

The Combination Between Study And
Production From The Practical Cooperation Of
BJTU And OUC

--Li Xiang

The pre-understanding of the topic

- ◆ Combination of study and production
- ◆ Target companies with the special internship work

The further understanding of the topic

1. Based on the pre-cooperation between BJTU and OUC, we would like to develop the further cooperation, study and research.

2. With sending students of Norway to Chinese companies as a condition, we find the proper partners for the project.

3. We not only want to gain advantage for all sides but also hope to know more about the practical problems and reasonable challenges.

The process of the work

About the Internship Abroad:

The things we need are that the students from Norway will work for a month to 2 months, their work places are close to Beijing and BJTU, the work is in the production department and must be practical and all the fees are paid by project (the students pay for the food).

About the collaboration industry:

The logistics companies and machinery companies are accepted. We need all sizes of the companies and target companies in total should be 5 or so.

We also need the companies can provide the communication such as the relative people, room and board (if needed).

About the candidate companies:

We need the companies have the knowledge about the combination of production and study in some degree.

The process of the work

-the first report

- ◆ Relative Chinese papers
- ◆ Summary for meeting (requirement and abstract)
- ◆ Updated process
- ◆ List of following work

The process of the work -the second report

- ◆ Possible target companies-four in total

The recent cooperation companies

1. Logis (Beijing)

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From the discussion, I know the company wants further cooperation with BJTU and OUC.

The vocational schools in China and OUC can send international students to exchange and study from each other. In the meantime, the BJTU and Logis are the sponsor that can provide the schedule and resource.

Because they think just sending students to the production part of company maybe simple and they can obtain little, they would like to push the cooperation between Chinese vocational schools and OUC or even more similar colleges. There will be many chances and possibilities in this field and they are really interested in this program.

2. Gold Wind (Beijing)

This company is a famous one in China which focuses on wind generating set. I connected with the engineer of the Beijing part. He wanted the detailed material of the project and he gave me the phone number of the manager because he thought he cannot give me the result.

I will finish the further material and then connect with the manager.

3. BOE (Beijing)

This company focuses on the internet of things technology, relative production and services which is the NO.2 company in the field of semiconductor innovation in the world with 68896000000 yuan turnover in 2016.

The relative people told me that they had some cooperations with some universities in China so they have the experience. They think they can provide the engineers to BJTU and would like to let the professors go to the company. They also want the detailed material and prospectus about the project which they need to hand in to the center to get permission.

4. Ling Yun (Tian Jin)

This company focuses on the technology of cars and services.

The company is a smaller one, but they also show the interest. They think the language will be the problem and they would like to push the project even though they don't think there are some advantage for them.

The process of the work

-the third report

Summary of the ten papers about the conclusion, model and usage

The updated report (3)

Q:

- 1 key conclusion
- 2 major funding and increasing model
- 3 usage for the work

1. 工程教育背景下的产学研合作教育模式研究-北京工业大学

1) key conclusion:
工程教育与实践背景下的产学研合作教育模式及其实践探索, 两者有机结合, 发挥了企业参与度, 按金学生三赢局面

2) funding and model:
G-USB 模式 (G: government and union; U: university and union; S: student and union; B: enterprise and engineers)
政府引领推进, 学校主动联合, 企业深入介入, 学生能力提升
Process 为主线 (P: plan 北京方案计划; 学院工保能力要求; 国家标准; 行业标准制定; 企业参与培养方案制定); m: 行业尔康习人才培养标准; concentration 对工作化专注力; B: environment 友好的学习环境
学校在着重工程实践能力提升, 教改立项, 学生实践能力提升以及卓越工程教育培养计划的实施等方面给予专项经费。同时, 加大学生实践

3) usage for the work:
工程制造课程, 学生到企业实践参加工保设计 (固定及导师), 工保教育计划 (偶首培训), 校企联合指导毕业设计, 三地参

2. 应用型大学产学研合作教育模式探索-北京石油化工大学

1) key:
产课程体系的完善、实践教学体系的深化

2) funding and model:
集中与分散相结合, 以项目化模式引领其中的全方位, 多模式, 多层次产学研合作教育模式。集中为主 (学校所有或大部分专业的学生到企业, 教师监督体系, 一百多家大中小企业)
项目化教学, 大学生科学实验项目 (基于工程CDIO模式), 面向外聘个岗位, 课内拓展工保项目, 课外学习团队合作。
3) usage:
学生在企业控制合作研究课题, 面向社会和企业的本科生科研项目。

3. 高校产学研合作教育模式探析

1) key:
中国产学研合作的历史由冷到热再到冷, 以合则兴可完教育功能, 多样化合作是途径

2) funding and model:
实现学分制为支撑, 弹性学制, 工学交替, 教改求改革教学管理出制度 (目前有产学研合作教育年限制, 5, 6, 7年不同, 分本科, 研究生, 博士教育主渠道; 校企合作, 制定计划促进, 加强实践性 (较高的合作教师, 明日学校)
研究主渠道: 以项目课题为纽带, 建立工程中心, 产学研, 学生参与联合体的项目
教学主渠道: 师生紧密配合
创业主渠道: 以科技创新所视为伙伴, 进行创业实践, 创业制保留学籍。1997年, 清华大学创业设计大赛1999年 深圳平安发展有限公司获得
3) usage:
科研项目是核心, 最终的结合点。

4. 大众化背景下产学研合作教育模式的探析-平顶山学院

1) key:
产学研新机制是必需的。

The process of the work -the final report

- ◆ The reasonable combination of all reports with the academic format

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Xiang Li

Abstract

We research the best way of the combination between study and production for various universities and colleges with different situations and resources. But there are many kinds of results and outstanding problems from the previous papers. So it is essential for us to find the better and innovative one for our project—the cooperation of BJTU and OUC.

Research Background

We have finished the previous project between BJTU and OUC. The relative students and professors got much benefit. We would like to push this project deeper and further by the new model.

Conclusion

- ◆ Order-style model
- ◆ Target companies--further communication
- ◆ Norwegian way?

Thank you for listening!

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We research the best way of the combination between study and production for various universities and colleges with different situations and resources. But there are many kinds of results and outstanding problems from the previous papers. So it is essential for us to find the better and innovative one for our project--the cooperation of BJTU and OUC.

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Research Object

The cooperation model between BJTU and OUC

The Generalized Questions

How to build the combination among the study, production and government?

Theory Fundament

Tai, Gao, Song and Zhu who are from Beijing University of Technology--BJUT(2013) research the enterprises cooperation education on the background of engineering education. Based on the G-USE model, they make government lead, university combine, enterprise join and students improve. With the topic of practice, the university offers the funding for reforming the education, setting up laboratories, training the teachers and cultivating students. In the meanwhile, the more funding is used for the internship of students. Furthermore, there are professional engineers giving the lectures on campus, students visiting the factories and joining the design with fixed tutors and enterprises assisting the final paper of graduates'. Under the condition, they think they enhance the degree of joining of enterprises and win-win-win situation.

From the case of Beijing Institute of Petrochemical Technology(2009), production should promote the development of science, and research should promote the deepening of learning.

Centralized and decentralized, project-based mode runs through the all-round, multi-mode, deep-seated industry-university-research cooperation education mode. Concentration is main (all or most of the students of the school go to a cooperative and large enterprises, like Beijing Yanshan Petrochemical Company to train) and the separation is a supplement (3-5 students go to more than 100 large and medium-sized enterprises to get a certain unit practice with teacher's contacting and designed engineer's guiding)

What's more, project-based teaching and scientific research training program for university students which are based on engineering CDIO mode are going on. Students have classes in and out of school. On campus, they

contact with engineering projects. Out of campus, they learn team cooperation. Students excavate cooperative research projects in enterprises and research projects for university students.

According to the mode of production education research cooperation education in Universities(2004), the history of China's industry-university-research cooperation has changed from cold to hot and then to cold. They claim that joint training can improve the educational function and diversified cooperation is the way. Achieving credit system as the basis, flexible school system and alternation of work and study requires the reform of teaching management system.

Education-oriented: school-enterprise alliance, planning activities, strengthening practice (chartered teachers in Europe and America, tomorrow's schools)

Research-oriented: building engineering centers, science parks, students participating in coalition's projects

Teaching Leadership: close cooperation between teachers and students

Pioneer-oriented: with science and technology innovation activities as the carrier, students get entrepreneurial practice, with the kept school roll. In 1997, Tsinghua University had the entrepreneurship design competition. In 1999, Shimei Le Development Co., Ltd. won venture capital. So far, innovation and entrepreneurship is still popular.

From their experience, scientific research is the most crucial and final point of integration.

About the Pingdingshan University(2013), the new mechanism of industry, university and research is necessary.

Work-study alternation and order-based cooperative education mode :Cooperation with employers and curriculum to meet the needs of targeted

Project-based cooperative education mode: with scientific research as a cooperative point, they make technology transfer, business training

cooperation. The enterprises and universities take the cost of scientific research to create a good atmosphere for scientific research to create economic results benefit.

Europe and the United States have a talent policy-oriented, tax support, credit support, financial support, legal protection, and other operational laws and regulations. But China lacks this aspect.

At present, we attach too much importance to economic benefits, which hinders the cultivation of talents and puts the cart before the horse.

In the case of Guizhou Institute of Technology(2017), they combine the school education based on imparting knowledge with the industrial production practice based on direct acquisition of practical experience and practical ability.

The management process of practical education base with influential enterprises and approval procedures(initial selection of enterprises cooperating with teachers in school)

Software and hardware facilities (school books, network resources, teaching and research resource pool, enterprise capital resources, equipment resources, practical topics and places)

Teachers' team(based teachers with enterprise training and the personal guide from company)

Quality evaluation system with both theoretical and practical measurement

The research on Zhejiang Vocational College(2009) of Commerce refers that the way of higher vocational education mode of combining production with learning based on local industry and serving local economy.

In 2007, the Zhejiang provincial government took the industrial technology innovation base as the main carrier, small and medium-sized enterprises as the main object, economic policies and legal means as the main way, injected enormous impetus into industry, University and research.

Intra-school industry-university-research cooperation model: the school establishes relevant industries according to training objectives, which is both

the base and the source of material conditions

Two-way consortium cooperation model, relying on local leading industries to run specialties, relying on specialties to run industries

Multi-way consortium cooperation model: the University chooses mature enterprises which are similar to its own specialties as partners.

Innovation Park teaching mode: the main participants in entrepreneurship are various professions, which needs students' professional knowledge, market judgment, product development ability, publicity and marketing ability, interpersonal communication ability, social problem handling ability with increasing these aspects of comprehensive assessment.

In 2008, the hotel management specialty and Hangzhou International Building Hotels Group jointly ran schools with order-based, two-way joint training; Information College E-commerce and Alibaba for professional internship; Freshmen of Applied Engineering College in 2008 studied in the factory.

They think the exploration and utilization of local market and the resource arrangement of own school are special in the case.

According to the report from Tangshan Industry College(2010), we know that they have the union of university and company. The first model is training base which works for school and the company. The university owes the base and company which can provide support to each other. The second model is the education platform which supports the research opportunity for school and enhance the production of cooperation company. The third model is the education union which is joined by a number of similar colleges . They train a lot of professional students by this way, which is helpful for the developing of the industry for Tangshan.

From the professor Lou(1995), there are several obvious models from 1987 over the world. The first one is 1-1 which is successful in Canada. The students use 5 years to finish the university with 2 years in the factory. The second one is 3-1-1 which is from Tianjin University. The students get 3 years study in university and 1 year internship from the company. They need

to finish the final paper with the guide from both university and company and then work in the cooperation company. The third one is the divided parts which need students to study in different stages. They combine the lessons in school and practice in factory together.

About the Li's (2011) and Wang's (2009) paper, they emphasize the technology and the problems in this field without the practical models. Firstly, we need to change the thought about education with paying more attention about the practical ability. Secondly, the relative legal and policy are vital for pushing the combination of study and production. Thirdly, students are important in this combination. The company should think highly on the benefit from the project in the long term.

The practical requirement and the latest development

We have the special requirement for the project which is different from the traditional models.

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We also need the companies can provide the communication such as the relative people, room and board (if needed).

About the candidate companies:

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According to the requirement above, we have contacted some companies and the target companies' information is as follows.

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Analysis

Based on the previous cooperation between BJTU and OUC, we obtained the useful and meaningful experience. We combine the economy cost with theories, time with methods and quality with results data. But there are still challenges in the future.

From where I stand, the research should be the center for the project and others can be the assist parts. By the research, we combine the university with the companies tightly. Both sides can gain the benefit obviously. The companies give chances to the international students to work and study in the factory and offer the vital resource such as professional engineers and places. In the meanwhile, the research and project should be finished with the effort of students', teachers' and companies'. The reasons are as follows.

Firstly, the culture, language and even education in university are known little by the China's enterprises. So there will be more difficulties to contact and understand each other. Under this condition, BJTU is a really important bridge in the beginning with the professors and students. What cannot be ignored is that the BJTU focuses on the research and project which is a kind of advantage for the project. We use this benefit to push research and innovation for the improvement of all. Finally, we can get the creative result in both academic and applied field.

Secondly, the government support is meanly from Norway--SIU who can provide 300000NOK for the project. The local government in Beijing has no relate policy for the project. We have no advantage in the native district, so it

is too hard to build the research center and new building as lab for the project. We can use the current resources to finish the order-style cooperation which is efficient.

Thirdly, this kind of cooperation and training is really brand-new in China. It is not mature with many possible problems. We need to be careful but brave to push it. So the model not only can give the students precious experience, school fresh reflection and companies new technology but also is suitable as the first step.

Conclusion

From the previous papers, we get the various results in different situations.

But some problems and challenges are following the proper models, which need the further research and experiment. According to the condition for our project, it is the best way to go on a order-style model with the center of research. And the exchange students from both China and Norway will have more opportunities to learn on campus and get internship in the companies.

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