

# *Information Management and Information System's Practice Teaching Designing Based on the Computer Supported Collaborative Learning*

Weiwei Wu, Jiahua Wan, Yiwen Zhang, Xiuming Chen

College of Information Engineering,  
AnHui XinHua University,  
Hefei Anhui, China  
e-mail: wuweiwei@mail.ustc.edu.cn

**Abstract**—In job market, there's an increased demand for application-oriented talents. Computer Supported Collaborative Learning (CSCL) is an important model of practice teaching for the training of the application-oriented talents. The status of practice teaching is studied based on the characteristics of the Information Management and Information System (IMIS). Computer Supported Collaborative Learning is introduced to break the shackles of the traditional practice teaching. An effective open practice teaching method is stated. The method has more communication and cooperation.

**Keywords**—Computer Supported Collaborative Learning; Information Management and Information System; Practice teaching

## I. INTRODUCTION

Information Management and Information System is a new professional, which is integrated by the other five professionals as Scientific and Technological Information, Information Science, Economic Information Management, Management Information Systems and Forestry Information Management. This was issued by the Ministry of Education of China in the 《University Undergraduate Course Catalog》 in 1998. According to the Ministry of Education, the training goal of the professional is that, students not only have to master the economics, management, information technology and computer technology, but also have the strong practical ability, creative ability, strong ability of man-machine communication and coordination. After several years, there are a large number of graduates of information management and information system in the job market. They have played an important role in the information constructions.

The Mycos institute published the 《2010 China Graduate Employment Report》. It reported that IMIS has become one of the yellow professionals in 2010. It means that the graduates, who major in the Information Management and Information System, would face the high unemployment rate, low employment rate and low monthly wages. The publication also reported that the graduate of IMIS was oversupply in all industries. Now, we can say that the graduate's employment situation of the IMIS is very serious.

How to solve this problem? We must make up the employment level and increase the quality of employment. The most importance is that we must teach the students some needed abilities. All the universities can achieve the basic knowledge of the professional training, but there are still have very large gaps of practical ability, the higher knowledge. All the university should emphasize the practice teaching, and improves the quality of practice.

## II. THE PROBLEM OF THE PRACTICE TEACHING

After the development from 1998, Information Management and Information System professional has build the complete training system and the general mode in almost every college. The practice teaching can divide into three parts as figure 1. The basic practice concludes validation experiments and designing experiments after the course. Curriculum design and production practice include designing experiments, integrated tests and verification experiments. Graduation practice is designing experiments and comprehensive experiments. If all these practices can be effectively carried out, it will be very effective for improving the practical ability of students.

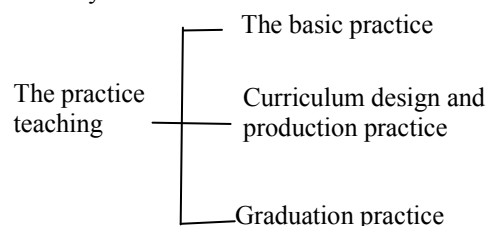


Figure 1: IMIS practice teaching component

The education is focused on the theory teaching, and this is very common in China universities, but it's very bad. The colleges always do not attach the importance to the practical teaching. If the practical teaching can go ahead, they would not pay more attention. We can conclude the poor condition of teaching practice as follow:

1) Small percentage of practicing and training courses is not in favor of practical ability. In the training program, the practicing and training courses percentage is not enough for students, they have no time to validate the basic knowledge and have no time to design a new experiments.

For example, in our college, the number of Information Management and Information System total class hour is 2571, but practical teaching hour is only 671 as 26.1% of the total class hour. The curriculum design and production practice hour is 120. It is very poor for building the practical ability of students.

2) Learning content is increasing, but job skills training is not proportional to grow. The students need to learn the economics, management, information resource management, computer and information systems and other basic courses. Their learning task is increasing and becoming very difficult, but their practical ability is not enhanced, however, it is decreasing. The employment rate is also low.

3) The content of practice teaching is poor and unreasonable design, so the students have no motivation. The content of practice teaching has no innovation, and validation experiments are too much more than designing experiments. The contents of the courses as Management Information System, ERP, System Planning and Designing are rich. But we do not arrange them scientifically. The experimental subjects are old and single. Students are not interested in the experimental course. They have poor sense of participation. All of the above situations are not conducive for students to build their learning ability and innovative ability.

To solve these problems, one should make the practice teaching play the more important role in the students' education. We must find a new method to improve the students' poor initiative and coordination. In the practices, we set the problems and situations more effectively to be funnier and more explicit purpose and improve the practical ability. The collaborative learning theory is employed in the practice teaching to improve the students' practical ability.

### III. THE APPLICATION OF COLLABORATIVE LERANING IN IMIS' PRACTICE TEACHING

#### A. Computer Supported Collaborative Learning

Collaborative learning is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together[1]. Usually, students are working in groups of two or more, and mutually searching for understanding, solving problems, or creating a production. Collaborative learning activities vary widely, but it most center on students' exploration and application of the course materials, not simply focus the teacher's presentation or explication of it. Using collaborative learning, the individual members' success is based on others'. The learners work collaboratively, and the relationship is very harmonious. The members spare all the resource to complete the learning task. Compared to individual learning and competitive learning, collaborative learning pays more attention to how to learn initiative and creativity. It is more conducive to deepen the understanding. Students can master the application knowledge,

and build the development of advanced cognitive abilities. The group can cultivate the spirit of cooperation and format the good relationships.

The basic elements of collaborative learning are collaborative team, team members, guidance teachers and collaborative learning environment. Different from the traditional group, the relationship between collaborative learning's group members is heterogeneous, which helps members to collaboration. It can help members study from different peoples and from different angles. CSCL integrates CAI and collaborative learning; it can play full advantages of computer network. Team members of CSCL can study discontinuous without the teachers and the school.

Computer Supported Collaborative Learning has seven modes: competition, discussion, partnerships, problem solving, cooperation, designing and role-playing. Each of them has the same mode of practice teaching with the help of CSCL as figure 2.

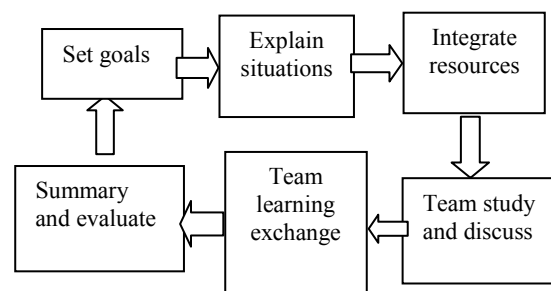


Figure 2 : practice teaching mode of CSCL

We can use all the resource to study and discuss, like online teachers, teaching resource library, situations library, BBS, net meeting and so on. When the team needs study and discussion, one can use partner mode or discussion mode or cooperation to complete the task model or any other modes. The teachers also play several roles such as participants, facilitators and evaluators.

#### B. Practice Teaching Designing of CSCL

Practice teaching of the application- oriented training is essential. Information management and information systems professionals should demand from the students' participation and improving their own initiative and innovative. The practice problems should like projects and will be interesting. CSCL can exchange the role of teachers and students. A student is not only the traditional recipient; he is a transmitter of information or even the information producer. For the teachers, their main role is not teaching but guiding. They guide the learners studied independently, such as making study plans, choosing learning contents and methods, answering the learners' questions from variety of issues. The teachers guide the direction of learning. We can say that CSCL can help students play more initiative, and it can build a more harmonious communication between teachers and students. Now we can redesign the practice teaching from the following six aspects:

1) Determine the teaching task. The teachers design the situation of the class, and make sure the situations come from

the society or from the student life. Then the teachers explain the situation to students. The students familiarize their selves with their new tasks. If they find the tasks come from the life, students would be more initiative and very interested on them.

2) Choose the theme of the situation. One situation should conclude several questions. The teachers choose the chief question according to student's ability, student's character. The chief question is the theme of this situation. Different student has different theme. One theme has its own aid and content, and can guide the students study effectively.

3) Change the theme into project. Students collect all the resources as they can use according to the theme and the questions. They integrate the industrial development, the teacher's own research, the background of knowledge and the information resource in school or out school. Teachers and students design the teaching content into specific training projects.

4) Partition the project into responsible groups. When the students complete projects, they divided themselves into groups. But the relationship between groups is collaboration. Teachers decide the groups' structure and rule. They make sure the responsibility of all group members, and each student has their own individual accountability. All the group members work to achieve a same goal. They study together and improve themselves simultaneously.

5) Responsible groups have to get some production. Group members are working together. They are ordered to write a memoir or a course report. The report will be exchanged and communicated between teams. After they complete the learning tasks, the reports provide how the cooperation going on to the group to improve the group's collaborative learning capacity and maintain a good working relationship. Collaboration members' help each other to overcome difficulties. Members can be discussing, sharing information, using interactive teaching methods. It can not only promote each other to learn, but also cultivate the ability to resolve conflicts and contradictions.

6) Evaluation the Results in public. Teachers evaluate the process and the results, and organize students to do the self-evaluation and mutual evaluation. It can improve students not only identifying problems, thinking and solving problems, but also encourage students to develop good habits of learning the strengths of others. Through self-evaluation, mutual evaluation and debate, learning consciousness is fully reflected and strengthened. The ability of thinking and solving practical problems has been greatly improved.

Students can use the computers and Internet to collect all the resources with CSCL. Internet communication can communicate without time restrictions. It gives full play to the advantages of computer network media and to facilitate better interaction between the learners, and also to improve communication efficiency. Using CSCL, the role of teachers is a guider and controller. The students can learn fully autonomous. Their learning is positive. The role of teachers in CSCL can be fingered as figure 3. Note that the numbers represent the six aspects mentioned above.

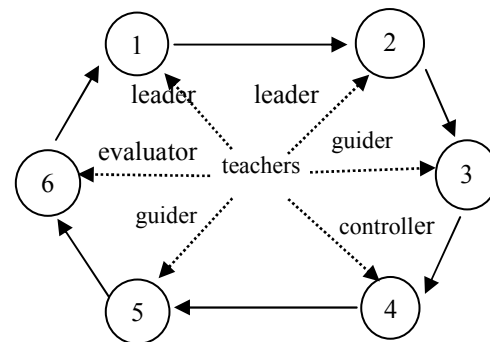


Figure 3 : Application of CSCL in practice teaching

#### IV. PRACTITION AND CONCLUSION

As the practice teaching based on CSCL is easier and more cognitive to determine the teaching task, it greatly enhances the students' interest in learning. The weariness situation and the satisfaction of the students have also been enhanced. Group discussions and project teaching method can develop the initiative of students, and improve learning ability and communication skills. At the same time, the teachers are teaching in more challenging by the need to continuously improve the level of theory and practice of teaching in order to meet the needs of students.

We have used the CSCL in basic practice and curriculum designs for three semesters. Students like this method very much. In their final evaluation of courses, students' satisfactions of this method are all higher than 95%. Only by continuously strengthening the participation of students and initiative, it can effectively improve the innovation abilities of students, and train talents for the real application needs of the community. Graduates will be recognized in the fierce market competition.

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#### REFERENCES

- [1] Jan-Willem Strijbos, Frank Fischer, Methodological challenges for collaborative learning research, *Learning and Instruction*, v17, n4, P389-393, 2007.
- [2] Chang, Ling-Chian, A team-teaching model for practicing project-based learning in high school: Collaboration between computer and subject teachers, *Computers and Education*, v 55, n 3, p 961-969, 2010.
- [3] Wang Chang-Feng, Computer-mediated collaborative learning in management education, *International Conference on Educational and Network Technology*, p 314-317, 2010.
- [4] Avouris, Nikolaos; Kaxiras, Stefanos; Koufopavlou, Odysseas; Sgarbas, Kyriakos; Stathopoulou, Polyxeni, Teaching introduction to computing through a project-based collaborative learning approach, *14th Panhellenic Conference on Informatics*, p 237-241, 2010.
- [5] [Jiyang Li, Construction of a Collaborative Learning environment Based on the Internet, *Net Education Research*, n9, p40-46, 2001. (In Chinese).

- [6] An Xiaofei, Huang Zhidan, Studies of the collaborative learning under network environment, Journal of Shenyang Normal University (Natural Science), Vol21, No4,p287-290,2003.(In Chinese).
- [7] Lazakidou, Using computer supported collaborative learning strategies for helping students acquire self-regulated problem-solving skills in mathematics, Computers and Education, v 54, n 1, p 3-13, 2010.
- [8] Jane S. Prichard, Robert J. Stratford, Lewis A. Biz, Team-skills training enhances collaborative learning, Learning and Instruction, v16, n3, P256-265,2006.
- [9] Evode Mukama, Strategizing computer-supported collaborative learning toward knowledge building, International Journal of Educational Research, v49, n 1, P1-9, 2010.
- [10] Jeroen Janssen, Gijsbert Erkens, Paul A. Kirschner, Gellof Kanselaar, Influence of group member familiarity on online collaborative learning ,Computers in Human Behavior, v5, n1, P161-170,2009.