

# Research on the Teaching Reform of the Course "Construction Engineering Bidding and Contract Management"

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**Abstract:** The higher vocational education system is guided by student employment and focuses on cultivating students' practical and innovative abilities with the goal of meeting the professional, analytical, and innovative needs of employees in enterprises. However, traditional teaching models cannot meet the requirements of the times and enterprises in terms of teaching environment, teaching content, and teaching methods. This article takes the course "Construction Engineering Bidding and Contract Management" as an example to point out the existing problems. Through the practice and research of four dimensions: teaching mode reform, information technology course resource construction, integration of course ideological and political education, and talent cultivation quality, with students as the main body, we construct three-dimensional course resources, implement course ideological and political education, and carry out the goal of truly integrating theory and practice teaching in the curriculum reform. It provide new ideas and feasible suggestions for the curriculum reform of similar majors, reflecting the universality of the curriculum reform.

**Keywords:** Higher Vocational Education; Teaching Reform; Tendering and Bidding; Immersion

## 1. Research Background

With the rapid development of construction economy and the improvement of social modernization, the external environment and students of higher vocational education have undergone major changes. The Opinions on Promoting the High-quality Development of Modern Vocational Education clearly propose that teaching modes and methods should be innovated to promote the deep integration of

modern information technology and education and teaching, and improve the quality of classroom teaching. Under the new development concept, all walks of life in China have also put forward higher and higher requirements for talent training in higher vocational colleges. Curriculum construction and reform, as the core position of higher vocational education, are more obvious, and the high-quality development of higher vocational education is facing great challenges. The teaching model of construction engineering courses is based on specific teaching concepts and educational concepts, effectively integrates various educational resources under the guidance of teaching objectives, and carries out targeted teaching activities according to teaching procedures. Common classroom teaching models mainly include case-based teaching, discussion-based teaching, multimedia teaching, practical teaching and mixed teaching.

At present, the curriculum reform theory of higher vocational education is based by three aspects. The first is the vocational education curriculum reform oriented by vocational practice activities. The purpose of such curriculum reform is to strengthen the correlation between the content and content of vocational education curriculum work, integrate theory and practice, and improve the efficiency of students' vocational ability training. The second is the vocational education curriculum reform oriented by vocational qualification certificate, whose theoretical basis stems from the orientation of vocational education, but the implementation of this model needs to have many conditions. The third is the multi-integrated vocational education curriculum reform oriented by comprehensive vocational ability. This mode takes into account the needs of social and economic development and at the same time emphasizes the needs of the educated, and has

the conditions of flexible curriculum structure, development plan and evaluation method [1].

## 2. Course Teaching Content Analysis

The course of "Bidding and Contract Management" is the core course of civil engineering management and engineering cost major. This paper takes the course of "Bidding and Contract Management" as an example to illustrate the reform process of course teaching design and implementation.

### 2.1 Learning Situation Analysis

"Construction engineering bidding and contract management" course object for construction engineering management, engineering cost professional third grade students, like hands-on, interested in construction engineering bidding, early has learned "building regulations", "construction engineering budget", have the basic knowledge of construction engineering and basic normative education, cultivate students Wuxi, rigorous meticulous, excellence "spirit". However, students' active learning enthusiasm is not high, so it is necessary to explore the teaching mode suitable for this kind of students to improve the teaching effect.

### 2.2 Course Content Setting

This course aims to train students to master the solid scientific and cultural foundation and construction project construction management, project bidding, contract management and claims, digital engineering management foundation and related laws and regulations knowledge, with construction quality, safety, environment, cost, progress, data, bidding and contract management, and digital management ability based on building information model (BIM), with spirit and information literacy, can engage in small and medium-sized construction project construction management work of high quality technical skills. Docking with the national professional teaching standards, according to the actual requirements of the position of bidding specialist, combined with the latest national bidding standards, to adjust the teaching content of this course. Course content overall setting to "course module advanced, vocational skills level advanced" for the purpose, to meet the bidding specialist post related knowledge, skills requirements for the purpose, both the

sustainability of career development, build from easy to difficult, from shallow to deep in turn of four modules (course cognitive module, construction market module, construction engineering bidding module, construction contract module) eight project curriculum module system.

### 3. Traditional Classroom Problem Analysis

Classroom, this field is formed and developed by the interaction between teachers and students, is the activity place for teachers and students to carry out or participate in teaching practice, and is the foothold of the three teaching reform in talent training. Classroom education is the key link of talent training in higher vocational colleges. The effect of teaching and learning in the classroom directly affects whether the goal of talent training in higher vocational colleges can be realized. Taking the course of "Construction Engineering Bidding and Contract Management" as an example, there are some problems and deficiencies in the traditional classroom teaching in some aspects, and it is difficult to achieve the high-quality development of higher vocational education.

Take teachers as the center, focusing on indoctrination rather than inquiry. Traditional classroom teaching is characterized by "transmission-acceptance". Teachers complete the prescribed teaching tasks according to the teaching plan design, take themselves as the center, adopt the teaching mode based on theoretical teaching, cramming and indoctrination teaching methods, ignoring the subjectivity, difference and diversity of students. A large number of theoretical knowledge full indoctrination, so that students lost the motivation of active exploration, it is difficult to form the habit of autonomous learning [2].

Take the classroom as the limit, emphasizing commonness light personality. Traditional classroom teaching limits the learning time to the class period, and the opportunities for teachers and students to communicate with them are limited, which weakens the enthusiasm of teachers and students. At the same time, the traditional classroom teaching is taught in the same mode, which is not conducive to the development of students' personality [3]. Under the people-oriented education concept, in addition to paying

attention to students' academic performance, we should pay attention to the individual development of students' emotions, psychology and values.

Based on the curriculum, heavy teaching and light education. In the case of the quality of students declining year by year, in the teaching of professional courses, failed to actively and effectively carry out curriculum ideological politics, but pay attention to the output of textbook knowledge, ignore the "teaching" and should pay more attention to "education", ignore the vocational students' professional literacy education [4].

With the class to the goal, heavy form light concept. At present, teachers in higher vocational colleges generally lack of motivation, lack of enthusiasm and subjective initiative for curriculum reform. Most of them are under the pressure of schools for the sake of curriculum reform. If teachers lack the innovation of the curriculum reform concept, they cannot create the curriculum reform of "teachers' application, students' satisfaction and enterprise needs".

#### **4. Practice and Research of Curriculum Reform Program**

Teaching reform only into the classroom level, really into the deep water of education reform, this paper through the teaching mode reform, information curriculum resources construction, into the course education, personnel training quality four dimensions of practice and research, take the student as the main body, build three-dimensional curriculum resources, the implementation of the curriculum education, to carry out the real sense of the integration teaching curriculum reform goal.

##### **4.1 Practice Process Analysis of Curriculum Reform Program**

Curriculum teaching reform taking "construction engineering bidding and contract management" as an example under the background of "Post course competition certificate". In recent years, provincial or national skills competitions have gradually become popular. By participating in skills competitions, students apply the daily professional knowledge, so that the knowledge is no longer limited to textbooks, but personally experience in practice, understand the job responsibilities of their major, and

realize the integration of job tasks and the "post competition" of the competition project [5]. In the preparation competition, the instructor closely establishes a deep contact with the enterprise, updates the content of the theoretical course and its corresponding training skills, keeps pace with The Times, and realizes the integration of "post and class". In order to better complete the transfer of talents from schools to enterprises, realize precise education and seamless docking, students are encouraged to participate in relevant industry certification, realize the integration of "class" certificate, and enhance the competitiveness of students in employment.

Strengthen the construction of information resources in the course of "Construction Project Bidding and Contract Management". Under the background of "Internet +" era, the course teaching resources are more diversified. In addition to the construction of paper textbooks and PPT courseware, the bidding practice video library, textual research exercise library and engineering typical case library have also become the key construction objects. Relying on the online open course platform, online and offline mixed teaching is carried out, and the pre-class task release, students' independent learning, interaction between teachers and students, and real-time assessment of the whole process of the course are completed. Based on the data of the course platform, the process monitoring, personalized analysis of the learning situation, accurately diagnose deficiencies, so as to provide students with high-quality teaching resources and technical support, promote the innovation of higher vocational teachers, further improve the efficiency of classroom teaching, and promote the construction of subject resources. Design the teaching process of "construction project bidding and contract management" with integrating ideological and political elements as the main line and taking action orientation as the concept. Course education into the teaching, to advance "education" education, specialized course ideological education is to combine knowledge education and values education and ability education [6], the ideological and political education into the course teaching of each link, various aspects, exerts, "recessive education" function, cultivate students Wuxi, rigorous meticulous, excellence "spirit".

This paper to "construction engineering bidding and contract management" course as an example, with real project to implement the project, shows the students the project from "company form-qualification construction-planning-bidding-bidding-bid opening-bid evaluation-bid-contract signing" implementation process, and according to the work task, at the same time the important knowledge of the course into the project task. Students complete various tasks in role teams, and complete the bidding tasks in the participation process to improve their practical ability [7]. Under the inspiration of teachers, the learning mode has changed from the previous single "following learning" mode to the organic combination of the three learning modes of "self-learning, mutual learning and helping learning" to promote students' personalized deep learning.

Taking the quality of talent training as the basis, put forward the "situational, participatory and personalized" learning evaluation mode. For higher vocational students learning attitude is not active, learning method is not scientific, the phenomenon of learning ability is not strong, put forward to strengthen the communication between teachers and students, real-time feedback learning effect and learning feelings, encourage students to participate in the interactive requirements, and start in the teaching immersion bidding course learning mode (Figure 1), realize the real fusion [8].

That is under the guidance of teachers on the bidding, bidding, bid opening, bid evaluation process, really let the students themselves practical operation, enhance the students 'perceptual knowledge, in improve students' active participation in learning investment and learning interest, on the basis of implementation "everyone can learn", "everyone want to learn", "everyone happy to learn" curriculum reform goal.

In the traditional classroom, the method of "attendance + classroom performance + final examination" is generally used to evaluate the learning results. This evaluation method takes teachers as the main body of evaluation, takes shallow learning as the evaluation content, and takes homework and examination as the main evaluation method, which cannot objectively and comprehensively reflect the learning effect of students. After the reform, the "variable learning evaluation mode of situational, participatory and personalized" is adopted, and the evaluation is regarded as the link of classroom diagnosis and improvement, aiming to promote students' high-quality learning and all-round development through evaluation. The so-called power change means that different evaluation methods and standards are adopted according to the different learning objectives, learning content and practical scenarios. Students get timely feedback from teachers and peers in the practical operation of class, and play the role of incentive, diagnosis and improvement of evaluation [9].

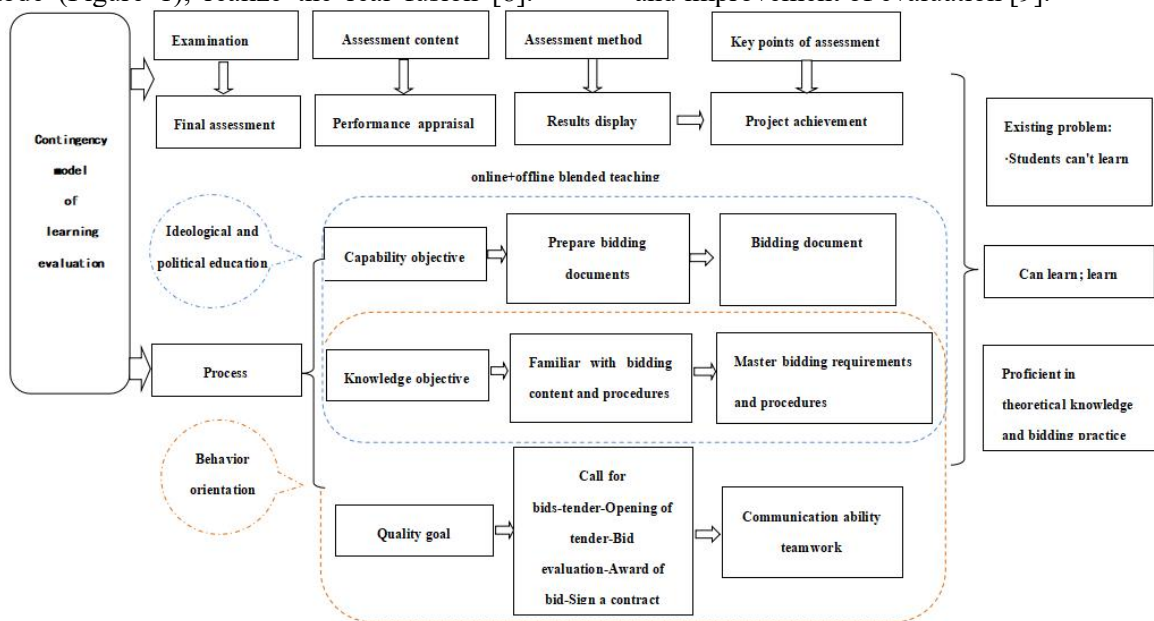


Figure 1. Immersive Bidding Course Learning Mode

#### 4.2 Analysis of the Practical Effect of the Curriculum Reform Program

Taking the course of "Construction Engineering Bidding and Contract Management" as an example, 103 students from all the classes participated in the evaluation, with an average score of 98.58 and a variance of 0.04. Through the curriculum reform, among, 98.8 percent of the students thought they prepared carefully, Lecture proficiency, Study the textbook thoroughly, Not scripted; 98.5 percent of the students think the teacher is not lecturing for himself, But to focus on the students' responses, Better at guiding students to study actively, To stimulate the students' interest, Pay attention to the development of students' personality; 98.9% of students considered substantial content, For appropriate examples, Can combine the teaching content with the work reality and the social reality, The students can understand it; The practical training class teacher demonstration is in place, Students start fully; 99% of students think the classroom approach is flexible, It is conducive to students' understanding, mastery and application of knowledge, The classroom atmosphere is lively, Can guide and inspire students to think positively. Classroom teaching is well organized, the time arrangement is reasonable, and the relaxation is proper. The relationship between teachers and students is harmonious, the learning atmosphere is strong, and the teaching effect is good.

There are two fundamental problems in higher vocational classroom: first, students can not learn. That is, learning attitude is not active, learning method is not scientific, learning ability is not strong. Second, the students did not learn. That is, students' classroom performance seems satisfactory, but the exam results are not satisfactory. At present, higher vocational students mainly study low-level learning, while high-level learning needs to be strengthened. Need to help students to learn, improve their learning quality.

"Learning" means to carry out the practice teaching mode of "teachers teach, students learn", "learning", and guide students to communicate with each other through group system, brainstorming and other forms, so as to encourage each student to participate in and cooperate in research, make the classroom

teaching show vitality; "learning", that is to use the course practice, encourage some students to participate in competitions related to construction engineering major, cultivate students' creative knowledge and innovative thinking, and constantly adapt to the development requirements of society and enterprise [10].

#### 5. Conclusion

The higher vocational education system is oriented to students' employment, based on the teaching mode of cultivating students' practice and innovation ability, and aimed at meeting the needs of employees' professional ability, analysis and innovation ability. Higher vocational colleges attach importance to students' self-learning ability, and expand and cultivate students' innovative awareness and practical ability as much as possible in the process of practical teaching. Taking the course of "Construction engineering bidding and Contract Management" as an example, this paper carries out the classroom education reform. For the first time, we put forward the "immersive bidding course teaching model", reform and innovate the classroom teaching model, help students learn, improve students' learning quality, and commit to students' "learn" and "learn". Fully excavates the potential of higher vocational students, effectively improves the quality and effect of classroom teaching in higher vocational colleges, improves the professional quality and competitiveness of students, and reflects the essence and characteristics of higher vocational education.

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