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Discussion and Practice of Non-Transitional Employment Training for Undergraduate Students Majoring in Applied Engineering Cost

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ABSTRACT. *Based on the investigation of the current situation of engineering cost professionals, the article found that the employment of cost majors cannot be directly employed but requires a transitional period (i.e. the probation period or internship period). Because of this characteristic, it is difficult for employers to accept the direct employment of students in this major. On the basis of investigation and research, this paper proposes to reform the theoretical teaching and practical teaching to achieve the training goal of graduates majoring in engineering cost without transitional employment.*

KEYWORDS: *Project cost, No transition, Probation period, Employment, Objectives, Higher education*

1. Introduction

The control of construction project cost runs through the whole process of construction. Only by controlling the cost within a reasonable range can the investment control objectives be realized and good investment returns be achieved. Therefore, in the prophase management stage, construction stage and completion settlement stage of the project, the cost can be effectively controlled, and the project investment can be reasonably and effectively controlled, so that the limited project funds can give full play to their maximum economic efficiency and obtain better investment returns. The scope of employment for project cost personnel is relatively wide, but now employers need experienced talents. Many college students lack employment experience, so there is a transition period from graduation to formal independent employment, which to a large extent hinders the employment of college students. How to solve this problem and eliminate the transition period of employment and employment is the core content of this paper, and it is also the focus of the staff in the industry. This paper makes a systematic discussion on this issue for reference.

2. Investigation on the Present Situation of Engineering Cost Professionals

As the specialty of engineering cost is indispensable in engineering construction, it runs through the whole process of engineering construction. It can be said that as long as there is the word “engineering”, there is no shortage of talents in terms of cost, so the employment direction of engineering cost specialty is relatively broad. At present, there are more than 430 cost consulting enterprises in Guangxi, more than 3220 construction companies registered in Guangxi, together with other supervision companies and foreign enterprises, there will be more than 4,000 units suitable for the employment of engineering cost students, so there are many jobs for engineering cost professionals.

The major of engineering cost belongs to management science, with a total of 9 majors in management science and engineering. The major of engineering cost ranks 4th in the major of management science and engineering, 20th in the major of management science, and the average monthly salary is 4883 yuan. There are about 1600 graduates of engineering cost majors from Grade 11 to grade 16 in our university, about 500 people are engaged in engineering cost or related majors, and 31.6% are engaged in engineering cost or related majors.

According to the analysis of the above survey results, there is still a lot of room for engineering cost students to engage in engineering cost or related professional personnel, and according to the employment survey of graduates in recent years, the number of personnel engaged in engineering cost major is relatively small at the beginning, and most of them will not engage in the cost industry until they have acquired certain experience after several years of work. The reason is that the graduates of engineering cost lack the knowledge of experience required by cost work, which results in the low level of the graduates who are engaged in engineering cost or related majors.

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3. Social Requirements for the Knowledge Structure of Applied Engineering Cost Undergraduate

The goal of the training of engineering cost specialty is to train high-level technical application professionals who master the basic theories and skills of engineering valuation and control. Because for some management more formal units, cost personnel should do:

(1) Master the basic knowledge of engineering drawing, building structure and engineering structure;

(2) Understand the civil engineering construction procedures, procedures, construction organization design and general construction methods;

(3) Master the main varieties and specifications of building materials, components, equipment and construction machinery, and understand their technical performance and uses;

(4) Familiar with material budget price, composition of machine shift cost and principle and method of preparation;

(5) Understand the basic theory of economics, the basic principles and characteristics of investment economy and engineering economy, the knowledge and analysis methods of financial accounting, statistics, finance, tax, risk and other economic activities, and the basic principles and methods of construction project management;

(6) Understand the relevant laws and regulations system, standards, regulations and policies of engineering construction, and be familiar with the basic knowledge and methods of contract management and bidding management;

(7) Familiar with the basic theory, contents and tasks of project cost management, master the general rules and characteristics of the formation and operation of project cost, the methods of determination, control and management of project cost, as well as the compilation methods of base price, quotation and contract price, and master the principles and methods of compilation of various valuation basis for project cost.

(8) Master the specific application of engineering cost knowledge in different links of engineering construction, such as investment estimation, budget estimation, budget, settlement and other methods, characteristics and differences;

(9) Understand the principle of computer operation, master the basic knowledge and skills of computer application;

(10) Ability to obtain information, experience and materials;

(11) Ability of communication and team assistance.

Therefore, in order for the trained professionals to meet the above requirements, students should be made aware of what they want to do in the future, what tasks they want to complete, and what knowledge they need to master in order to complete these tasks in the first semester. Students should have a clear idea of their major and understand the main points and requirements of their major.

4. The Setting of Cost Specialty in Colleges and Universities and Its General Law of Training

The general ways for students majoring in engineering cost to accept their professional knowledge are as follows: through systematic classroom theoretical teaching; through practical application of engineering; finding problems and carrying out in-depth research to supplement and improve the knowledge system.

At present, the major courses offered by the cost specialty in ordinary universities include: engineering drawing and CAD, building architecture, building materials, engineering mechanics, building construction technology, project management, engineering economics, measurement and valuation of building engineering, construction technology of installation engineering, management of engineering cost, management of construction contract, measurement and valuation of installation engineering, construction equipment engineering, etc.

At present, the “3.5+0.5” talent training mode is mainly adopted for engineering cost majors in colleges and universities in Guangxi region, i.e. colleges and universities divide the four-year schooling system into two phases: “3.5” is the first phase, i.e. the first semester of the first to third academic years and the first semester of the fourth academic year. At this stage, students carry out theoretical study of professional knowledge in the school, with classroom teaching as the main part and part of practical training education as the auxiliary part. “0.5” is the second stage, that is, the second semester of the fourth academic year. Students in this stage enter the

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actual work post as interns, but the time for entering the work post is relatively short. This training mode cannot meet the knowledge and skills requirements of the actual work post.

Therefore, the training plan for cost professionals should focus on the ability and quality to be trained and the personnel training objectives to carry out the construction of engineering cost professionals and set up the training plan, with the construction of high-level characteristic education system as the main line, to promote the all-round development of students' knowledge, ability and quality, and to improve the quality of personnel training.

5. Problems Faced by College Students Majoring in Cost in Employment

According to my investigation, there are some problems in the employment of engineering cost major students in commonly used universities as follows:

(1) Most of the students want to stay in the big cities. They choose to give up directly to some remote cities or counties and are unwilling to get jobs. There are also some students who are not state-owned enterprises and are unable to recognize the development trend of modern society, resulting in their own employment difficulties.

(2) Some college students do not have enough solid theoretical knowledge and practical working ability, but they demand good treatment and salary from their work units. They ignore this economic society, and few enterprises have been able to pay for interns to build their practical experience.

(3) 很 Many students are new to society and have no one to teach them. They do not know how to do it. A considerable number of students have insufficient basic theoretical ability at school and do not want to start work in curriculum design and comprehensive graduation design. As a result, these students' practical operation ability is poor when they first enter the society, resulting in low efficiency of the Department.

All kinds of problems are piling up slowly, which leads people to think that it is difficult to find jobs for the cost major. These negative thoughts spread unconsciously to the next generation of students, causing most students to have negative thoughts, muddle along, and do not want to make progress, thus affecting the learning and employment of students from generation to generation.

6. Reform Ideas for Training Students Majoring in Applied Engineering Cost

With the expansion of student enrollment, the number of students has doubled, and the employment environment for students is becoming more and more difficult. In order to enable students to adapt to the increasing development of society, it is necessary to train graduates who do not have transitional jobs. It is the first task for our cost major to train practical graduates who have priority in practical ability and are accompanied by corresponding theories.

Therefore, I plan to adopt the following measures to re-imagine the cultivation of students.

(1) Reform the personnel training mode. The traditional “3.5+0.5” talent training mode is reformed according to the “3+1” talent training mode, with the arrangement of job practice interspersed with holidays. That is to say, the first-year vacation is to arrange post-recognition practice, the second-year vacation is to arrange post-recognition practice, the third-year vacation is to arrange post-adaptation practice, and the whole academic year of the fourth year is to arrange post-adaptation practice. The “pre-employment, order-type” talent training mode with progressive ability of “post-recognition, post-adaptation, post-adaptation” is to be constructed, so that students can get job training in school, thus meeting the requirements of employment without transition period.

(2) Perfect the traditional teaching methods. As a teacher, we need to optimize the teaching content of experimental courses and improve the proportion of comprehensive, designing, innovative and open experiments. The teaching methods should be advanced, novel and rich in teaching contents. For learning difficulties and learning characteristics, various teaching methods should be flexibly applied, such as classroom teaching, case teaching, on-site teaching, simulation teaching, multimedia teaching, network teaching, etc., to embody the teaching concept of “students as the main body, teachers as the leading, and teaching contents as the carrier”, so as to effectively mobilize students' learning enthusiasm.This has laid a solid foundation for cultivating students' innovative and practical abilities and improving teaching quality. Practice has proved that the use of various teaching methods has achieved good teaching results.

(3) Implement engineering model teaching. It is suggested that a construction project model and construction drawings of the model be established in the laboratory. For the teaching of students, the model is taken as the

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teaching object, so that students can more intuitively understand the whole process of the whole project construction. The training model can also be a specific building on campus.

(4) Post simulation teaching. With the actual engineering task, from learning the basic knowledge course, we start to contact the engineering drawings, improve the ability of drawing recognition, and let the students face the reality to complete the whole process cost of a project. It is suggested that the teaching method of "systematization of working process" should be adopted, and the curriculum should be arranged in the classroom with special features of engineering cost, and students should be told about the key contents of basic knowledge of measurement and pricing. The rest of the content requires students to learn autonomously while doing according to the actual case drawings. The application of this course knowledge in case engineering can better realize the combination of theory and practice and cultivate students' practical ability.

(5) Complementary theory of reverse thinking. That is to say, aiming at the engineering model, the requirements of "cost engineering work task" are directly put forward to the students, so that the students can accept the task in a state that they do not understand, and then think about and design the work route and method. In this process, I will inevitably find that I still have a lot of knowledge and even know nothing about it. Therefore, students discover the lack of knowledge by themselves and supplement it by themselves. In this way, when the task is completed, the systematic theoretical knowledge will naturally be complete. This is the basic principle of the reverse thinking complementation theory that I put forward.

(6) Reform the teaching content and teaching materials

① Reform of teaching content

In view of the heavy and difficult points in the teaching content, the practical teaching should be highlighted. In the teaching process, the theoretical teaching content and the practical teaching content should be gradually improved to make the teaching content closer to the market demand. The main performance is that the government teaching content is gradually changing from the original quota pricing mode to the list pricing mode, and the content of software operation is added. In the teaching process of relevant courses, three sets of case drawings are used for each individual ability training project, which gradually progresses from simple to complex, and finally forms a completed actual case project cost document, aiming at training students' basic skills in budget operation of installation projects.

② Teaching material reform

At present, there are many teaching materials in the society, but they are all fixed by other provinces. Our college has revised and perfected some related teaching materials according to its own actual situation, and gradually formed a diversified teaching material system. Its contents include theoretical teaching materials, practical teaching materials, national standards for measurement and pricing, consumption quota of various projects in Guangxi Zhuang Autonomous Region, engineering cases, etc.

The theoretical teaching materials are selected from the textbook "Installation Engineering Budget" published by Harbin University of Technology Press. The teaching materials were compiled and published only after the team teachers of this course accumulated many years of teaching experience and invited experts from industrial enterprises to review and approve the teaching materials repeatedly. The contents of the teaching materials are in line with the current pricing regulations of Guangxi Zhuang Autonomous Region, and conform to the characteristics of strong regional pricing of installation projects. The training materials are case drawings of the engineering training center. The training center has more than a dozen sets of case drawings, ranging from easy to difficult, in line with the characteristics of current students at all levels and the requirements of receiving ability. It has realized the combination of training students' theory and practice, and finally reached the teaching goal of training students without transition period with social positions.

(7) Improve the School-enterprise Cooperation Training Base

We will establish school-enterprise cooperation with enterprises that have all-round contact with cost consulting enterprises and other enterprises. At the same time, during holidays, students will be appropriately provided with a series of on-the-job skills training in cooperative enterprises. To build a school-enterprise training platform with enterprises in the school, so that students can go to the training platform in their spare time for simulated on-the-job training. In the on-campus training platform, students can be taught and encouraged to participate. Generally, experienced senior students in the first year can take their junior students and junior students for simple knowledge training. Then, teachers can introduce projects from enterprises and lead students to complete corresponding actual case projects. This will not only enable students to get exercise, but also reduce the work pressure of teachers. Through a series of initial on-the-job training, students can get initial on-the-job skills training at school. After the initial skills training, students are arranged to go to the

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cooperative company in batches. According to the company's job requirements, students are arranged to work as apprentices in the company for job coordination and job replacement. Learn and understand the skills of real jobs more deeply, so as to achieve training without transition period, realize employment without transition period, and improve employment rate of undergraduate students of applied engineering cost.

(8) Improve the Construction of Learning Resources

Use the hyperstar network platform to build learning resources, as follows:

① Basic curriculum resources

The basic resources of the course can reflect the teaching thoughts, teaching contents, teaching methods and core resources of the teaching process. The overall introduction of the course is made from the aspects of course outline, course characteristics, teaching methods and means, construction of three-dimensional teaching materials, description of learning fields and course standards, teaching calendar, learning guidance, assessment and evaluation, etc.

② Capacity enhancement resources

On the basis of situational learning and special training in various specialties, in order to further improve students' practical operation ability, classic safety and installation of calculation software learning video resources are provided. Among them, the classic cases are the drawings and bill pricing documents of several actual projects, with various types of engineering structures and representativeness. Installation of Calculation Software Learning Video Resources Select the current mainstream software in the cost market-Guang I Da to install calculation software to improve students' professional ability.

③ Expand resources

Expanding resources refers to the more mature, diversified and interactive auxiliary resources that reflect the characteristics of the curriculum, are applied to all teaching and learning links, support the teaching and learning process of the curriculum. It has developed some teaching resources such as industry specifications, standard atlas, installation project construction video and installation of small tools for calculation, etc. as resources sharing for students to download and learn online.

I believe that through the above reforms, students of application-oriented engineering cost undergraduate can acquire the job skills and knowledge required by the job and achieve the goal of employment without transition.

7. Conclusion

For the teaching reform of cost major, Ren Zhong still has a long way to go. How to make students better adapt to the needs of society still needs our continuous efforts. The reform of professional teaching can be realized, which needs the attention and support of the college leaders.

It is suggested to set up study groups. The formation of study groups should be based on the learning results and personality characteristics. Group study should be task-driven, competitive and display, so as to mobilize the enthusiasm of each student and promote the improvement of each student's actual working ability. It is suggested that the college organize various skills competitions and take teams as the way to participate in the competitions so as to promote learning through competitions. Skills competition should not be a single major, it is best to involve various majors, so that students have a certain understanding of each major and the possibility of operation.

In a word, the teaching reform of engineering cost specialty needs continuous exploration, practice and improvement, so that our students can take up their posts as soon as they leave school and realize employment without transition period.

【Project Name]Thesis of specialty construction project of Nanning College, Project No. [2017XJZDZY13]

【Project Name]Nanning College demonstration course “Installation Engineering Measurement and Pricing” construction project paper, Project No. [2019BKSFKC18]

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References

[1] Guangxi Education · C edition, 2013, issue 11; problems and Countermeasures of "2 + 1" talent training mode of engineering cost major in higher vocational colleges; Author: Xu Binbin
[2] China Electric Power Education: Part I, 2012, issue 4, exploration and implementation of practical ability training for Application-oriented Undergraduate Majors: taking engineering cost as an example, author: Guo Shurong, Ren Xiaoyu
[3] Analysis on the employment situation of engineering cost major by professional friend.com
[4] Application for 2017 provincial excellent resource sharing course of Gansu Construction Vocational and technical college Author: Yang Wenjuan