

# ***Research on the Problems and Countermeasures of School-enterprise Cooperation of Undergraduate Specialty in Local Universities-Take Geographic Information Science Major of Zaozhuang University as an Example***

**Juan Ling<sup>a\*</sup>, Yingjie Zhou<sup>b</sup>**

*School of Tourism and Resources and Environment, Zaozhuang University, Zaozhuang, China*

*<sup>a</sup>lj1905@foxmail.com, <sup>b</sup>1376832649@qq.com*

*\*corresponding author*

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**Abstract:** In recent years, local universities in China have carried out the reform of talent training mode by means of university-enterprise cooperation. Local universities have made certain achievements in university-enterprise cooperation, but some problems have also emerged. This paper studies the university-enterprise cooperation of geographic Information Science major in Zaozhuang University, and puts forward some suggestions.

## **1. Introduction**

Local colleges and universities have not reached a high level because of their short time of upgrading to universities and running undergraduate courses, and their educational level and teaching quality have not yet reached a high level, so their social recognition is low. Therefore, most of these universities are located in application-oriented universities, aiming at serving regional economic and social development and cultivating skilled talents. In order to strengthen practical teaching, practice conditions and base construction, Under the advocacy of the National Development and Reform Commission and the Ministry of Education, many local colleges and universities promote the reform of their talent training mode by taking the road of school-enterprise cooperation and integration of production and education [1].

Zaozhuang in Shandong Province, China, adheres to the goal of building a high-level application-oriented university, carries out comprehensive reform in depth, continuously promotes the practice of integration of production and education and school-enterprise cooperation with the help of the

resource platform provided by the school planning and construction development center of the education department, and gradually forms its own experience and practice. It provides a useful exploration and valuable reference for deepening the integration of production and education in local universities in the new era [2]. In 2016, the undergraduate major of geographic information science signed a contract to join the "Hundred Schools Project" of Data China, and worked with enterprises to cultivate applied talents of geographic information science major who have a solid theoretical foundation of big data technology and are proficient in big data technology. After several years' cooperation in running schools, the students majoring in geographic information science have been enrolled for four consecutive years, and some achievements have been made in personnel training, but some problems have also appeared.

## **2. Advantages of School-Enterprise Cooperation**

### **2.1. School-Enterprise Strong Alliance, Complementary Advantages**

After several years of active exploration and bold attempts, Zaozhuang University has made achievements in deepening the integration of production and education and the development of school-enterprise cooperation. The school has been awarded the title of "Advanced Unit of Enterprise-School Cooperative Talent Training in Shandong Province" for three consecutive years, and the title of "The Most Characteristic Undergraduate College in Shandong Province" for two consecutive years. At the end of 2017, in the 8th Shandong Higher Education Teaching Achievement Award, Zaozhuang University won the first prize for "Reform and Innovation of Applied Talents Training Mode Based on Integration of Production and Education" Beijing Zhongke Terui Technology Co., Ltd is a partner of geographic information science professional enterprises. The company is a comprehensive supplier of training programs for professional groups such as cloud computing and big data in universities. China's leading integrated service provider of higher education. The cooperation between the two sides has achieved complementary advantages in teaching and practice: on the one hand, it has alleviated the problems of insufficient capital investment, lack of training bases and difficulties in enrollment and employment; On the other hand, it cultivates low-cost technical talents for enterprises and increases the economic and social benefits of enterprises.

### **2.2. Big Data Course to Help Professional Development**

Enterprises have implanted "Big Data" related courses, which greatly enriched the content of geographic information system. Spatial analysis of big data is an effective way to increase the ability of location information, which brings unprecedented opportunities and challenges to geographic information technology and industry. It can be said that GIS has entered the era of big data, which will rewrite the global GIS development pattern [3]. With the addition of "Big Data" course, local colleges and universities have their own characteristics in talent training. Students have both local information and big data skills, and are very popular in postgraduate entrance examination and employment.

### **2.3. Education+Skills, Students' Employment is Guaranteed**

At present, most of the traditional education models in colleges and universities emphasize theory and neglect practice, so it is difficult to cultivate talents who can adapt to the rapid development of today's society. School-enterprise cooperation can cultivate talents needed by the society by training talents in a targeted way, combining with market orientation and paying attention to students' practical skills. For example, in the 2021 postgraduate exam, Students of Grade 2017 Geographic Information Science (school-enterprise cooperation) in Zaozhuang University have been welcomed by graduate tutors in various universities, and even the low-score candidates have been adjusted, and many tutors are competing for admission. The reason is that the instructors have seen that the students trained in school-enterprise cooperation not only have the professional background of geographic information system, but also master the big data technology. Has a high scientific research ability.

### **3. Problems in School-Enterprise Cooperation**

#### **3.1. Institutional Mechanism Problems**

First of all, compared with the mature school-enterprise cooperation mode in developed countries, the school-enterprise cooperation mechanism in China is still at the stage of exploration and innovation. At present, there is still a lack of a mature and perfect system of school-enterprise cooperation, which can not effectively restrict the government, universities and enterprises from fulfilling their responsibilities and obligations. The existing school-enterprise cooperation will be affected if one of the three parties changes its school-running philosophy or investment policy.

Secondly, newly-built undergraduate colleges and enterprises belong to two different kinds of institutions: colleges and universities belong to the education system, mainly implementing ordinary higher education, and the funds for running schools mainly come from government grants; An enterprise refers to providing goods or services to the market by using various factors of production for the purpose of making profits. A legal person or other social and economic organization that operates independently, is responsible for its own profits and losses, and accounts independently. There are often differences between schools and enterprises in terms of school-running objectives, training objectives and funding input, which hinder the smooth development of cooperative education.

#### **3.2 Teacher Training between Schools and Enterprises**

In the process of school-enterprise cooperation, teacher sharing is the basis of cooperation, and enterprise engineers enter universities to participate in teaching and bring applied knowledge into the classroom to realize the integration of professional knowledge and classroom knowledge; Professional teachers in colleges and universities enter enterprises to provide continuing education for employees and enhance their knowledge and ability. Under the enterprise environment, Teachers will also deepen their understanding of innovation and entrepreneurship [4]. In actual running schools, college teachers have a solid foundation of theoretical knowledge, but most of them lack practical skills, so they need training related to their professional skills urgently. Because college teachers shoulder the dual tasks of teaching and scientific research, it is often difficult to participate in systematic training. Teachers in enterprises are mostly engineers. Outstanding ability in vocational

and technical aspects, but lack of educational skills, lack of similar advanced education system for teachers in enterprises, and great mobility of teachers.

### **3.3. Student Management of School-Enterprise Cooperation Major**

School-enterprise cooperation majors have lower entrance scores than non-school-enterprise cooperation majors, and their congenital learning foundation is weak. Their academic performance is lower than that of non-school-enterprise cooperation classes. For example, in the course assessment of C Language and Programming, the failure rate of the final exam in the school-enterprise cooperation class is 35%, while that in the ordinary class is only 14%. Secondly, the enterprise implanted a large number of courses. On the one hand, it helps students to learn courses with high social demand, on the other hand, it compresses the main professional courses of this major and weakens the professionalism. For example, in the 2015 talent training program, the physical geography courses totaled 276 hours, while in the 2017 talent training program of school-enterprise cooperation, only 64 hours were reserved. The drastic reduction of professional courses leads to the students' lack of comprehensive and thorough knowledge of their major, which ultimately leads to the decline of professional quality. In addition, due to the different management concepts and systems in the early stage of school-enterprise cooperation, students often receive different management modes and methods in the school and enterprise. As a result, students lack complete and effective management and supervision in their studies, and the overall performance of the class is relatively loose.

### **3.4. The Degree of Achievement of Talent Training Objectives**

One of the advantages of school-enterprise cooperation is that enterprises can provide practical training platform, cultivate students with high professional level with practical ability, and make students more competitive in the job market or postgraduate entrance examination. Due to the initial operation of the practical training platform at the beginning of the cooperative education and the impact of the epidemic in 2020, students and parents have resistance to the internship. As a result, the expected effect of practical training is not good, and the training goal is not fully achieved. Some students are affected by the resettlement work of enterprises, and their willingness to further their studies is not high. In 2021, only 6 graduates of the first school-enterprise cooperation of geographic information science major were admitted to master's degree, which was the lowest since the major was opened.

## **4. Countermeasures and Suggestions**

### **4.1 Improve the Relevant Institutions and Systems of School-Enterprise Cooperation**

The realization of the strategic goal of school-enterprise cooperation depends on the scientific organization and management system. In the process of cooperation, both schools and enterprises should promote the contact between schools and enterprises through scientific and effective organization and management institutions and systems, and build a communication bridge for the smooth development of school-enterprise cooperation [5]. First of all, a special organization

responsible for school-enterprise cooperation should be set up in government departments. Coordinate, manage and supervise schools and enterprises, and establish the leading position of the government in school-enterprise cooperation. Secondly, industry authorities or industry associations can participate in guiding school-enterprise cooperation. Because these organizations or institutions participate in the formulation of professional qualification standards for related industries, they are familiar with the dynamics of the industry, It can guide the professional training objectives and talent demand standards. In addition, it is necessary to attract enterprises to actively participate in school-enterprise cooperation, give full play to their advantages in scientific research and technology, and obtain economic and social benefits in cooperation in running schools or transformation of achievements.

#### **4.2. Strengthen the Construction of Teachers in Both Schools and Enterprises**

In view of the problems of the teaching staff in the school-enterprise cooperation of the local information specialty, both schools and enterprises should do a good job in teacher training: on the one hand, create a characteristic double tutor class on the basis of double-qualified teams. Encourage school teachers to participate in enterprise classrooms. Teachers are organized and planned to participate in the area held by enterprises every quarter. As well as national industrial technology training held every summer. On the other hand, teachers from enterprises can participate in the teacher training in colleges and universities, and accept the teaching training and supervision of the school. The school should complete certain training before the enterprise teachers start classes, so that the enterprise teachers can understand the school-running philosophy and professional training objectives. Be familiar with the management system and teaching process of the school, and help the teachers in the enterprise to complete the teaching task better Teachers in enterprises should also undertake the duties of teaching and educating people, such as ideological and political courses and student management.

#### **4.3. Continue to do a Good Job in Personnel Training**

Both sides of school-enterprise cooperation should participate in the revision of professional talents training program to ensure that the talent training program conforms to the orientation of training applied talents with big data technology. Do a good job in students' entrance professional education, and actively carry out various professional quality development activities On the teaching link, strengthen engineering teaching and practice OBE teaching mode. School and enterprise jointly build internship employment resource pool Enterprises should actively set up teams responsible for arranging students' employment and project departments related to the big data industry, keep extensive contact with big data enterprises, build a resource pool for students' internship and employment, and provide students with high-quality future internship and employment opportunities.

#### **4.4. Make Joint Efforts to Provide Applied Scientific Research Services**

Both schools and enterprises should jointly do a good job of applied scientific research services in various aspects;

Student-oriented double-innovation project: Using the platform of Big Data Application Innovation Center, enterprise engineers and school teachers are guided by different industries, and select outstanding students to participate in specific application projects, so as to create high-level double-innovation projects.

Teacher-oriented research: provide a scientific research environment, and build a cloud platform on the equipment of the Big Data Application Innovation Center to provide a scientific research environment for school teachers. Jointly declare big data related topics.

Facing scientific research in schools: actively developing campus big data work. At present, enterprise engineers have led students to use the data provided by the school (library and postgraduate entrance examination) to do data analysis and presentation services; In the follow-up, we should continue to actively provide analysis services for obtaining more dimensional data.

Facing the local government and industry, we should cooperate with local industry development: jointly declare the big data geographic information system project of local government, undertake the big data research work of local government, undertake the big data training work of local government departments in the process of new and old kinetic energy conversion, and connect the data analysis services of relevant government departments and enterprises and institutions in the region.

## 5. Conclusion

Under the guidance of the policy, the undergraduate majors and enterprises of geographic information science in Zaozhuang University can cultivate applied talents with both big data technology by sharing their resource advantages, building practice and training bases inside and outside the school, jointly formulating talent training programs, and conducting regular teacher exchanges, which can achieve the goal of mutual benefit and win-win. At the beginning of cooperation, Problems are inevitable, but both schools and enterprises should pay enough attention to them. According to the actual situation of local colleges and universities, combined with the characteristics and development trend of geographic information science specialty, schools and enterprises should strengthen cooperation. Only deep cooperation, platform sharing and teamwork can deepen the integration of production and education and promote the healthy development of school-enterprise cooperation.

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