

# Exploration and Research on the Construction of Cross Disciplinary Talents Training Platform in Colleges and Universities

Ren Song<sup>1</sup>, Yu Cao<sup>2</sup>, Zhichao Xu<sup>1</sup>, Yang Li<sup>1,\*</sup>

<sup>1</sup>Jilin University of Finance and Economics, Changchun, Jilin Province, China

<sup>2</sup>Harbin University of Finance, Harbin, Heilongjiang Province, China

\*Corresponding author

**Keywords:** Innovation, Entrepreneurship, Cross-Discipline, Practice Teaching, Personnel Training Mode.

**Abstract.** The construction of cross disciplinary training platform can help students to have a preliminary understanding on modern enterprise management and operation. The simulated economic environment greatly helps in the cultivation of students' entrepreneurial and professional abilities, team spirit, cooperation and communication abilities, and business decision abilities. Therefore, setting up a platform for cross disciplinary talents training in colleges and universities plays an important role in training cross disciplinary and innovative talents.

## The Significance of Constructing Cross Disciplinary Talents Training Platform in Colleges and Universities

With the development of economy and society, as well as the progress of science and technology, our country is getting closer to developed countries. Enterprises' demand for T type talents with professional knowledge and skills is increasing; the social demand for college graduates is also increasing. However, due to the reform of education system, a large number of college graduates step into the society, resulting in fierce competition among T talents. High-level professional talents are difficult to be employed.

For any university, practical teaching is a very important link in the process of teaching and learning. However, due to various reasons, it is difficult for students to access the core content related to the profession; they cannot understand the development of enterprises and the market, either. The practice tasks for students are boring; students' learning enthusiasm is not high. They cannot apply acquired knowledge to actual working environment. Therefore, the practice teaching in colleges and universities is an urgent problem. In order to build a new talent training platform, we still need to explore research and improve.

The construction of cross disciplinary talents training platform can effectively change the traditional teaching mode, promote the reform of educational system, improve the teaching quality of colleges and universities, and stimulate students' enthusiasm of learning. If this kind of platform can achieve expected effects, it will play a good demonstration effect in China. At the same time, T type talents cultivated in this platform will have more completed plans on life and career, and more clear understanding of their professions when they graduate; this is good for the development of the country and society. Therefore, the construction of cross disciplinary talents training platform is of great significance to the development of society and the country.

## Main Contents in the Construction of Cross Disciplinary Talents Training Platform in Colleges and Universities

The reform and development of talents training mode in colleges and universities is regarded as a basic driving force of national progress by scholars in educational circles in many countries. [1]

Young people create values for the country and society; they shoulder the important task of our country's future development, and they are the focus of training. The present society is full of opportunities and challenges, while the economy develops rapidly, resulting in the continuous improvement of workers' innovative skills. According to the spirit of innovation comes from practice, innovation serves practice and innovation ends in practice, the construction of cross disciplinary talents training platform can not only improve students' innovative consciousness, practical ability, learning ability and comprehensive ability of business, but also ease the employment pressure for the state and the society. [2] Education process is not imparting knowledge, but the lighting of knowledge fire. The rational mode of talent training can not only to improve students' interests in learning, but also stimulate their potentials.

Professor Mao-yuan Pan, a famous professor of higher education in China, believes, "a modern specialized talent must have the following knowledge structure: first, broad basic knowledge; second, professional knowledge of his major in depth; third, frontier knowledge, means the understanding of dynamic trend of specialized and related disciplines, the grasp of new achievements and important problems in science; fourth, necessary cross discipline knowledge and science methodology knowledge; fifth, general knowledge in humanity, or professional knowledge which has no direct relation with the major, but is conducive to broaden horizons, develop thinking and enhance cultural knowledge. To sum up, it is necessary to deal with the relationship between 'broad' and 'deep', and to achieve mastery through a comprehensive study." [3]

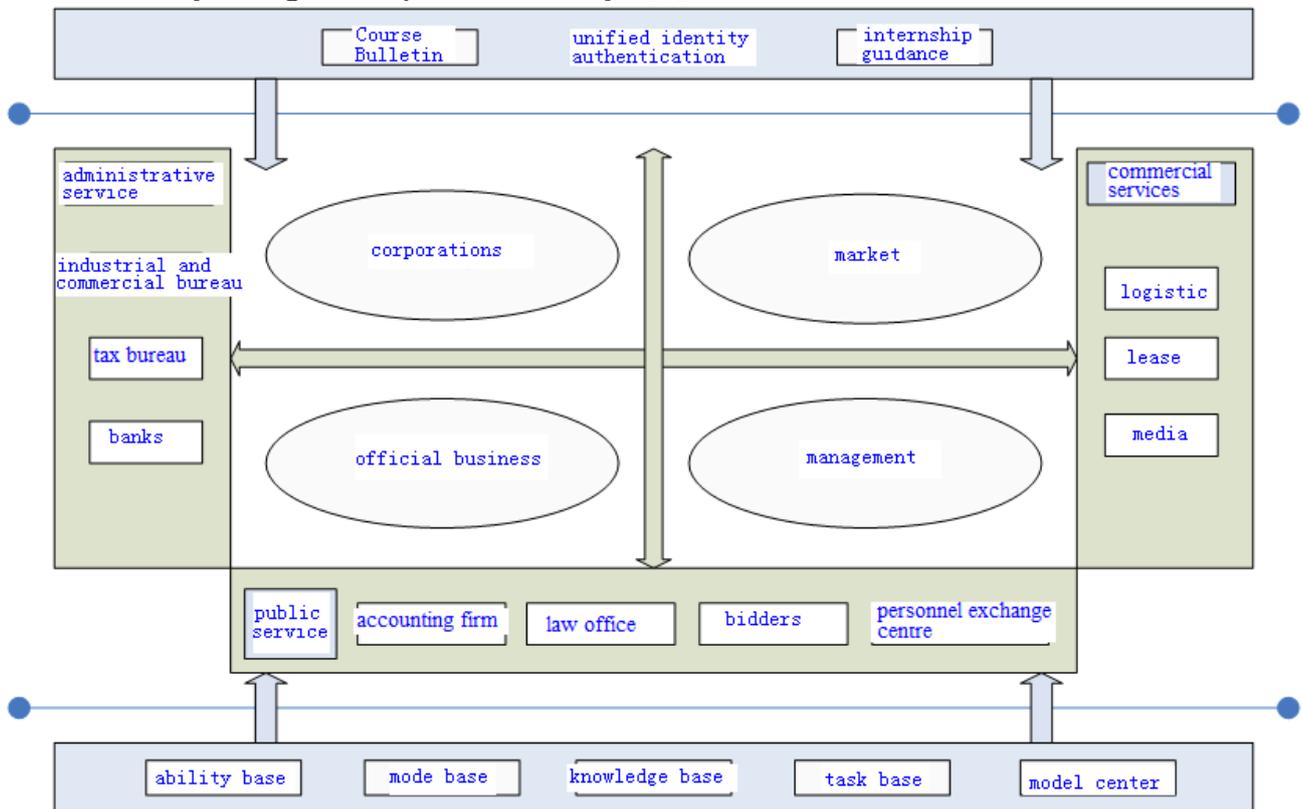


Fig. 1 The Core Structure of the Platform for Cross Disciplinary Personnel Training

Cross disciplinary training platform is a platform based on multi subjects. The platform forms a comprehensive simulation system which is mainly driven by the manufacturing industry, and supplemented by trade and economic competition, as well as the service industry. The platform is constructed according to the actual situation of the business society. Through the simulation of service and manufacturing industries, the platform builds a virtual economic market with interdependent links of production, sales, supply, demand and competitions. Different students play different roles in this platform; all the jobs should be done by students on their own. Every business decision students made will affect the progress of their enterprises; every business negotiations should be carried out by students. In this way, students can learn about job responsibility and duties, as well as the power of team work. In this platform, industrialization, informatization and

industrialization combined with each other to form a comprehensive and three-dimensional environment. Practical operations like business management, accounting, finance and taxation are also integrated with each other. In this small, virtual economic market, students can simulate different roles according to their own majors. They can get to know the situation of real work, and the responsibilities of being a staff. At the same time, in the virtual economic environment, students can form preliminary cognition of the internal management and external communication of enterprises. It can strengthen students' management thinking, cultivate their overall viewpoint and team spirit, and improve their professional abilities, practical knowledge and comprehensive qualities. Students can experience the overall framework of enterprise management, get familiar with the work environment of manufacturing enterprises, understand the working style of enterprises, and lay a practical foundation for their future employment. In the form of games, the teaching platform allows students to integrate into the practice of learning, and make students interested and willing to participate in it.

The core value of training platform is to build a platform for teaching and learning. In this platform, industry oriented cognition can be achieved; students can gain experience from the participation of business operation in the simulated environment; business goals should be achieved by students to develop their cognition; teamwork spirit is also emphasized in this process.

### **Primary Technology of Constructing Cross Disciplinary Talents Training Platform in Colleges and Universities**

The cross disciplinary training platform is built based on multi disciplines. The platform contains many modules, including modules of learning resources, contract, competition, the competitiveness of enterprises, market supply and demand, enterprise manufacturing, trade and financial software. All modules are independent. The platform is mainly developed by Java+JSP language. Oracle database is used for data storage. The website creates 3D-effect for users. The server adopts win2003Server system; student's computers adopt winXP system. Students can also use the cloud desktop environment. In the platform operation, the storage process is adopted to make the whole platform more secure. For courses opened inside the campus, colleges and universities can use campus LAN since it is more secure; for courses opened outside the campus, Internet should be used. Internet has certain effects on the security of platform, but does not affect the usage of it.

Oracle database is the most security and mature, and the most widely used database system. The core business of large-scale systems is achieved by storage procedures of database, which greatly improves the performance and speed of the system.

The main development language in this platform is Java because of its stability, security, platform independence and portability. In addition, Java language can perform multiple tasks simultaneously, which can meet the needs of multi module running at the same time.

The greatest advantage of the storage procedure is that, it allows modular programming, which is fast, secure, and occupies less network space when calling modules.

Single service request in the cross disciplinary training platform may be related to a number of database calls. The same table or different tables will be queried for a couple of times. Inefficient operation will occur if these tables are not opened or closed timely. Thus, the storage processing is used to operate business affairs, ensure the calls of one single service request are processed in the message queue. Connections with database are opened and closed timely. The network overhead and cost of memory resource are reduced; operation efficiency is improved.

Oracle database storage process can simulate things management process; developers do not need to do complex processing. For multiple service requests in the platform, the application needs to access the database for N times. At that time, Java program will use multi-thread database calls and message queue, which do not affect the space of network and memory resources. The high performance of Oracle database is reflected in these large quantity requests.

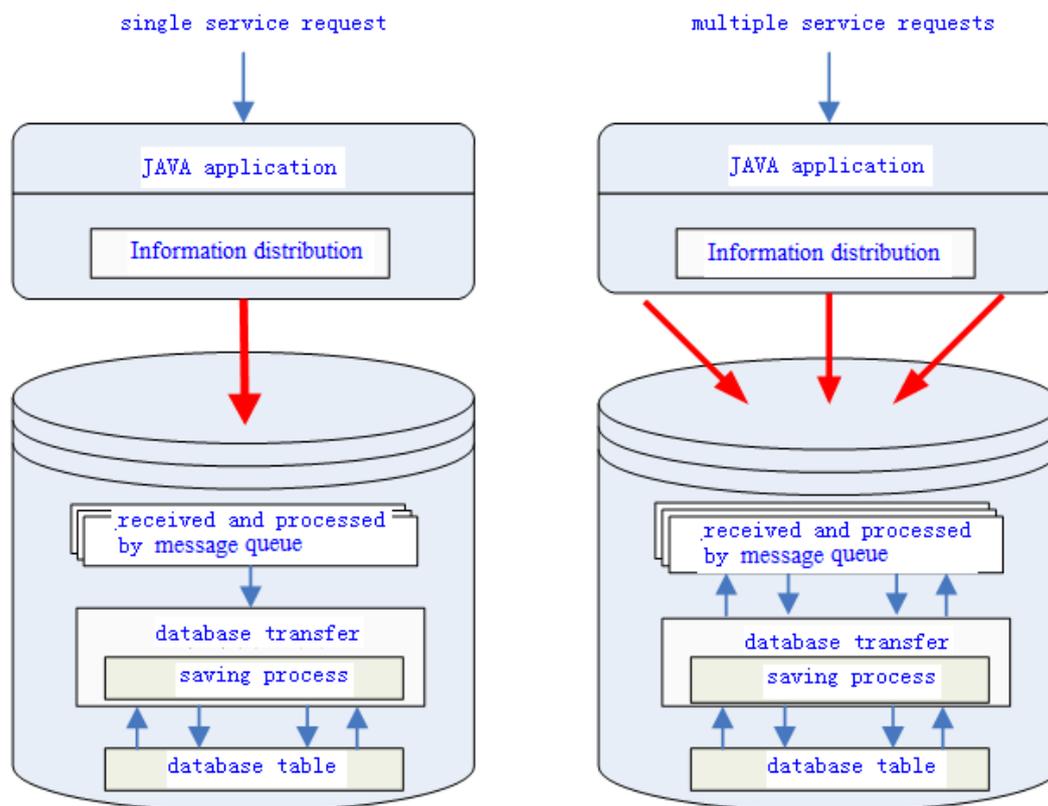


Fig. 2 The process mode of database

### The Ultimate Goal of Constructing Cross Disciplinary Talents Training Platform

Cross disciplinary talents training platforms in colleges and universities include resource model, contract model, competition model, the model of enterprises' competitiveness, and single market supply demand model. It sets up service agencies like government services, business services, public services and others. The platform can adjust parameters for training of different levels. For students of different majors and grades, different parameters can be used to participate in the practical course. Students can get training in enterprise establishment, management and decision-making, job skills, operation of information systems and other aspects, and understand knowledge about human resources, business management rules, financial management rules and market rules; they can also practice in professional financial software, manual accounting, bank loan and others business. [4] Thus, students can have a preliminary understanding and a plan for their life before they enter the society, which lays a good foundation for the cultivating of T type talents with economic characteristics for the society. With pleasant learning experience before graduate, students will have more enthusiasm to accept their jobs.

### Acknowledgements

Fund Project: This paper is one of the outcomes of the research, Construction of Comprehensive and Interdisciplinary Simulated Practice Training Platform in Universities of Finance, which is supported by Foundation for Scientific and Technological Projects of The Thirteenth Five-Year Plan of Jilin Provincial Department of Education (Contract No: JJKH20170122KJ), and the research Localization Mode of Cultivating Innovative and International Talents in Colleges and Universities in Jilin Province, which is supported by Foundation for Educational Programming Projects of Jilin Province (Contract No: GH150278).

## References

- [1] B.X. Huang, R. Huang, Literature review on the construction of entrepreneurship and practice platforms for college students, *J. Productivity Research*. 1 (2014) 140-145.
- [2] Y. Wang, X.Q. Zhu, Practice on constructing innovation and entrepreneurship training platforms for college students, *J. Contemporary Education Research and Teaching Practice*.9 (2015).
- [3] W. Shen, Y.N. Li, Construction of undergraduate compound talents training mode, *J. Journal of Shenyang Normal University: Social Science Edition*. 32 (2008) 89-91.
- [4] H.R. Huang, Discussion on the construction of cross disciplinary training bases for economics and trade major students, *J. Journal of Chongqing Industry and Trade Polytechnic*. 1 (2012).