>2</sup>Guanqiao Town Central Kindergarten (Jiayu), Xianning 437224, Hubei Province, China

\*Corresponding author: Zhe Yang, yangzheer2008@sina.com

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**Abstract:** With the rapid development of higher vocational education, the number of schools and enrollment has increased rapidly, and each specialty has been continuously refined. This has led to new challenges in the talent training of new specialties in higher vocational colleges in recent years. Based on the post ability standard of cost staff and the skill requirements of related posts, according to the characteristics of this major and guided by the idea of systematization of the work process, this paper discusses the problems existing in the talent training mode of higher vocational engineering cost major and provides some suggestions for the talent training and construction of higher vocational engineering cost major. It aims to promote continuous teaching reform in the future and the development of engineering cost majors in higher vocational colleges.

**Keywords:** Higher vocational college; Engineering cost major; Talent training mode

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## 1. Introduction

At present, China's higher vocational education has entered a period of high-quality development, an important development trend is to carry out curriculum reform and practice based on the systematic thought of working process<sup>[1,2]</sup>. Many vocational colleges carry out the training mode and curriculum design of engineering cost professionals based on the course design method of the work process. On the basis of full consideration of professional characteristics, they design learning fields, learning scenarios, curriculum standards, and teaching plans, trying to reflect the practicality, openness, and professionalism of higher vocational education, and strive to achieve the consistency of on-campus learning and practical work<sup>[3-5]</sup>.

## 2. Establishment of training objectives for engineering cost professionals

In order to ensure personnel training meets the requirements of social employment and to achieve the requirements of demonstration construction and leading role, we must first clarify the goal of engineering cost professional personnel training. According to industry surveys and graduate tracking surveys over the years,

engineering cost graduates are mainly engaged in engineering budget and bid quotation work, construction units, real estate enterprises, engineering cost consulting, and management departments engaged in engineering cost analysis, determination, and control work <sup>[6,7]</sup>. Therefore, the engineering cost major should carry out knowledge reconstruction according to the professional skill and quality requirements of the cost staff, cultivate the basic theoretical knowledge and specialized knowledge necessary for the cost staff, obtain the preliminary training of cost engineers, and possess the basic ability and skills to prepare and review the actual work of construction engineering and installation engineering pre-settlement. In this way, high-quality skilled professionals with professional ethics and good health can be cultivated.

### **3. Current situation of personnel training for engineering cost majors in higher vocational colleges**

Engineering cost major is produced and developed with the development of our country's economic construction and construction market, and the gradual establishment and perfection of our socialist market economic system. Before the 1980s, there was no college in China to carry out the training of engineering cost talents. With the increase of reform and opening up in China and the promotion of economic system reform, the project construction management mode has changed majorly: the diversification of construction capital channels, investment subjects, and investment methods, and the decentralization of investment decisions. Design and construction, procurement, and supply of construction materials tend to be market-oriented, which puts forward higher requirements for construction management. In 1986, Jiangxi University of Science and Technology took the lead in setting up the first engineering cost management major in the country to train applied talents in engineering cost management. In the 1990s, the Ministry of Personnel and the Ministry of Construction determined the registration cost engineer qualification access system. Especially after the implementation of the national registered cost engineer qualification system in 1997, many higher vocational colleges in the country have set up engineering cost majors. According to incomplete statistics, more than 50 higher vocational colleges in China have set up engineering cost majors, with a three-year academic system, mainly training local applied talents in the construction engineering industry and targeting engineering cost practitioners. However, due to the restriction of the lagging reform of China's engineering construction system, the training of professionals in engineering cost has not jumped out of the original budget professional train of thought, talent training goals and training plans are far from meeting the needs of the development of the socialist market economy, and the gap is larger than that of developed countries, which requires in-depth and meticulous reform as well as re-determination of the talent training objectives and specifications of engineering cost major.

### **4. Integration of the characteristics of higher vocational courses**

The setting of a curriculum system is an important means to realize the training goal <sup>[8,9]</sup>. Vocational courses must be employment-oriented, basic courses should be applied for the purpose of sufficient degree, and professional courses should strengthen pertinence and practicality, emphasizing the combination of theory and practice. Engineering cost major is a branch of civil engineering, developed in response to the continuous advancement of society and the increasing specialization of labor. When designing its curriculum, careful consideration is required. Simply making minor deletions from the original civil engineering curriculum could lead to a distorted version of the field, rather than a true engineering cost major. The investigation shows that the curriculum system of this major is still relatively perfect and reasonable <sup>[10,11]</sup>. The range of basic courses and

specialized courses is relatively wide, not limited to the small range of civil construction costs, and pays special attention to meeting the actual needs of students. In addition, a large number of courses related to engineering cost management are offered, such as bidding and contract management, accounting for construction enterprises, construction economics and business management, etc., all of which greatly expand the scope of students' knowledge and lead them to become generalists with cost as their specialty, thus broadening their scope of employment.

In addition, in the course setting of engineering cost majors, we must highlight the characteristics of higher vocational education and attach importance to practical teaching. In particular, in the course arrangement of major professional courses, all courses with potential for practical training links should increase practical training links, and the forms should be diverse. For example, the construction technology course could include 2–4 weeks of hands-on production practice to serve as practical training. In the housing construction course, greater emphasis should be placed on practical components such as construction organization and budgeting for each subject. The course design should also be structured as a practical training module. Additionally, the budget software course should incorporate a substantial amount of computer-based exercises, with practical teaching making up approximately 30% of the total instruction time. By enhancing practical training, top-performing students can enter the workforce fully prepared, while average students can become job-ready after a brief internship period.

In addition, the “dual certificate” policy of students should be taken into account in the course setting. Employers must give priority to students with “vocational qualification certificates” under the same conditions, and some employers stipulate that graduates without qualification certificates are not used at all. Therefore, in order to improve students' employment environment, employment rate, and employment level, and enhance their competitiveness in employment, we must consider whether students can obtain “dual certificates” when they graduate from the cost major.

## **5. Training measures for engineering cost professionals**

### **5.1. Developing a “field of study” course plan based on professional competence and work process orientation**

According to the requirements of the industry market for engineering cost practitioners, the setting of engineering cost professional technical courses should be reformed, that is, the course plan should be developed based on the vocational post ability and guided by the work process. The curriculum system of higher vocational colleges emphasizes the pertinence and practicability of professional posts, so the formulation of the teaching plan of engineering cost majors in higher vocational colleges should adopt the thinking teaching mode that conforms to the characteristics of higher vocational education, that is, analyzing the work tasks of vocational posts, forming the action fields corresponding to the summarized typical work tasks, building the learning fields corresponding to the action fields. Therefore, corresponding courses should be equipped around the requirements of vocational posts, and the course plan of “learning field” oriented by work process should be developed. Areas of study include public foundation, building drawing and construction, construction engineering surveying and laying out, building structure foundation, construction regulations and contract management, construction engineering measurement and valuation, construction organization and management, installation engineering measurement and valuation, water conservancy engineering cost documentation, whole process management of engineering cost, engineering economics and engineering finance engineering project management, comprehensive practice, and post practice.

## 5.2. Strengthening the construction of “double-qualified” teachers

Higher vocational colleges should have a team of teachers who can meet the requirements of strengthening skills and practical teaching in vocational colleges, that is, the current “double-qualified” teachers, and the engineering cost major is no exception. However, from the overall point of view, the quality of teachers in higher vocational colleges is not optimistic. There are many teachers in higher vocational colleges who cannot immediately adapt to the needs of higher vocational curriculum reform; The continuous expansion of vocational colleges in recent years has significantly increased the workload for teachers, making it challenging for them to participate in practical training despite their willingness to do so. Therefore, we must improve and optimize the teaching staff in order to develop a specialty of higher vocational engineering cost that meets the needs of society. There are three main measures as described below.

Existing teachers are involved in refresher courses and training. Higher vocational colleges should encourage existing teachers to improve their academic qualifications while formulating corresponding policies to encourage teachers to study and exchange on the front line of production posts. This not only improves the practical skills of teachers but also provides a good opportunity for vocational colleges to investigate the post needs. It not only makes the school understand the social needs but also makes the talent training more targeted.

The introduction of talents is encouraged. Due to the continuous enrollment expansion of higher vocational colleges, the number of teachers has been insufficient, so we must strengthen the introduction of talents while encouraging the existing teachers to study. The introduction of teachers in higher vocational colleges does not have to follow the practice of ordinary colleges and universities. Since we want to cultivate students’ practical skills, we should introduce a group of skilled craftsmen with professional skills, and at the same time, we should formulate relevant policies to truly enable these talents to “attract, retain, and use.”

Moderate use of part-time teachers is promoted. On the basis of giving full play to the limited teacher resources in the school, part-time teachers of the course should save school expenses and ensure teaching quality. Hiring frontline engineers with practical experience outside the school to give lectures is theoretically better because they have practical experience and lectures are closer to reality. However, the results of the survey and the overall response of students to part-time teachers indicate that students prefer on-campus teachers. This is mainly due to the lack of teaching experience of part-time employees in enterprises, the speed of speech, the poor organization of lectures, and the lack of attraction to students. Therefore, the use of external teachers must be moderate, taking into account the nature of the course. For basic courses and specialized basic courses, the teachers of our school are preferred; For professional courses, part-time teachers from enterprises can be appropriately hired, but external teachers should not be used for the main courses of the major.

## 6. Conclusion

To sum up, the development of higher vocational education is the need for social progress, and the continuous expansion of higher vocational colleges and the gradual refinement of majors are the inevitable results of industry development. The engineering cost major in higher vocational colleges is a multidisciplinary discipline of design, and its training and positioning of talents are of great research value. Its healthy development is also a concern and expected by every educator.

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