

The Teaching Model of "Frequent Position Rotation within One Project" Based on Whole Process Cost Management

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Abstract: With the rapid development of economy, science and technology, the construction industry has also developed in depth. At the same time, construction cost management has begun to develop into Whole Process Cost Management. However, in the traditional mode of training of Construction Cost personnel in higher vocational colleges, theoretical teaching is separated from practical application. In addition, the teaching of Whole Process Cost and Whole Process Cost Management cannot be implemented properly in the mode. Starting from "Frequent Position Rotation within One Project", this paper discusses the importance of its application into Whole Process Construction Cost Teaching and proposes that it be also introduced into personnel training mode to innovate teaching management mode.

1. Current Status of Personnel Training of Construction Cost

For a long time, there are been various problems in traditional personnel training of construction cost in higher vocational colleges, such as the separation between theoretical teaching and practical application, the mismatch between knowledge imparting and ability training, the self-learning of students, the lack of self-adaptability for the following posts and innovation ability. As a result, many fresh graduates still need training before going to their post. And they find it difficult to update their professional knowledge and skills in a limited time once there is a change or elevation of position, it is difficult to, thus failing to meet the requirements for the certain job. What's more, there is also feedback from a large number of enterprises saying that student do not have strong self-learning concept, application ability or development momentum, which seriously hinders the cultivation of innovative talents.

2. Establishment of "Frequent Position Rotation within One Project" as the Mode of Whole Process Cost Management Teaching

2.1 Introducing "Three Positions" into Teaching

In order to solve the above problems, this paper proposes the introduction of "Three Positions" into teaching model. The "Three Positions" refers to the three stages of "Learning, Assisting and Taking Post", during which students got progressive training of abilities with the alternation of work and learning guided by two tutors. "Learning" carries on in holidays of the first four semesters on the basis of students' professional knowledge reserve; "Assisting" carries on in the first half of the fifth semester, in which the study of professional knowledge is further strengthened; In the latter half of the fifth semester, "Assisting" carries on for two months; In the sixth semester, "Taking Post" carries on for six months. To achieve practice teaching of "Three Positions" can achieve the combination of work and study and better consolidate professional theoretical knowledge.

2.2 Constructing "Frequent Position Rotation within One Project"

In the progressive teaching incorporating "Three Positions", it is supposed to carry out Whole Process Construction management teaching involving Party A, Party B and consulting unit of one project to bring innovation. And it is supposed to reconstruct the integrated curriculum system of Whole Process Construction Management, in order to effectively realize the docking between

curriculum system and post ability training for this course.

Cost control of construction project is a complex work which concerns the whole process of construction. To reduce the cost of project development through effective cost control methods is called "Whole Process Cost Management". According to the implementation progress of the construction project, management content and the focus of management, construction project stage is divided into investment decision, design, bidding, implementation, completion acceptance and settlement. Specifically speaking, there is need of investment estimation in investment decision stage, budgetary estimate in the design stage, budget in bidding stage, settlement in implementation stage and final account in the completion and acceptance stage.

The new teaching mode presented in last paragraph is proposed based on Whole Process Cost Management concept of "estimation- budgetary estimate -budget-settlement-final account". This mode allows students to alternate among different management positions set up by different participants of one project during the different stages of construction project. In addition, informationized management are used upon students to realize multi-dimensional and fine management of students' practice, thus effectively meeting the demand of comprehensive and applied cost talents in the information age.

①Implementing Whole Process Cost Management teaching in the mode of "Frequent Position Rotation within One Project" to innovate the progressive teaching mode of "Three Positions" basing on the theory of systematic work process.

To achieve cost results, it is supposed to clarify the tasks in each stage of the whole process of cost management and set up links among different parts of Whole Process Cost Management from bottom to top. The tasks in investment decision stage include project proposal and feasibility study report which needs preliminary estimation and investment estimation; Tasks in design stage consist of preliminary design, technical design and construction design, which requires design budget estimation, budget estimates revision and design budget. Tasks in construction preparation stage include bidding and signing contract which identify tender quotation and contract price; Tasks in construction stage include the completion of construction project which involve intermediate settlement price and completion settlement price; Tasks in completion and acceptance stage include completion acceptance and handover which involve settlement account.

②Reconstructing the integrated curriculum system of Whole Process Construction Cost Management to realize the docking between curriculum system and post ability training for this course basing on Whole Process Cost Management teaching incorporating "Project-bases Position Rotation".

Firstly, a team of curriculum system development should be co-built by the colleges and enterprises. And it is supposed to conduct extensive research according to enterprises' requirements on talents to identify training objectives and directions. Also, an integrated teaching curriculum system of internship and learning based on one project should be built to combine education for diploma and education for professional qualification certificate, thus achieving the goal of Whole Process Cost Management teaching.

Secondly, it is supposed to meticulously design curriculum module according to the characteristics of higher vocational education and the requirements of enterprises after the teaching content get confirmed. There should be Introduction to Cost, Feasibility Study Engineering Economy and so on in decision stage, Engineering Material, Engineering Mechanics and Structure, Engineering Drawing, Architectural Engineering Measurement, Engineering Metrology, Construction Cost Quota and so on in design stage, Project Contracting and Contract Management, Engineering Construction, Project Management, Profession Development Course on Cloud Platform and so on in the stage of transaction and implementation, Computer-aided Calculating Software Operation, Project Settlement, Project Completion Account, Post-evaluation of Project, Post Skill Development Course and so on in the stage of completion and post-evaluation, and Whole Process Cost Management, Comprehensive Training on Construction and other courses in whole process supervision stage.

Thirdly, with Whole Process Cost Management as the main line, an integrated curriculum system

should be reconstructed according to the identified content of post competence, so as to form the association among college, enterprise and industry, education for diploma and professional qualification certificate and the teaching mode involving "Three Positions (Learning, Assisting and Taking post)" Elevation combining practice and theory. Then, supported by the integrated curriculum system, it is supposed to form close association with enterprises, co-build practical training bases and arrange one tutor from each party, so as to truly achieve deep integration of practice and theory. All these measures are aimed at cultivating students' general professional ability, which includes professional ethics and innovation ability, self-learning ability, computer and English application ability, sociability and good physical and psychological quality. It also includes students' basic professional ability, which consists of building materials identification and engineering drawing ability, engineering metrology and cost evaluation, bidding and tendering ability, engineering technical data management ability and stage cost management ability. Apart from these, it also involves professional post technical ability, such as the ability of project post-evaluation, engineering metrology and valuation documents compilation ability, engineering cost software operation, the ability of project settlement and completion settlement compilation and comprehensive cost management capability.

3. The Premises

The establishment of "Frequent Position Rotation within One Project" as the mode of Whole Process Cost Management teaching is based on the following preconditions:

① College-enterprise cooperation with several units involved. The college in charge of implementation needs to sign long-term college-enterprise cooperation agreements with the owners, construction units and consulting units.

② Jointly efforts of college and enterprise to realize the transformation from knowledge to ability with cultural integration as the first step.

③ College-enterprise cooperation needs to be based on certain project.

④ A tracking system, grouping and rotating are employed to effectively organize students to enter different units and take part in different project stages, thus making them fully involved in every stage of Whole Process Cost Management and complete the corresponding tasks.

Suppose that a new campus of our college (Party A) was in construction and our college established cooperative relations with Chongqing Construction Engineering Group Corporation Limited (Party B) and Sichuan Huaxin Engineering Cost Consulting Office (Consulting Unit). According to the concept of Whole Process Cost Management, the progressive ability training at different stages should be arranged to achieve "estimate, budget estimate, budget, settlement and final accounts" in Whole Process Construction Cost management. And it is supposed to arrange "Learning" (the first four semesters + holidays) at the stage of investment decision and design, "Assisting" (5th semesters + holiday) at the stage of construction preparation and "Taking post" (6th semester) at the stage of construction implementation and completion acceptance. In this process, students are grouped according to the cost management undertaken by construction units in different stage and appointed to Owner (new campus construction command department), Construction Unit (Chongqing Construction Engineering Group Corporation Limited) and Consultant Unit (Sichuan Huaxin Engineering Cost Consulting Office). Then, the students would get cost management ability training. Each post team is equipped with fixed responsible tutors from college and professional tutors from enterprise. The implementation of the "double tutors" system would be implemented in post rotation among participant units. This method adopts "semester + vacation" work-study alternation and double tutor guidance. At the stage of "Learning" and "Assisting", students would complete knowledge learning and skills training while working at cost management positions in different types of units involved in the same project. At the stage of "Taking post", they would select units according to the needs of enterprises and personality characteristics and complete corporate cultural identity and internship. Then, the training of progressive ability required in "Three Positions" would be achieved to reach the goal of cost management comprehensive

application personnel training.

4. Conclusion

Based on Whole Process Construction Cost Management Concept of "estimate, budget estimate, budget, settlement and final accounts", "alternation of work and study" and "double tutors" system would be implemented in progressive ability training for "Three Positions". What's more, students should have the opportunity to take on cost management positions set up by different participants of one project during the different stages of construction project. In addition, informationized management are supposed to be utilized to realize multi-dimensional and fine management of students and thus cultivate their whole process cost management ability. In this way, the teaching management model will be effectively improved to achieve progressive ability training required in "Three Positions" and make students fully qualified for position.

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