Practical Exploration on the Cultivation of College Enterprise Cooperative Engineering Talents

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Abstract. The combination of industry and research is an important measure in the new norm of Chinese education system, which aims at cultivating high-level talents, playing an important role of government department, institutions of higher learning and industries in the cultivation of talents. University enterprise cooperation is an effective way to develop the integration of production and research. In view of the outstanding achievements obtained by the University of Jilin finance and economics in the process of enterprise cooperation, the rational analysis of the cooperation process will provide the theoretical basis for the future development of financial and economics cooperation.

Introduction

With the rapid development of economy and science and technology, all countries are studying the training mechanism of engineering talents. The United States put forward a project of engineering education "back to work" and the European universities carry out school enterprise cooperation, student exchanges and so on [1]. Japan, Korea, India and other countries focus on engineering education reform in order to produce industry-academy cooperation and cultivate innovative engineering and technical talents [2].

In 2013, the number of engineering students in ordinary undergraduate and college students in China reached 4.85 million. The present problem is the low quality of university engineering education and engineering talents’ cultivation [3]. Engineering training method has been the concern of the educational circles in China. Computer science and technology as the only engineering professional in the Jilin finance and economics university undertakes the important task of exploring engineering education mode. Jilin Finance and Economics University build a number of local and foreign school enterprise cooperation base for talents. Because of the remarkable achievements in the process of cooperation we made a survey on the cultivation of university enterprise cooperation projects in Jilin University of Finance and Economics

Current situation of university enterprise cooperation in Jilin University of finance and Economics

Jilin University of finance and economics has established cooperation relationship with the Asiainfo, Chinese Life Insurance and other large enterprises. It develops on the road of school enterprise cooperation with 55% of the increasing high-speed development trend every year. On the road of cooperation between enterprises and enterprises, there is an output of 895 people in school enterprise cooperation in 2013, 1375 people at the end of 2014, a total of 4273 people in the cooperative enterprise internship or working in 2015 as of the end of November.
Institution of Management Sciences and information engineering school established enterprise cooperation basement with Asiainfo. Asiainfo is the first Chinese high-tech enterprises successfully listed on the NASDAQ in American.

The headquarters is established in Beijing and there are research center in Beijing, Chengdu, Guangzhou, Shanghai, Hangzhou, Nanjing, Fuzhou, Shenyang and other places. As shown in Table 1, Asiainfo hired 8, 15 and 27 interns in 2013, 2014 and 2015 interns. As shown in Figure 1, Figure 2 show that the average salary of university enterprise cooperation talents in the past three years is higher than the average salary of the local college graduates and non-school enterprise cooperation projects, and the difference is obviously amplified year by year. School enterprise cooperation has achieved remarkable results.

Table 1. The number and salary of school enterprise cooperation in Shanghai Asiainfo.

<table>
<thead>
<tr>
<th>The year</th>
<th>Salary level</th>
<th>Number of students</th>
</tr>
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<tbody>
<tr>
<td>2013</td>
<td>4200</td>
<td>8</td>
</tr>
<tr>
<td>2014</td>
<td>5030</td>
<td>15</td>
</tr>
<tr>
<td>2015</td>
<td>6500</td>
<td>27</td>
</tr>
</tbody>
</table>

Figure 1. Shanghai local average salary and school enterprise cooperation personnel salary.

Figure 2. School enterprise cooperation and non-school enterprise cooperation of fresh graduates’ salary.
Influence factors of school-enterprise cooperation in engineering of Jilin University of Finance and Economics

Overseas successful experience of cooperation between schools and enterprises is that the Government attaches great importance to strong lead. Government has a specific coordination and management organization for cooperation between schools and enterprises [4]. For the formation of school-enterprise cooperation mechanism, which will be provided system of protection [5]. Government enterprises participating in the cooperation between schools and enterprises can implement tax breaks or incentives such as financial support [6]. In National Education Reform and development plan (2010-2020), the school enterprise cooperation has also made the provision: “Establishment and improvement the government led, industry guidance, enterprise participation in school running mechanism to promote school enterprise cooperation [7].

The Lack of institutional guarantee

Relevant laws, policies and regulations in China are generally vague but poor performance. The State Council on promoting the reform and development of education, "the decision to vigorously develop vocational education, such as the important significance of vocational education, guiding principle, etc.

But there are no specific instructions on how to make the system, what preferential policies to develop, how to define the responsibilities of both sides of the enterprise and school [8]. The existing provisions are generally more lines, there is a general policy framework but the lack of practical, restrictive content, the operation is not strong, but also the lack of appropriate supporting institutional mechanisms [9].

Financial mechanism is not perfect

Government financial support is relatively weak. The government plays an irreplaceable role in the construction and improvement of the enterprise cooperation model [10]. The financial policy of our country government is only to regulate and control the enterprise cooperation from the macro aspects, and there is no specific rules to regulate, resulting in the lack of operability in the practice level of school enterprise cooperation [11]. It is necessary that the enterprises involved in the cooperation of enterprises need to deal with many relations and improve the construction of the mechanism [12].

Engineering personnel training strategy in Jilin Finance and Economics University

The introduction of industry standards and Order-form education

Traditional education values the theoretical study and ignores the practice, the quality of personnel training is not in line with the needs of the industry [13].

Introducing the industry standards and professional standards as an important indicator of the quality of school teaching, take the opinion of social and employing units as a guide to the evaluation of personnel training [14] Adopting the order form training plan, school hires experts as the school visiting professor. Training programmers and curriculum design in industry labor standards and social demands compliance, student skills and job requirements and other aspects of a high degree of consistency to improve the depth of cooperation between schools and enterprises.

Clear role awareness in the cooperation between the school and enterprise

School enterprise cooperation requires the government departments, institutions of higher learning, enterprises to strengthen the interaction, mutual cooperation, is a difficult and complex system process.

Firstly, colleges and universities should enhance the initiative and enthusiasm to recognize the value and significance of the cooperation between enterprises and enterprises. It is necessary to realize
that the cooperation between enterprises is a good way to cultivate high quality talents, and it is necessary to innovate.

Secondly, enterprises enhance the school enterprise cooperation to realize the renewal of ideas. Human resource is the most precious wealth of the enterprise development. We must realize the importance of the cooperation between enterprises and enterprises to improve the sense of urgency.

**Practice and innovation about school-enterprise cooperation in the Engineering of Jilin University of Finance and Economics**

In February 26, 2014, Premier Li Keqiang called for "guiding a group of undergraduate colleges and universities to transform into technical colleges and universities", so the innovation and improvement of enterprise cooperation mode is the main content of the talent training mode in our country. Through the current situation of college enterprise cooperation in Jilin finance and Economics University, the paper puts forward a dual tutorial system for the purpose of improving the students' ability in practice.

**Establish a dual tutorial system**

On the basis of the original school tutor system in Jilin University of Finance and economics the University hired corporate engineers as the supervisor of the school enterprises. The enterprise engineers and students build scientific research group to help students training and complete the project. Each student has two instructors, one focus on theoretical knowledge, the other focus on practical ability, so that the training of engineering professionals can better integrate professional knowledge and practical practice.

As shown in Figure 3, the dual tutorial system in three parts. In the practice teaching link to help students to understand the theory, close to the actual needs of the market, close to the needs of the future work. For the school the dual tutor system has further deepen the school enterprise cooperation, and reduced the cost of business.

![School enterprise cooperation dual mentor linkage model](image)

**Academic qualification assessment to skill assessment**

Assessment form as the guide to students in the personal training should be transformed into the training skills, practical engineering talents in the direction of education to avoid the theoretical teaching and practical practice. Update the existing student assessment standards, from the traditional theory assessment into the theory and skills of the test mode, training skills.

**Deepen cooperation and common development of new topics**

To make full use of the advantages of talents, schools and enterprises to build teaching and research platform, schools and enterprise should develop characteristics courses based on discipline nature and
working environment to complete the development of characteristics specialty. Deepen cooperation closer to the latest scientific and technological achievements, the cutting edge of development. It can conducive to the cooperation between school and Enterprise engineering and development.

**Construction of information communication feedback platform**

Universities and enterprise feedback platform for information exchanges, working through the regular school and business meetings, seminars, communicate with the people already in employment performance feedback. Understanding the advantages and disadvantages of existing training models in a timely manner so that flexible training strategies and training more skilled personnel close to the latest industry standards. Cooperation between schools and enterprises on outcome evaluation, training processes and business requirements of the exchange of information, over the total of annual plans and enterprises to build scientific, sustainable and deepen long-term cooperation mechanism.

**Conclusions**

The basic connotation of the mode of cooperation between schools and enterprises is a way to participate in the cooperation of production and learning. The school mainly takes the human resources to carry on the cooperation, mutual benefit of both sides to achieve mutual benefit and win-win. The model is not only the development of higher education, but also the way to train high skilled talents. Jilin University of Finance and engineering improve the quality of talent training and achieved remarkable results in the light of its general trend. To improve the quality of personnel training has important practical significance for the Jilin Finance University School enterprise cooperation in the practice of the factors, from the perspective of ideas, policies, etc., to provide specific strategies for the financial and economic cooperation in the future development of enterprises in the future to promote the development of school enterprise cooperation in-depth development road.

We suggest future research from the essence of school-enterprise cooperation and development cooperation, give full play to the advantages of cooperation between school and Enterprise talent to make greater contribution.

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