

# Research on Bilingual Teaching of Graduates for Computer Specialty in Financial and Economical Colleges

Limin Wang<sup>1\*</sup>

Department of Information, Changchun Taxation College, Changchun 130117, China

\*Corresponding author Email: [wlm\\_new@163.com](mailto:wlm_new@163.com)

Xuming Han<sup>2,3</sup> and Ming Li<sup>1</sup>

<sup>2</sup>Institute of Information and Spreading Engineering, Changchun University of Technology, Changchun 130012, China

<sup>3</sup>College of Computer Science and Technology, Jilin University, Changchun 130012, China  
Email: {[hanxvming@163.com](mailto:hanxvming@163.com), [lm5088@sina.com](mailto:lm5088@sina.com)}

**Abstract**—To achieve higher education internationalization and improve the comprehensive ability of graduates, according to the education characteristics and development model of graduates for computer specialty in financial and economical colleges, the intrinsic relation between computer and English, and the importance of graduates for implementing bilingual teaching in financial and economical colleges, an effective training project of bilingual teaching for computer graduates in financial and economical colleges is proposed in this paper, which is based on years of teaching experience in practice and suitable for the economy development demands in China. In addition, a more perfect measure for computer graduates in financial and economical colleges is also introduced in this paper, so that the education of computer graduates in financial and economical colleges is different from the computer specialty in comprehensive universities. It can build a good basis and provide a feasible approach to training the comprehensive talents by performing bilingual teaching that are needed urgently in international communities.

**Index Terms**—Bilingual teaching, graduates education, financial and economical colleges, teaching reform research, computer specialty

## I. INTRODUCTION

With the further reform and opening, computer and communication technology are developing rapidly in China. Computer technology during the national economy construction plays an important role, and social demand on computer professionals and also increases dramatically. In recent years, computer education in colleges and universities has played increasingly prominent status, specialty flourishes in scope and transports a large number of computer professionals.

With the development of society and the progress of times, bilingual teaching has become a popular trend internationally. China is following this trend to satisfy the society's demand for human resource and improve the third level institutions' competitiveness to meet the challenge of the new millennium. The reform of computer graduates in teaching must follow the trend of internationally building of bilingual teaching.

At present, the state of bilingual teaching courses for computer graduates in China is not satisfactory. The main weaknesses include inflexible teaching methods, outdated textbooks, lack of adequate teaching staff, ineffectiveness in coordination and so on[1-4]. Acknowledging these facts, in order to enhance the quality of bilingual lecturing, the necessity and feasibility of bilingual teaching for the courses of computer graduates are demonstrated in this paper. In addition to this, based on teaching experience accrued over the years, we suggest an effective strategy of instructing bilingual courses, a new mode of teaching for computer graduates students in financial and economical colleges and to train the ability of self learning for computer, economics and English language is also proposed in this paper.

## II. THE CHARACTERISTICS OF COMPUTER GRADUATES EDUCATION AT HOME AND ABROAD

The United States is the first country in the world in which large-scale graduate education is done, which is adaptive with the United States 19th century industrial revolution and economic development and of the urgent need of a large number of professionals. After a long time of development and improvement, the graduate education in the United States has developed a unique style and mode. It transports numerous high-level personnel for the development of United States. At the same time, it also attracts the best students from other countries to the U.S. to continue studying. In the United States, the education of computer graduates has the following characteristics.

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- For the curriculum: (1) Meet the needs of different levels of demand, (2) Core courses focus on professional foundation, (3) Elective courses embody the newest computer science and technology.
- For teaching methods: (1) There is no uniform teaching outline and textbooks, (2) Emphasis on the participation and moment accumulation, (3) Encourage participation, questions and research capabilities, (4) Focus on teamwork ability.
- For teaching and management: (1) No makeup, only the repair, (2) Plagiarism and cheating will be severely punished.

In China, some education problems of graduates have become more prominent since prodigious expansion in scope, which will be bound to hinder the smooth development of graduate education. These problems contain:

- Educational infrastructure is laggard, such as lack of literature, lack of research fund, no guarantee for experimental practice, poor science research atmosphere and so on.
- The malpractice of tutor, such as the ability of tutors need to be improved further, tutors lack the power to improve cultivate quality.

It is difficult for management to adapt to the needs of quality assurance [5-7].

### III. THE MEANING OF BILINGUAL TEACHING

In the Longman dictionary, 'Bilingual Teaching' is interpreted as 'the use of a second or foreign language in school for the teaching of content subjects' which implies the use of a second or foreign language to teach various subjects. At present, bilingual teaching generally adopts English in China, which requires the instructors to speak English frequently for explaining to students in class. So, 'bilingual teaching' is actually using two languages for lecturing, by studying the course, students not only learn of the subject, but also improve their second language at the same time. Presently, there are four major bilingual teaching modes such as soakage mode, immersion mode, transition mode and maintain mode. Moreover, there are Dutch interactive mode, German two way mode and Japanese two teacher mode beside the four major modes for lecturing internationally [8-10].

### IV. THE FEASIBILITY AND IMPORTANCE OF BILINGUAL TEACHING

Computers is a general subject internationally, and English is the operating language of the computer. All third level institutions are providing experimental bilingual computer courses, which are beneficial for the students to grasp computer technology and improve English skills to enhance overall ability. Especially in Financial and Economical Colleges, in order to realize the goal of 'high level application', people with both computer expertise and economy management knowledge are demanded for society. So it is important to take the initiative of bilingual teaching [11-18]. Moreover, it is also one of the advantages of graduates in Financial and Economical Colleges. Therefore, how to improve the

quality of 'bilingual teaching' in computer graduates courses financial and economical colleges has become a crucial topic of research.

### V. THE CULTIVATION OBJECTIVES FOR COMPUTER GRADUATES IN FINANCIAL AND ECONOMICAL COLLEGES

The cultivation goal on graduates for computer specialty in financial and economical colleges is different from the comprehensive universities. Social development needs of multi-standard, multi-types of personnel, different colleges should have different characteristics and advantages. Only by making full use of own education characteristics and establish in the existing foundation and advantages, combine the cultivation direction of graduates and the preponderant subjects, follow the target of schools to adapt to the development of market economy, which can improve really the quality of graduates [19-31].

After years of feasibility studies, investigation and practice, the cultivation measures of computer graduates that suit the developmental direction on financial and economical colleges were established. The specific cultivation objectives: strengthen the foundation construction of application-oriented, based on the goal that the computer specialty has the characteristics with financial and economical colleges' advantage, cultivate advanced computer science and technology professionals who are adapt to economic and social needs of the 21st century with thick foundation, broad knowledge, strong ability, high-quality, innovative and personalized characteristics. They not only have skilled fundamental computer science theory, methods, skills, but also have tax, finance, and accounting knowledge, so that achieving the development model with financial and economic characteristics, cultivate high-quality professionals for economy, education and research fields to further demonstrate the education characteristics.

### VI. THE MAIN MEASURES OF COMPUTER GRADUATES FOR BILINGUAL TEACHING IN FINANCIAL AND ECONOMICAL COLLEGES

The education experience of graduates abroad gives us some advice on some aspects of the development of graduates' education. We should be based on national conditions, seek more appropriate graduates' education mode, management methods to promote graduates education level in China.

According to the actual situation of our school and financial and economical colleges, the following advice on computer graduates' training is proposed in this paper.

#### A. Improve the quality of tutor staff

Graduate tutors play a vital role in cultivating students, therefore, building high-quality and outstanding graduate instructors are the key to ensure the quality of graduate cultivating, we can take some measures:

- Introduce talents from multi-channels and promote diversification of instructors. Through cooperating with domestic and foreign well-known institutions, and recruiting a senior

professor, the well-known business experts and foreign teachers as tutors or graduates part-time tutors. Introducing excellent doctors and post-doctoral at home and abroad to enrich teaching and research. Strengthen the cultivation power for outstanding youth teachers. After several years of efforts, we have made gratifying achievements on teaching staff construction. The results are shown in Table 1 and Table 2.

- Establish effective incentive mechanism to improve teacher enthusiasm for jobs. Implement allowance system for tutors, the tutors who have made outstanding contributions in cultivating graduate students will be given much reward.
- Establish effective mechanism of competition, and engage the system of tutors. Recruit high-level, highly educated talents as teachers, truly on-demand duties, competition for posts, staff can be in or out, and the treatment can be high or low.

TABLE I. THE STATISTICS RESULTS OF TEACHERS OF THE TITLE OF A TECHNICAL POST STRUCTURE

Time	Total Number	Professor		Associate Professor	
		Number	Rate (%)	Number	Rate (%)
2005.8-2006.7	24	1	4	5	21
2006.8-2007.7	24	2	8	5	21
2007.8-2008.7	46	4	9	15	33
2008.8-2009.7	46	8	18	17	37

TABLE II. THE STATISTICS RESULTS OF TEACHERS OF THE TITLE OF A TECHNICAL POST STRUCTURE

Time	Total Number	Lecturer		Assistant	
		Number	Rate (%)	Number	Rate (%)
2005.8-2006.7	24	7	29	7	29
2006.8-2007.7	24	7	29	7	29
2007.8-2008.7	46	17	37	17	37
2008.8-2009.7	46	18	39	18	39

TABLE III. THE STATISTICS RESULTS OF TEACHER DEGREE

Time	Number	Degree structure			
		Doctor		Master	
		Number	Rate (%)	Number	Rate (%)
2005.8-2006.7	24	1	4	14	58
2006.8-2007.7	24	1	4	14	58
2007.8-2008.7	46	2	4	41	89
2008.8-2009.7	46	12	26	32	70

B. The Choice of Textbooks

The quality of textbooks is another important factor in determining the success of bilingual teaching. It is a shortcut to select original textbooks in English to lead the Chinese education to go internationally. Firstly, good original textbooks in English could improve the English of both the teacher and students effectively. Secondly, it can help to broaden the graduates' scope of specialized knowledge. In addition, the English of the students can be improved along the way of subject study. Lastly, new thoughts of teaching in the textbooks could aid the teacher on the job. But in selecting the suitable textbooks, the actual ability of graduate students must be weighed carefully.

C. Establish Suitable Examination Mechanism

Exam is one of the major motivations for graduates who study hard, so the exam is usually taken in English. Aiming for higher grades, the graduates naturally concentrate the quality of bilingual teaching. In this way, the students may master subject knowledge and English. In revision for the final exam, graduates read textbooks in English repeatedly, which will strengthen the students' interest and ability of reading the journals written in English.

D. Establish innovation selection system for graduates

Establish an innovation selection system, which needs to change from examine knowledge to examine the innovation ability as the main graduates selection mechanism. It begins from select, examine and matriculate and stress to select the creative students.

E. Develop multi-class and multi-level cultivation system

The multi-class and multi-level cultivation systems for graduates enrich the graduate education. Many graduate in-service personnel who can study while working. Although graduate cultivation system in China has made some progress, but it is still in an imperfect stage, which there are still many restrictions on graduate candidates and age problems.

F. Pay more attention to cultivate the ability of scientific research for graduates

Higher education, especially graduate education, its focus is to cultivate the ability of scientific research. It needs to cultivate students to more independent learning and thinking ability and guide graduate students to read the relevant professional literatures and books. Set up compulsory credit hour of practical, actively create a favorable environment for scientific research, train into the classroom and outside, and organize students to participate practice training. Tutors should apply for research projects to actively attract students to participate in and strengthen the guidance process. Tutors should encourage students to actively participate in various science activities, and encourage students to publish high-quality research papers in journals.

### G. The Settings of research interests for computer graduates in financial and economical colleges

Based on economy and management analysis, we should make full use of computer and mathematical methods in science and technology, research, analysis, forecasting and economic changes. Focus on the cross and integration among computer science and technology, mathematical methods and economy and management analysis, which compose the unique characteristic of financial and economical colleges. The research interests include: finance engineering, intelligence economy analysis, economy simulation based on intelligence computation methods, etc.

### H. Establish and improve the mechanism of graduates education quality evaluation and supervision

Reasonable quality assessment and supervision mechanisms are very important for improving the quality of graduates training. It is throughout the whole process of training graduates. Its essence is to judge for the teaching activities and monitor for the cultivation goal and process. In order to improve the quality of training, the cultivation modes are optimized and combined by regulation and feedback. The scope of quality assessment and quality supervision system includes teaching, the direction of tutor, and the assessment of dissertations etc.

It is central to monitor whether the bilingual taught course has reached its target and meet the students' need. The method for evaluation of bilingual courses is a combination of reviews of teaching and the results of teaching. For example, the grades of students which should be commented from students, the parents of students, supervisors are all consulted. All these information collected will help the instructors to improve their quality of teaching. From experience in years of teaching, it is possible and important to establish a whole set of evaluation system for bilingual teaching in computer courses. It is advisable to build a certification system for ensuring the quality of teachers offering bilingual courses for long term benefits. If a national certification system is established, the problem of teaching with insufficient ability will be resolved, and it will enhance the formation of a training system for bilingual teachers.

After several years of practice, teaching ideas and methods proposed in this paper has been put into practice in Financial and Economical Colleges which has achieved good results. Fig.1 is the statistical results of students' interest in learning the courses of 'Intelligent Computing' and 'Program Analysis' which has been instructed by me. In addition, the results of percentages of excellence and good for 'Intelligent Computing' are also shown in Table 4.

We can find clearly from the graphs and data that some satisfactory results are obtained by utilizing the measures and teaching methods introduced in this paper, so they are feasible and effective in the field of computer courses bilingual teaching.

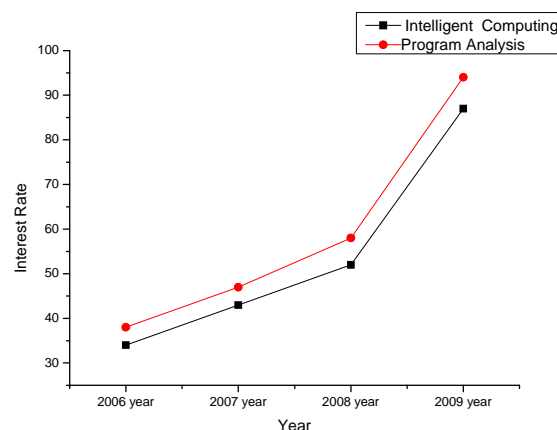


Figure 1. The statistical results curve of students' interest.

TABLE IV. THE RESULTS OF PERCENTAGES OF EXCELLENCE FOR 'INTELLIGENT COMPUTING'

Time	2006	2007	2008	2009
Percentage	15.04	24.85	36.72	53.22

### I. The reform of teaching mode

Course system is a product of social times, and it must be developed with the development of society. The information society calls for higher requirements in knowledge structure for professionals. So the setting of graduate course category is especially important for graduates in financial and economical colleges. The arrangement of courses must follow the principle: the combination of software and hardware, the combination of foundation and profession, the principle of compulsory and optional, the principle of dynamic update and the principle of social needs. The setting of the Computer graduate core curriculum should focus on the foundation of specialty and research ability, including writing skills and English language ability. The setting of the curriculum should be both the depth and breadth. It is the combination of "generalist" education and "professionals" education, which greatly expands the scope of knowledge for students, improve students' knowledge structure and levels, and enhance the abilities of students to adapt to the future capacity and employment prospects.

The characteristics of the courses in financial and economical colleges for graduates reflect on the economics curriculum. According to demand of professional training programs, it will train students who have the financial and economic advantages and computer skills, so that students can make a more systematic study of economics courses, and can apply computer theory and related knowledge analysis, forecasting and solving economic problems. The main courses includes: program analysis, intelligent computing, artificial intelligence, accounting practices, financial accounting practice, tax practice, enterprise resource

planning (ERP), economic decision analysis, econometrics, economic data analysis methods etc.

In teaching methods, from the student's interest and understanding characteristics, change the method of "All In Class" teaching, widely use the discussion-style, heuristic, the problem type and task-driven style. Mobilize and inspire students' study interest, innovate thinking and enthusiasm, and improve the quality of postgraduate training.

#### *J. Strengthen the effective integration of industry, study, research*

Graduate education is the highest level of higher education, so graduate education is the highest level of higher education. The graduate education courses need not only ensure effective learning, but also according to social needs, through various channels to establish training bases, and to strive to do research work and to improve their level of scientific research. Strive to build a good work relationship and environment between schools and enterprises to achieve the integration of industry, study and research.

## VII. CONCLUSION

In order to improve the quality of graduates and achieve the cultivation objective of graduates in financial and economical colleges, implementing bilingual teaching is very important for computer graduates. On one hand, it facilitates the students to understand and have a taste of the frontier of research in computer science field; on the other hand, it can cultivate graduates with the abilities of English, economics, and management. Owing to the importance of bilingual teaching, there are some feasible and effective approaches such as improving the quality of tutor staff, establish suitable examination mechanisms, select the right textbooks, establish innovation selection system for graduates, develop multi-class and multi-level cultivation system, pay more attention to cultivate the ability of scientific research for graduates, establish and improve the mechanism of graduates education quality evaluation and supervision and reform teaching mode and so on; these are all introduced and discussed in detail in this paper. To improve the graduates' ability and quality, realize the aim of making education 'internationalization', a whole set of perfect bilingual teaching still needs our further study, consideration, summarization and research. For the education and development of computer graduates at home and abroad, the authors conducted an in-depth analysis, and for the current development status of computer graduates in financial and economical colleges, the authors conducted an in-depth research. Moreover, a feasible and effective measure is proposed in this paper that can improve the quality of graduates. The satisfactory results are obtained after years' of practice. We achieved the objective of high-level computer professionals. Moreover the students have more advantages with financial and economic technology.

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**Limin Wang** was born in Jilin Province of China on September 20, 1975. She received the M.S. degree in Computer Application Technology in July 2004 from Jilin University, China, where she continued to study the Ph.D. courses in September 2004. She received her Ph.D. degree in Jilin University in 2007. Her main research interests include neural networks, evolutionary algorithms, intelligent computing, finance engineering and computer education research.

She joined the Department of Information at Changchun Taxation College in 2004. Currently, she is associate professor, the deputy direction of Department of Information at Taxation College. She has published more than 30 research papers in international and domestic journals and international conferences in the computer field. Some papers of them have been indexed by SCI, EI and ISTP: An Improved OIF Elman Neural Network and Its Applications to Stock Market(England, Knowledge-Based & Intelligent Information & Engineering Systems, 2006); IMPROVED OIF ELMAN NEURAL NETWORKS AND THEIR APPLICATIONS TO ATMOSPHERIC QUALITY (Poland, International Journal of Information Technology and Intelligent Computing, 2006); A PSO-based Model for Assessment of Atmospheric Quality (Korea, International Journal of Computer Science and Network Security, 2006); An Atmospheric Quality Forecasting Model Based on RBF Neural Network And Its Applications (Wuhan, International Colloquium on Artificial Intelligence in Education, 2008); An Immune Algorithm-based Atmospheric Quality Assessment Model and Its Applications(Wuhan, International Conference on Computer Science and Software Engineering, 2008) etc. She has presided or completed 17 research projects including National Research Projects, Provincial and Ministerial Research Projects. Her previous research interests: computer education reform research, the integration of the disciplines of the

computer science and technology, mathematical methods and the analysis of economy management practice that is the characteristic and advantage of the department, which is a broad foreground specialty that bases on the intercrossing with the disciplines of computer science and technology, economics and management.

Prof. Wang has awarded many honors, such as Advanced Personnel from Jilin Province, 2<sup>nd</sup> award of scientific production from Jilin University, etc.



**Xuming Han** was born in Jilin Province of China on October 31, 1971. He received the M.S. degree in 2005 from Tianjin University and now is a Ph.D. candidate in Jilin University. His chief research interests include database, Web intelligence, data mining and computer teaching reform research.

He joined the Institute of Information and Spreading Engineering at Changchun University of Technology in 1996. Now he is a teacher for teaching computer courses. He has published more than 20 papers in the international journals and conferences. Some of them have been indexed SCI, EI and ISTP: Stock Company Comprehensive Assessment Model based on Kohonen Network (Jingzhou, Second International Conference on Genetic and Evolutionary Computing, 2008); SOM2W and RBF Neural Network-based Hybrid Models and Their Applications to New Share Pricing (Jinan, The 4<sup>th</sup> International Conference on Natural Computation (ICNC'08), 2008); Applications of SOM2W Network for Stock Companies Comprehensive Assessment (Dalian,

The 4<sup>th</sup> International Conference on Wireless Communications, Networking and Mobile Computing, 2008); Research on Teaching Reform of Computer Basic Courses in Technology Universities (Zhang Jiajie, The 9<sup>th</sup> International Conference for Young Computer Scientists, 2008) etc. He has presided or completed 14 research projects including 10 Provincial Research Projects. Her previous research interests: neural network, swarm optimization, computer education research.

Prof. Han has awarded many honors, such as 2<sup>nd</sup> award of science technology progress from Jilin Province etc.



**Li Ming**, born in 1954. He is currently a Professor in Department of Information at Changchun Taxation College. His main research interests are in the areas of database, artificial neural network, evolution computing and computer teaching research, etc.

Prof. Li Ming, the director of the department, is the director of the computer academy of Jilin Province and of the computer application technique academy, the member of editor committee of Beijing University Publisher, Chief Professor of college. He has awarded many honors, such as Advanced Technology Personnel from National Tax Bureau awarded and written more than 10 textbooks such as the Foundation of Computer Application etc. In addition, he has ever organized and taken part in many research projects.