

The Practice of College-enterprise Cooperated Training Application-oriented Talents in Adult Higher Education

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Abstract—Adult higher education is to cultivate the application-oriented talents with innovative awareness. To realize this aim, we must rely on enterprise to carry on college-enterprise co-education. This paper indicates the practice of college-enterprise cooperated training enterprise-needed talents in Changchun Institute of Technology. It introduces the main elements of college-enterprise cooperation, analyzes the significance of running college-enterprise cooperation, and summarizes some experience in college-enterprise cooperation in Changchun Institute of Technology, which is instructive to cultivate the application-oriented talents in adult higher education.

Index Terms—application-oriented talents, college-enterprise cooperation, practice

I. INTRODUCTION

Since 1999, the enrollment in higher education has continued. The resources and quality of education has widespread concerned in society. Higher education has changed from superior education in the past to the education of improving national comprehensive quality. In addition, as China's accession to WTO and the development of market economy, the requirements to talents' overall qualities are improving. The focus of higher education among colleges and even the whole society is on how to cultivate the students into innovative talents to meet the market demand as soon as possible. Therefore, how to improve college-enterprise cooperation among colleges in order to ensure the quality of talents training and social needs has become a prior problem in universities and enterprises. How to cultivate the application-oriented talents with innovation and practical capability is the basic task left to the 21st century higher education. College-enterprise cooperation combines the traditional teaching practice with productive training, which makes the college and enterprise co-responsible for cultivating talents, stimulates students to integrate theory with practice. This can enhance students' awareness of innovation, cultivate their spirit of loving dedication, and shorten the adapted period of employment.

Changchun Institute of Technology is a newly founded university of undergraduate course, which is composed by three full-time colleges. Since the establishment, the institute has always put the transition from college education to undergraduate education as a working priority. According to the development of economy and

market internationalization, it closely holds the basic task of cultivating application-oriented talents, and has raised a new direction of school running, and established an object of talents training. Application-oriented institution is different from the ordinary undergraduate university, and is not the simple extension to college. It is a new model of higher education. The cultivation of application-oriented talents should obey the talents training law; embody the emphasis on cultivating unique and advanced application-oriented talents with practical capability and innovative capability. So we should strengthen the basic theory teaching, highlight the integration of theory teaching and practical application, and emphasize the cultivation and practice of students' acting and application abilities. To realize this aim, depending on industry to carry on college-enterprise cooperation is an effective way to train high level application-oriented talents.

College of Continuing Education in Changchun Institute of Technology was founded in 2000. Since the foundation, it has hosted the adult higher correspondence (full-time) undergraduate courses and college courses. The teaching forms are relatively simple. With the expanding of national full-time ordinary undergraduate universities and private secondary colleges, the enrollment of adult higher education by correspondence course is decreasing over the years. Each province in China is facing the problem of dwindled enrollment. In response to this situation, we adhere the scientific concept of development to guide the overall continuing education, actively adjust the educational ideas, and change the concept. We take good use the advantages of faculties and experimental conditions; actively explore the new way to continuing education through college-enterprise cooperation and work-study cooperation with the aim to broaden the teaching condition, enhance the teaching vitality, and create the mutual benefits between colleges and enterprises.

II. THE SIGNIFICANCE OF COLLEGE-ENTERPRISE COOPERATION

The essence to strengthen college-enterprise cooperation is the interrelations and exchanges between universities and enterprises on technology, personnel resources, information and so on in order to take full use of their superior resources respectively, to facilitate the

mutual promotion and mutual development, and to expand innovative training approach.

A. It is helpful to the construction of college majors in higher education.

Major development in higher teaching has a very important position, and is the key to the successful reform of higher education. Only with the identity and participation of enterprise, the process of talent training can be ensured to reach the target of being always focus on the demand to application-oriented talents by society. College-enterprise cooperation can introduce the latest scientific and technological achievements to specialty teaching materials, and timely add the new knowledge, new technologies, new equipment, new theories and new applications into the teaching contents.

B. It is helpful to the formation of high level training base.

The training base with complete system and good running condition is one of the foundations and guarantees to cultivate application-oriented talents. Through college-enterprise cooperation colleges look the enterprises as their training bases, and put some advanced equipment in enterprises into their training bases by the way of borrowing and buying. This is to make their own training center with the characters of distinctive features, on-site adaptation, full functions and moderate superior, and make the students get high level training. Most of them are suitable to job directly after graduation, and the period of employment adaptation has been shortened.

C. It is helpful to the cultivation to innovative talents.

College-enterprise cooperation makes the production site in enterprise be fully reflected in teaching, which is conducive to carrying on practical teaching. It can also stimulate students to identify problems, analyze problems in the specific technical practice, and cultivate their capabilities of innovation and how to solve the practical problems by integrated knowledge.

D. It is helpful to cultivate and improve students' comprehensive quality, especially the non-technical quality.

The combination of colleges and enterprises will increase students' opportunities to expose themselves to the society and the production. The students in the enterprise can experience personally the strong competition in the market economy and the hardship of enterprise's survival and development, which can enhance students' sense of competition, mental capacity, strong sense of social responsibility and teamwork, pioneering spirit.

E. It is helpful to the storage of talents in colleges and enterprises.

On the one hand, colleges can use several practice stages to conclude students' aiming problems, and then hire some related staffs in the enterprises to open specific lectures to broaden students' scopes of knowledge and vision, to strong their sense of times and mission. On the other hand, colleges can use the resources of faculty members and educational facilities to train the technicians

among different professions for the enterprises. College can provide scientific information and technology resources, which is the intellectual and personnel support in joining the enterprise to develop high-tech industries and upgrade the level of industry.

III. THE TYPES OF COLLEGE-ENTERPRISE COOPERATION

According to China's actual conditions, the types of college-enterprise cooperation can be divided into two kinds of compact and loose.

A. *The compact type of cooperation*

The compact type of cooperation is to use the property as a link to combine college and enterprise as a unit whole. The specific modes can be divided as follows:

enterprise-running by college

The leaders in some prospective colleges can direct investment, by using the existing preferential policies in China to establish training base by themselves. Through the operation and management, they will know the types of talents needed in the whole industry, and then adjust teaching plans and training programs as soon as possible.

college-running by enterprise

College-running by enterprise in China has a wealth of experience in education. Although under the control of planned economy, from the respects of enterprise's development and the experience borrowed from some developed countries, there are still the foundations of survival and development in this type of running formation. However, with China's reform on education system and the landslide in state-owned enterprises, college-running by enterprises has reached a low point, which should be widely concerned by public.

College-enterprise cooperative shares

According to the contract law, the colleges and enterprises can cooperate together and establish a joint-stock corporation, which can also become a base for talents training. The approach is to transform the existing enterprise or re-establish the corporation. Colleges can join the corporation by different ways, such as the input of funds, space, equipment, intellectual property and other intangible assets.

The compact type of cooperation is conducive to the implementation of teaching programs. It is an effective education with the combination of industry, academia and research.

B. *The loose type of cooperation*

The loose type of cooperation is to obey the principle of mutual benefit between colleges and enterprises, and to set up a base for the enterprises' staff education and training fixed by the contract. This is a main form of college-enterprise cooperation among all kinds of adult higher education. Therefore, to fully play the role of this cooperation, the key point is to identify the collaboration between colleges and enterprises, and adhere the principle of good faith cooperation. We should not only provide the low-skilled technicians to the enterprises, but think about how to develop the application-oriented technical talents to join into main battlefield of enterprise

development. In this way, the enterprises will spend more resources to participate in and achieve the real cooperation between colleges and enterprises in program of personnel training. The cultivation of application-oriented talents by college-enterprise cooperation has a wealth of experience and successful model in some developed countries, and is not a new subject in China. With the era of higher education publication, to establish a mode of college-enterprise cooperated training application-oriented talents in respondent to China's situation is an inescapable responsibility to higher education. Therefore, we should not only actively explore the theory, but also strengthen the practice of training application-oriented talents, which is an important aspect of deepening the reform of higher education in China.

IV. THE PRACTICE OF COLLEGE-ENTERPRISE COOPERATION

In August 2005, with the help of Faculty of Prospecting & Survey Engineering and Faculty of Energy and Power Engineering in Changchun Institute of Technology, we cooperated with Jilin Gold Association, Bureau of Geology in Sichuan Province and some enterprises such as Hongli Hydropower Investment and Development Co., Ltd. in Jilin Huadian. According the need of these enterprises, we open some professional full-time training courses for the enterprises to train the technical talents needed such as mine engineering, geological prospecting, hydroelectric power equipment and so on. In order to facilitate student with a better learning and living condition, the college purchased some multimedia teaching equipment, installed in multimedia classrooms, improved accommodation environment. In the management, each class was appointed with a full time tutor, who is responsible for students' learning and daily lives. Through the effort, the management in three classes is excellent, the cooperation is happy on both sides. In the teaching process, we focus on doing the following aspects:

A. The training plan should be designed on mutual cooperation.

College of Continuing Education in Changchun Institute of Technology has changed the mode used in the past adult correspondence course education, and actively negotiate with the leaders and technicians in enterprises. According to the enterprise's need, we make a scientific and rational training plan in line with the actual production, and implement the training of order type. In the design curriculum and teaching plan, we highlight the usefulness. On the basis of ensuring the integrity of curriculum system, we stay closely to the actual production and work hard on how to develop students' practical capability. On the training program, the partners should respect each other, immediately consult and put forward opinions when meeting problems in the plan. For example, in the process of teaching to Class of Geological prospecting 0531, we found that some of the curriculums were not reasonable, then after the negotiation with Bureau of Geology in Sichuan Province

we adjusted two courses timely to make the curriculums more respondent to enterprise' requirements.

B. The organizational documents should be perfected.

In order to regulate teaching behavior, according to the characteristics of three full-time classes and related management documents on correspondence teaching, we developed and further improved our organizational documents on full-time classes. With the cooperation of related faculties, we completed the appointment procedures with hired teachers, established the teachers' management file, and prepared semester teaching process table, semester course plane and the curriculum table for each class as a guarantee to the smooth progress of teaching work.

C. The teaching work should be well organized.

As the teachers selected are with rich teaching experience, the process of teaching will focus more on individualized instruction. According to the fact that most of the students are from the enterprises and worked for many years with a weak theoretical knowledge, the teachers have changes the teaching mode to full-time undergraduate students, and revised the teaching plan, adjusted the teaching method. With the help of multimedia courseware, they strive to make each period be intuitive, vivid, and easy to understand. As teachers' careful preparation, careful teaching, most students can adapt to the learning environment quickly. In addition to the serious teaching work, they always give after-class counseling to students. The relationship between teachers and students is harmonious. On the teaching forum with students, the universal reflections to teachers are high level teaching and serious work.

D. The final examination should be held strictly.

Final examination is a main device to test students' learning outcomes. So the rules should be serious to create a fair environment for each candidate. We arrange the seat in accordance with Student ID. The students in each class are divided into two separate examination room according to their odd and even numbers. Each student is apart to the other. The formation of examination is closed-book. Two teachers are appointed to one examination room, and with special teachers as moving inspectors. Any candidates cheating in the exam should be notified of violating the disciplines.

E. The academic symposium should be opened regularly.

Three professors are invited to give special academic lectures respectively to the students in full-time classes. The lectures are full of rich contents and large information with the highlights of professional features, and widely welcomed and praised by students.

F. The counseling before examination should be given to the students who are going to participate the college entrance examination in adult.

Before the students in class of Mining Engineering 0531 coming to our college, with the negotiation with Jilin Gold Association, we agreed that all the students can apply for correspondent college courses study in

Changchun Institute of Technology. They were allowed to join the national adult college entrance examination in October 2005. To satisfied students' needs, we hired the teachers to give consultation before exam. Without living up the expectations from the enterprise and college, all pass the exam. Now they have become the membership of correspondent students of 2005.

G. The teaching forums should be held regularly.

In order to grasp and understand the situation on teaching and students learning, we will hold the forum with some students and student leaders once a semester. The aim of the forum is to listen to the evaluation and reflection related to teachers' teaching work, and to understand some views and requirements by students on the study. All the problems reflected by the students are considered timely by the faculty, then with actively and properly solution. The unsolved problems should be transferred to the authority in college promptly to give the treatment. We hope that through all the work we have done we can better meet the enterprise's needs for application-oriented talents. Both of the colleges and

enterprises have their own advantages. As long as the co-work and complementary by both parties, the common development and mutual benefits between colleges and enterprises can be achieved.

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