

# Innovative Mode of School-Enterprise Cooperation for Co-building Practical Training Bases for Construction Engineering Technology Major in Higher Vocational Colleges

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**Abstract:** With the rapid development of China's construction industry, the enrollment scale of construction majors is expanding day by day. However, from the current situation, although students in colleges and universities have rich theoretical knowledge, they have little practical work experience, which is mainly due to the problem of construction of practical training bases, resulting in the lack of internship opportunities for students. This paper briefly analyzes some problems in the practical training of the construction engineering technology major in higher vocational colleges, and discusses how to solve these problems, aiming to put forward the suggestions that can be applied.

## 1. Introduction

Construction engineering technology is a construction professional trained for the whole country. However, in practice, due to various reasons, the practical courses cannot effectively play their proper functions. In recent years, school-enterprise cooperation in building practical training bases has gradually become the main choice for implementing practical training programs in major higher vocational colleges[1].

## 2. The Practical Teaching Process and the Embodiment of School-Enterprise Cooperation in Talent Cultivation

Practical teaching system construction, engineering training center construction and school-enterprise cooperation are common features of practical teaching in higher vocational colleges. In the practical teaching, the talent cultivation mode of "school-enterprise cooperation" has been common. In the implementation of the school-enterprise cooperation in building practical training bases for the construction engineering technology major in higher vocational colleges, the main focus is on the engineering training centers and construction sites of schools.

At present, the mode of cooperation between colleges and enterprises includes: Firstly, it absorbs managers of construction enterprises and influential engineers in the industry to join the steering committee of school major construction and participate in the whole process of professional construction and teaching guidance. Secondly, universities invite project managers, technical leaders and other construction project managers to participate in graduation defense, technical management and other specific teaching links. They are able to go deep into the teaching process, understand the actual teaching situation, and put forward teaching requirements and suggestions that are more in line with the actual needs of engineering. They are better able to require and test students' vocational ability from the perspective of engineering reality and keep a good check. Thirdly, schools and enterprises provide construction projects and offer internships for students. Fourthly, conduct school-enterprise cooperation and industry skill competitions. Fifthly, establish internship bases for construction vocational and technical colleges and building construction enterprises.

### **3. The Characteristics of Talent Cultivation of School-Enterprise Cooperation in Co-building Practical Training Bases for the Construction Engineering Technology Major**

#### **3.1 Marketization**

The "practical training bases co-built by schools and enterprise" is a new teaching model. In terms of teaching, school-enterprise cooperation and establishment of practical training bases break the status quo of "learning not using". According to the needs of the society and the market, we will make a talent training program suitable for the national conditions of China, so that the training objectives of the construction engineering major are closely related to the needs of the society and shorten the gap between vocational and technical education and social development.

#### **3.2 Integration of teaching resources**

Higher vocational colleges provide students with more advanced theoretical knowledge of construction technology, which is the technical basis that construction enterprises lack [2]. Through school-enterprise cooperation and the establishment of practical training bases, higher vocational colleges and enterprises can make full use of their respective resources so that their resources can complement each other, thus achieving a win-win situation.

#### **3.3 Enterprise-oriented practical training bases**

Higher vocational colleges provide students with a large number of professional foundation courses and also provide them with some internship opportunities. However, because the internship time is too short, it is difficult to adapt to the needs of society. The cooperation between schools and enterprises to establish practical training bases, on the other hand, can strengthen the practical training link and provide students with first-line equipment and places, so that students can practice in the first line of enterprises, which is more beneficial to teachers' teaching [2].

### **4. Problems of school-enterprise cooperation practice model**

#### **4.1 The mode of practical training bases in higher vocational colleges is relatively backward.**

At present, the trend of establishing practical training bases between higher education colleges and enterprises has led to the rationalization of talent training in schools. However, this model also has some problems, because the staffs on the construction site are very busy, it is difficult to provide them with technical guidance, so that they can not participate in the construction, but only as "spectators", so the initial meaning of the internship is lost. Some organizations arrange students to practice in specific projects, but the lack of guidance from professionals leads to unsatisfactory internship results. In addition, the lack of teachers in schools and the shortage of funds in schools are also important reasons why school-enterprise cooperative training cannot be implemented effectively.

The students of the construction engineering technology major in higher vocational colleges have the following internship: First, the school organizes to the construction site. Second, students contact the construction site. Thirdly, the graduates of the employment unit are arranged by the employer. During the internship in construction vocational and technical colleges, the management way of students mainly has the management of procedure and format, such as internship task book, internship instruction book, internship inspection record, etc. After investigation and analysis, we found that the content of "internship task book and instruction book" is basically fixed, which is to let students complete various internship tasks. The so-called internship tasks are the corresponding construction content listed in each step of the textbook, which does not really provide guidance to students for the actual engineering situation and therefore has little practical significance. Although it is written on the "Record Sheet of Internship" that the "supervisor" will conduct regular routine inspections on the site, it is only a simple inspection to see if the students have violated any discipline on the site, without any teaching and communication. The most that could be done was to ask the students what they had done. The mentors of vocational teachers are often not professional. Some schools will allow students to report their daily work online and have some communication.

However, this form of reporting also does not play much of a role and not all sites have internet access, thus not making full use of its effectiveness.

The main reasons for this are: Firstly, they have not yet got rid of the traditional training method. It is thought that the work ability of the students in the workplace will certainly be greatly improved, but the whole process control of the internship and the impact of the internship on the professional ability training of the graduates are ignored. Secondly, the number of teachers is insufficient. In recent years, the scale of higher vocational colleges in China is getting bigger and bigger, and the teaching work is getting heavier and heavier, but the construction of teacher teams often lags behind the dual-teacher system teachers [3]. Influenced by industry and society in general. Many people do not want to be full-time teachers. Therefore, the teaching teams in the construction engineering technology major in higher vocational colleges are far from adequate, at least in terms of numbers. The requirements for professional teachers are also very high when they have to provide all-round counseling to students during the top-up period. One is more people, the other is high level, and the third is a sense of responsibility. Judging from the current allocation of teachers in the construction engineering technology major in higher vocational colleges, it is difficult to meet this demand. This will inevitably affect the positive control of the internship. Thirdly, the talent demand of construction engineering units and the talent cultivation of the construction engineering technology major in higher vocational colleges are not fully connected. There is still a big gap between them. Although China is currently implementing the talent training mode of "school-enterprise cooperation", there is a lack of more effective training mechanism and ways in practice. Currently, it is not rigorous and appropriate to deliver all students to enterprises or engineering projects at the stage of capstone internship, which is not yet available. Fourth, insufficient funds. The teaching funds of construction vocational and technical colleges are often very little, which to some extent also affects the teaching work in this period.

#### **4.2 Building construction enterprises do not play their own intelligent role**

Construction engineering enterprises play an important role in practice as a school-enterprise internship base. However, from the current situation, construction enterprises invest little time and energy in a certain aspect and belong to passive participation and lack of enthusiasm, which leads to students not receiving sufficient attention in actual work. In addition, when construction enterprises cooperate with higher education colleges and universities, they also pass the standards of talents to the schools according to the needs of the enterprises, and the setting of these standards is often high, which contradicts the teaching philosophy of construction colleges and lacks relevance. In a word, in the practice activities, the construction enterprise fails to give full play to its proper function. This causes students in the internship can not achieve the expected effect, thus losing the meaning of the internship, resulting in the "school-enterprise cooperation" mode of "empty talk".

#### **4.3 Building construction enterprises do not play their due initiative in the cultivation of talents through school-enterprise cooperation**

From the current school-enterprise cooperation training between China's engineering vocational and technical colleges and building construction enterprises, it is easy to see that building construction enterprises do not play their due initiative mainly in the following ways: Firstly, executives of first-level building construction enterprises and influential people in the industry are generally invited to participate in the professional construction steering committee, and few enterprises and their personnel take the initiative to join [4]. This has led to the "supporting role" of construction engineering companies in school-enterprise cooperation, and they have failed to give full play to their due enthusiasm. Secondly, although project managers of construction enterprises have made some requests and suggestions to the construction vocational and technical colleges in some teaching links and teaching process, they are often requested and not actively absorbed. Thirdly, the demand of construction engineering companies for talents of higher vocational construction engineering technology majors is generally from the needs of enterprise development so that the goal is usually higher. It is difficult to reach with the current talent training mode of higher vocational construction engineering technology majors, or rather, it is not well adapted to the

work needs of enterprises. Fourthly, the most direct reflection of the talent training mode of school-enterprise cooperation is the on-the-job internship of college students. For college students, on-the-job internship is a greater degree to enhance their professional skills during this time if they can not get good internship results, then it is difficult to achieve the training goals.

## **5. Current Innovation Research on Talent Cultivation through School-Enterprise Cooperation**

From the actual situation and practice of the current internship of China's construction engineering technology major in higher vocational colleges, it can be seen that there are many places to be improved and enhanced in the practice. First of all, students nowadays actually participate in engineering practice for a very short time and operate very little. They do not have the trust of the project managers of construction sites in the final practice, so of course they cannot really participate in it. Therefore, it is necessary to make full use of the existing internship environment, arrange the internship time reasonably, adopt active and efficient internship methods. It is also vital to innovate the construction mode of the internship bases so that students can really get the professional skills recognized by the employers. Second, in the talent training of school-enterprise cooperation, how to fully mobilize the enthusiasm and initiative of construction enterprises, so that they can really realize the talent training of school-enterprise cooperation. Although the practical training situation in the engineering training center within the school will not change much, the specific operation content should be changed frequently, and a variety of practical training methods should be adopted to simulate training as much as possible.

## **6. Innovative strategies of school-enterprise cooperation practice model**

### **6.1 Carefully arrange students' internship**

It is a good attempt to establish an internship base through cooperation between schools and enterprises. The internship base is meaningless if it cannot cultivate students' practical operation skills. Construction enterprises should choose the most representative engineering projects from each construction link, or let students participate in them. They should designate experienced masters to guide them on the side, help students solve the problems they encounter in practice, improve the teaching process of students in construction enterprises, and promote the realization of teaching objectives. In view of the current teaching situation of China's construction engineering technology majors, only by strengthening the educational function of the practice base, especially the link of "fixed-position internship", can students obtain the real "construction engineering" skills. The internship of college students should pay full attention to the function of the practice base and take "attainability" as the guide, so as to truly achieve the purpose of professional talents training in vocational education. This is the only way to make school-enterprise cooperation and establish "training bases". For example, A college of Architectural Technology at a university and a large construction company have set up a training base where the construction company provides technical support and assistance to each student so that they can adapt to the new working environment more quickly. At the same time, in all aspects of practice, there will be special personnel to carry out training, students in practice not only to improve their knowledge and skills, but also to deepen their understanding of the buildings.

### **6.2 Build construction companies play a driving role**

The construction companies are an important part of the school-enterprise cooperation in building practice bases. Therefore, the construction companies should be fully aware of the role it plays in the construction of practice bases. First of all, the enterprise needs to be clear about what kind of talents they need, what kind of plan they make, and pass it to the schools. In addition, construction enterprises should take the initiative to play their own initiative and send professional and technical personnel to schools for daily teaching. In this way construction enterprises can learn from this aspect the state of knowledge mastered by students and thus test their vocational ability. At the same time, the construction enterprises should give full play to their subjective role in the

construction of practical training bases, and make detailed arrangements for the practical work of students. In the actual work, the knowledge and skills learned in school should be applied to the actual work. Construction enterprises can then contact with the college in time to strengthen students' learning ability according to their actual working condition, thus to a certain extent promoting the teaching of the college's construction engineering technology major to be more in line with the needs of enterprises, which really makes the colleges cultivate talents that are needed by enterprises and the teaching objectives can be realized. In a word, the construction enterprises are the main body of the practice base and should give full play to its function so that it can really serve for the school and the enterprise.

### **6.3 Co-build practical training bases to reasonably cultivate talents**

"School-enterprise cooperation in the construction of practical training bases" is a proven teaching method, which can stimulate the vitality of enterprises, so as to provide better services for enterprises. In the "school-enterprise" joint supervision of internship base construction, China has accumulated rich experience in the "skill" practice, and has achieved good results in practice. Due to the school-enterprise cooperation, the establishment of practical training bases is an important part of the construction engineering technology major in higher vocational colleges. To give full play to the practical application of school-enterprise cooperation of the construction engineering technology major in higher vocational colleges, we must pay attention to the docking of three links, namely: The demand of students' practical training for equipment is connected with practical training activities, the level of practical training teachers is connected with the level of enterprise demand, and the goal of talent training is connected with the real demand of enterprises. Through the teaching mode of "theory+practice", the talent training mode of "classroom-teacher-workshop" combining theory and practice has been realized, which has greatly improved the learning enthusiasm and hands-on ability of construction engineering students.

### **6.4 See vocational competence as a talent development evaluation method**

In order to further strengthen the construction of practical training bases of the construction engineering technology major in higher vocational colleges, a vocational evaluation system should be established which is suitable for higher vocational colleges and enterprises. The incorporation of enterprise criteria and vocational ability into the vocational qualification assessment system can be done from the following aspects: Firstly, construction enterprises should provide higher education institutions with industry standards and occupational standards required by the company, and provide higher education institutions with relevant information on internship skills and vocational abilities. Secondly, the assessment system should be improved by abandoning the traditional examination and assessment mode, focusing on the process assessment of the internship base and on cultivating the professional quality and practical ability of students. Finally, higher vocational colleges and construction enterprises should establish a clear interactive relationship, and track and manage the implementation process, which provides a sufficient basis for the communication between colleges and enterprises.

## **7. Conclusion**

To sum up, school-enterprise cooperation in building practical bases provides a good training platform for construction engineers and technicians. However, the current mode of practical training bases in China is backward. Construction enterprises do not pay enough attention to it, which leads to the inability of China's higher vocational colleges and universities to provide high-quality talents for the society. This paper discusses the above phenomenon in more detail, and makes an in-depth analysis of the problems, and puts forward some scientific and reasonable countermeasures.

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