Journal of Computational Science & Engineering 7 (2013) 267-273

Journal of Computational Science & Engineering

Available at http://www.asocse.org ISSN 1710-4068

The Cultivation of Innovative Financial Information Technology Talents Exemplified by Construction of a Financial Information Education Platform

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Article Information

Article history:
Received 21 May 2013
Revised 7 June 2013
Accepted 10 June 2013
Available online 10 July 2013

Keywords:
Financial information
Interdisciplinary
Financial center

Abstract

The financial information technology talents with practical abilities are an important guarantee for the successful construction of Shanghai as an international financial center. This thesis analyzes, from the perspective of market demand, the current situations about cultivation of financial information technology talents and insufficient cultivation of the same, exemplified by construction of a financial information education platform, discusses the reform of finance-oriented innovative cultivation modes, the double-line course system characteristic of the financial industry, and financial practice embodied as experiment, and explores the feasibility of the abovementioned items, so as to improve the cultivation of financial information technology talents' professional abilities.

1. Foreword

As a knowledge-intensified industry, the modern financial industry has increasingly shown the feature that knowledge and information are the bases of the trade in organizational structure, business procedure, business expansion and customer service. This industrial attribute decides that the trade must be supported by fast growing information technology. Take Shanghai as an example. As the city is being constructed as an international financial center with financial market system as the core, financial informationalization

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has become the most basic supporting environment for the steady and safe operations of the financial market, while interdisciplinary financial information technology talents who know both information technology and financial practice are the most basic guarantee for financial informationalization and an important guarantee for the construction of Shanghai as a financial center.

Lack of financial talents has always been a problem for the construction of Shanghai as a financial center. The financial workers in international financial centers such as London and New York occupy more than 11.5% of the total employees, while the proportion of Shanghai is merely 2.2%. There are few talents who know both information technology and financial practice, and can statistically analyze financial data. With the development of financial information industrial base and financial BPO industry and the promotion of financial information service industry such as Xinhua08 in Shanghai, lack of financial information technology talents will become a big obstacle for the development of the financial soft power of Shanghai.

2. Current situations about cultivation of financial information technology talents

2.1 Foreign countries

The advanced countries in Europe and North America have attached great importance to cultivating financial information technology talents. Besides the traditional cultivation modes such as diploma cultivation and certificate training, to solve the impacts of the global financial crisis, international financial centers stress the cultivation mode featuring cooperation between colleges and universities of finance and enterprises to cultivate students' abilities to use financial information technologies. For example, in August 2008, the Financial City Commission of New York proposed establishing financial information courses for the colleges and universities in the city, with the various financial institutions therein helping design course contents. After the financial crisis, London Financial City also had Reuters and the four largest investment banks to construct in colleges and universities financial information platforms to train students' practical skills, with Reuters supplying market data, by reproducing the investment banks' information exchange platforms, to give students a dynamic experience.

2.2 China

Financial information science that integrates finance and information is a new field in China. Peking University is cultivating, based on microelectronics, masters majored in financial information engineering, so as to cultivate interdisciplinary talents who know the theories, methods and skills necessary for analyzing, designing and realizing financial information system; Nankai University is cultivating, based on financial mathematics and financial engineering, bachelors, masters and doctors who know financial information technologies; Southwestern University of Finance and Economics adopts cultivation modes such as "general education + interdisciplinary cultivation" and double majors to cultivate financial intelligence and information management talents focusing on senior financial talents' basic skills; School of International Studies is cultivating information management talents based on "financial service outsourcing". In addition, the software colleges of Fudan University, Wuhan University, Zhejiang University, and Dalian University of Technology are cultivating software engineering masters majored in financial information management and financial information technology, etc.

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3. Analysis on cultivation of financial information technology talents

3.1 Analysis on insufficient cultivation of financial information technology talents

Now, there is not a uniform mode for the domestic cultivation of financial information technology talents. From the perspective of the market demand for professional talents, there are two problems mainly:

(1) Separation of cultivation of financial and information talents

The financial industry needs financial information technology talents, that is, interdisciplinary talents who can organically integrate information technology and financial knowledge. However, in the cultivation plans of part of the colleges and universities, some simply add several information courses to the original financial cultivation system, and some add several courses of economics and finance to computer science, thus lacking an integration and systematization of the knowledge about the two majors and unable to embody interdisciplinary cultivation of finance and information.

(2) Mismatch between practice and market demand

In recent years, colleges and universities including those engaged in finance and economics have attached great importance and contributed a lot to practical teaching, but part of the colleges and universities has been focused on the experiments and verifications in theory or technical knowledge from experimental equipment to experimental contents, lacking practical skills including technical and business procedures needed by the financial market, so much so that practice is mismatched with market demand.

3.2 t Exploration on talent cultivation

Shanghai has preliminarily created a financial information service framework with the financial institutions in Lujiazui as foreground and Zhangjiang Financial Information Industrial Park as background. The city needs financial information technology talents with knowledge about both information technology and financial practice and abilities to solve real problems. Therefore, cultivation of financial information technology talents should be guided by market demand, by establishing an innovative talent cultivation system, and the teaching system and contents that emphasize financial practice as needed by the financial industry, to cultivate interdisciplinary talents who know both information technology and financial practice.

(1) Market-oriented innovative cultivation mode

We will create innovative cultivation modes for financial information technology talents, such as the financial information teaching team jointly established by universities and enterprises, class-certificate integration, “order-type” cultivation mode and open experimental teaching mode, and form interdisciplinary cultivation by both schools and the market, to embody market orientedness of the cultivation modes.

(2) Establish an interdisciplinary course system that satisfies financial demand

To cultivate financial information technology talents, we will establish a double-line course system that integrates financial practice and information technology, combined with different market demands for financial information technology talents, by establishing technical, practical, innovative and international courses, to create a cultivation direction that satisfies market demand.

(3) Establish an experimental teaching system that satisfies market demand

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We will construct an experimental financial information platform that can supply financial data and simulate market operating environment, by setting up various experiments such as characteristic theme experiment and innovative experiment that are needed by talent cultivation, to establish experimental courses, emphasize cultivation of technical abilities, and make an experimental teaching system that satisfies market demand.

4. Innovative cultivation of financial information technology talents

4.1 Financial information education platform

(1) Financial information education platform

To strengthen the in-depth construction of Shanghai's higher education, further improve the level of Shanghai's higher education to serve national and local economic and social development, and solve the lack of financial information technology talents in the construction of Shanghai as a financial center, the city has decided to build an undergraduate education platform, namely, financial information education platform, with the emphasis on strengthening financial information technology talents' practical abilities.

(2) Cultivation visions of the financial information education platform

Guided by the market demand for financial information technology talents in the construction of Shanghai as a financial center, through combination of information technology and financial practice, we will cultivate "practical, interdisciplinary, innovative and international" financial information technology talents who know how to use information technologies. Construction of the financial information education platform should highlight the professional, interdisciplinary and practical visions of financial information technology:

➲ Professional – Based on the comprehensive financial demand for financial information technology talents in knowledge, ability and quality, to highlight a professional vision;

➲ Interdisciplinary – Establish a double-line cultivation system (i.e., information technology and financial practice), effectively integrate financial and information knowledge, and apply the same to the financial industry, so as to highlight an interdisciplinary vision;

➲ Practical – Cultivate talents' practical skills through design and construction of an experimental environment and experimental contents, so as to highlight a practical vision.

4.2 Market-oriented innovative cultivation mode

(1) Senior experimental financial information class

Senior experimental class is an experimental class composed of the excellent students chosen from among those studying relevant undergraduate majors. Equipped with premium teaching resources and innovative visions and modes, the class adopts forms such as supplementary cultivation and non-single class to cultivate students. Every teacher is responsible for 5-7 students, training their practical skills, answering their questions, guiding their thesis writing and career planning, and conducting tests on the reform of the innovative cultivation modes for financial information technology talents.

(2) Reform of teaching mode

We will change the traditional teaching mode that is focused on class teaching and supplemented by experiments. Based on practical skills training, expanded with research courses and lectures,

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supplemented with second class teaching and professional training and certification, and adopting innovative cultivation modes such as role-playing method, we will stimulate students' enthusiasm and adopt course examination focusing on experimental report and thesis, so as to cultivate students' professional abilities and quality.

(3) A teaching team jointly established by universities and enterprises

We have established a teaching team composed of teachers and experts to strengthen young teachers' practical skills by supporting them to do some financial practice; meanwhile, we have hired financial information experts from financial institutions and enterprises such as State Street, Fujian Industrial Bank, Zhangjiang Software Park, and Shanghai Industrial Base of Financial Information Technology Services as part-time teachers. They will teach students courses focusing on practice and internship or give lectures, and introduce new and practical financial information technologies to students with real cases, so as to build a full-time and part-time teaching team that is jointly established by universities and enterprises and has "double-teacher type" quality.

4.3 Double-line course system characteristic of the financial industry

Based on an investigation of the financial industry's demand for financial information technology talents, with the senior experimental class as test object, we will establish a double-line course system that integrates finance and information, in which, one line is information technology, and the other is financial practice. The two lines meet at financial application to the construction of Shanghai as a financial center, thus is a course system characteristic of the financial industry in knowledge, ability and quality.

(1) Cultivation of students' professional knowledge

Combined with the market demand in the construction of Shanghai as a financial center, we have formed three professional branches, namely, financial system development, financial data analysis and network finance. Focusing on cultivation of students' knowledge about financial system development, financial data processing and network information search, through practical courses such as new technologies about banking computer system, financial arithmetic analysis, financial data analysis, e-bank system, and reconstruction of commercial bank's business procedures, we will teach students practical knowledge about financial institutions such as financial outsourcing company, financial data center and exchange center.

(2) Cultivation of students' professional abilities

In professional knowledge cultivation, we will see to strengthening students' professional abilities. On the one hand, we will cooperate with financial institutions to introduce part of the skills in their professional trainings into our courses, establish course contents like "foreign exchange transaction simulation system", and train students' practical skills; on the other hand, we will pay attention to the consistency between course contents and financial information job requirements, introduce part of professional qualification standards into our courses, and according to financial institutions' special requirements for talents, adjust teaching contents to embody "order-type" cultivation mode.

(3) Cultivation of students' professional quality

We will see to cultivation of students' professional abilities and quality besides knowledge. As far as course system is concerned, on the one hand, we will establish lecture-oriented courses including an introduction to research methods, team spirit cultivation and leadership cultivation; on the other hand, we will organize second class on campus to improve students' professional quality, and lead them to take part in

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the social activities and voluntary services in the financial industry, and receive professional qualification certification examinations and professional skill trainings, and so on. In addition, we will create more chances for students to practice at financial institutions, make them know in advance what the workplace is like, and cultivate their comprehensive professional quality.

4.4 Experimental system for financial practice

We have constructed a simulation experimental platform for the financial industry with financial cloud as technical framework, developed a series of practical projects and courses such as financial data processing, financial model development and financial application software, and established an innovative experimental mode of "experimental base + theme lab", by which the doctors and experts of innovative teams can guide their teaching that is focused on cultivation of students' technical abilities.

(1) Experimental financial information platform

Shanghai has cloud-based environment, including cloud computing in terms of data hardware environment soft environment. As shown in Figure 1, based on the original information lab where one can do conventional experiments such as course experiments and simulated banking operations, we have established a demonstration lab that can satisfy market demand and allow students to do innovative experiments. Through the network parallel environment, the lab is connected to eight blade senior servers powerful in data processing, equipped with Jide real-time fast data analysis platform software, real-time financial market data reception, collection, storage and analysis system, Asian capital market database, many financial information databases such as Xinhua08 database and Reset database to supply real-time and historical data, and financial software such as Oracle, SAS and MATLAB to do data processing and analysis, and developing software based on C, Java, so as to create a simulation environment for financial system and meet the requirements of innovative experiments.

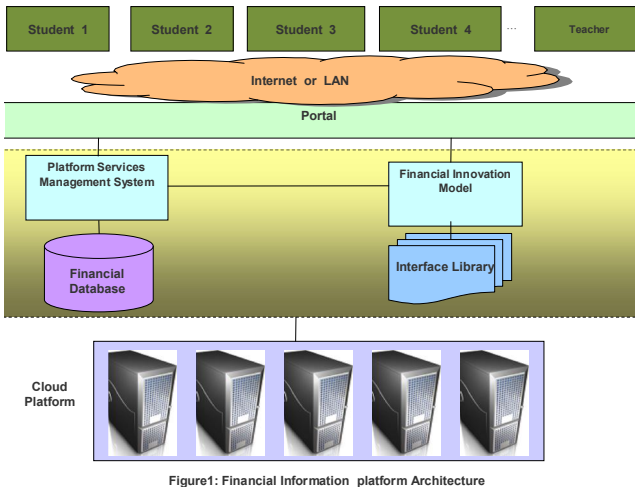

Fig. 1 Financial Information platform Architecture

(2) Characteristic theme experiment

We have formed three characteristic experimental themes, namely, financial business development, financial data analysis and network finance; established four practical courses, namely, transaction and liquidation risk management simulation for China's foreign exchange market, breach alarm risk management and forecasting simulation for China's financial market, Asian capital market database (Hong Kong and Japan), and financial cloud service environment; and preliminarily established an experimental teaching system that satisfies market demand.

5. Evaluation and feedback of innovative cultivation

To make the reform of financial information teaching more directional, a questionnaire was conducted for the students of the senior experimental class in three aspects, namely, course system, experimental system and cultivation mode. However, the class has been opened for less than a semester, so we cannot investigate the improvement of the students' abilities but the change in their

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interest in or attitude towards study before and after taking the class. In the investigation, a total of 30 questionnaires was handed out and recovered, with recovery rate of 100%, among which, there are 29 effective questionnaires, with effectiveness rate of 97%. The investigation results are shown as follows:

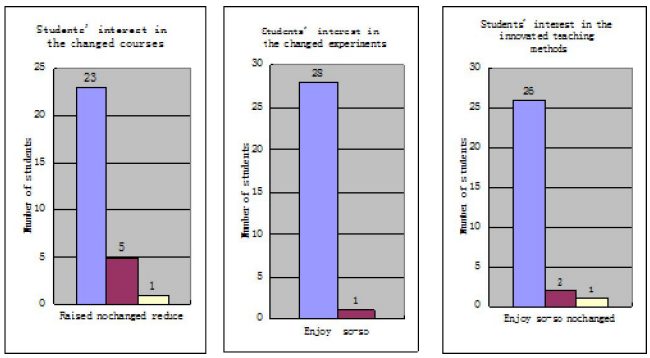

Fig. 2 Questionnaire Results

From the questionnaire results, we can see that nearly 90% students take a great interest in the innovated courses, experiments and cultivation modes, while few students are not interested in innovative cultivation because of preparing for postgraduate examinations and others. However, the improvement of the students' relevant abilities cannot be further analyzed until after they are cultivated for a certain period of time.

6. Conclusion

Financial information science, an interdisciplinary branch of learning that integrates finance and information, is a new professional field; and financial information technology talents are an important guarantee for the construction of Shanghai as an international financial center. Guided by the market demand for professional talents in the construction of Shanghai as a financial center, through the reform and practice of interdisciplinary course system, practical experimental teaching system and innovative cultivation modes, we will cultivate financial information technology talents who are needed by the financial industry and have strong technical thinking skills and problem solving skills. This will contribute to improving the level of Shanghai's higher education and serving local economy.

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