The Research of Introducing Project Practice Training Mode for Computer Professional Talent

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Abstract

It is an essential problem must to face how to raises the computer major student's project design and development ability to meet the stern employment competition situation. The paper analyzed the shortcoming of existing computer practice teaching system, proposed a novel education pattern with project practice, taken the corresponding reform measures. It was emphasized for the characteristics of project practice-- the planning, the authenticity and the affectivity. The practice result indicated that, student's practice ability, independent study ability and unity cooperation ability obtains enhanced greatly after the project practice.

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1. Introduction

As informatization process accelerating, a considerable amount of demand is produced in all areas for computer professionals. With college expansion, the number of computer majors quickly became to be one of the national largest, professional's employment pressure is growing; the competition is becoming more and more fierce. In the actual employment process, those with strong project development ability

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often gets the employing unit's favor, employment quality is high; And those with weak practical ability face grim employment situation. The above situation appeared more obvious in the international financial crisis period. Some social training agencies launched software development training project draws, but high fees was a forbidding place and also caused discontent to college education for students' parents. This brings the severe challenge for practice teaching of the college computer [1-2].

Computer disciplines are practice-needed curriculum; project ability training is the most important among practical ability training. Complete project ability includes project requirement analysis, overall design, detailed design, code debugging, testing and implementation and so on. The existing practice teaching system lacks complete project ability training. Students obtained training exercise only through participation in teachers’ research or extracurricular technological competition in the spare time, only a few students benefit [3]. Jiangxi university of TCM is a local university of undergraduate course, its computer professional training target aiming at training applied talents for traditional Chinese medicine's domain and local economic development. More than ten years teaching employment practice [4] tip us, only introducing project practice into practice teaching system, students could have better practical ability and strong competitiveness to the job market.

2. Talent training mode reform ideas

For computer major, complete practice teaching system includes course experiment, curriculum design, and curriculum apprentice and graduation design, as shown in figure 1 below. Matching theory teaching, the purpose of experiment courses is to understand and verify the basic principle and basic knowledge and cultivating basic experimental skills. Unit and verification experiment are given, complementary with appropriate comprehensive and exploratory experiment. For course design it is given priority to general with comprehensive and designing experiments, needing comprehensive knowledge of a specialized course to finish the experiment topic, such as big homework of database courses and object-oriented program design course. Practice or probation is to apprentice unit field study for students during learning process or practice stage, realizing the actual working environment, experiencing the actual workflow to widen your horizon, transition from school life to practical work on thought and psychology. Graduation design is comprehensive practical teaching link, with data access, complete design and development work, writing papers and attending rejoin around design project. It is the training of comprehensive ability and overall quality for students. For computer major, project ability is the most important practical ability training. Among the practical teaching links, only the graduation design theoretically takes project practice way, but in fact students at this stage face the severe pressures upon employment and schoolwork, difficult to concentrate on systemic comprehensive graduation design. Consideration with student’s employment pressure, teachers also ease student’s requirements more or less, so the effect of graduation design stage is not satisfactory for student project ability raise [5].

After years of exploration, we put forward a new idea of practice teaching system reform: introducing project training mode, comprehensively training students' project ability. The so-called project practice is that let students practice, 2-3 groups of, in view of the actual project, according to the software engineering requirements, independently inquiring the documents, project requirement analysis, overall design, detailed design, code and test based on completion of design, deployment for users finally. As shown in figure 1 shown in virtual box part. Project training mode meets three features:

(1) Planning: project practice is put into the training program, students organized, scheme designed, evaluation used and credit given, to avoid many defects of just using the second classroom training project.

(2) Authenticity: students design and development projects in almost quanzhen environment, projects all coming from the real demand instead of customized topics.
3) Effectiveness: practical application effect is the main evaluation index of project quality and as, excellent project must be put into use.

3. Reforming supporting measures

In order to smoothly carry on the practice teaching system reform, several supporting measures are taken with support of the school leader and academic.

3.1. Modify training program, introducing project practice into the training plan

The project practice is put into the training plan, means that the original teaching plan modification. It should spare time for project practice, can't impact normal teaching arrangement and can't break out of the total teaching hour's restrictions. In the support and guidance of academic office, after repeated internal discussion, feasibility study meeting held more times with experts, the teaching plan readjustment was successfully completed. Project practice was arranged in the fifth semester. Students have learned object-oriented programming and database course, having the professional foundation of independent project analysis, design and development. In order to guarantee the project practice time, only one theory course arranged in the fifth semester - software engineering. Software engineering is guiding software development and maintenance. Side for the theoretical guidance, while design and development the project, and bring out the best in each other.

3.2. Solicitation programs facing the campus and off-campus

In order to achieve real project training purpose, teachers and students can not issue subjects. Before the end of every spring semester, the training projects were solicited publicly in school website, with no charge, free development. Solicitation topics were rich and colorful with high enthusiasm of school departments. Some are exquisite course, characteristic professional website design, some are department website development, some are department information system development, and some are longitudinal subject. Recently, the collected subjects also include drug experimental data analysis, clinical medical record data analysis. Subject source was extended form the campus departments to affiliated hospitals and
even practice teaching units. Solicitation way expanded the influence of computer professional project practice, promoting the practice teaching system reform process. Meanwhile, the real project can make students get real exercise. Such as demand analysis stage, students must communicate with project use unit; experience the needs of users to access accurate requirement. The real project can stimulate student’s desire of successful project completion to work harder to design project.

3.3. Build "company type" training venues

There is only one course in the fifth semester, free time of students is very much. It is very necessary to concentrate students together to design and develop projects. In order to build the company like exploited environment, Computer College constructed three training rooms in school support, each training rooms accommodating 25. The stimulant teaching rooms were designed in accordance with software development company requirements, with a local area network. The stimulant teaching room can link Internet for students to access information, with small white board, facilitate configuration for student’s discussion. In every seat development plan and related matters were pasted. Students just feel like employees into the companies while entering the stimulant teaching room.

3.4. Make "company type" management system

“The company type" management is safeguard for project progressing smoothly; also can make students soon understand and adapt the company requirements. Starting from the first project practice, a series of rules and regulations were enacted referencing software company requirement such as checking attendance system, leave system, the stimulant teaching room management system and mid-term examination system. Attendance system is not only for students, but also for teachers, ensuring teachers for project instruction time. Training work steering group was established to regularly check the project schedule. Guiding teacher and student symposium was regularly held to study and solve various problems exposed in the process of project practice.

3.5. Let practicability be the software work main inspection index

The most fundamental standard of project development success is if the project practical and if users satisfactory. In the project practice evaluating, we persist in practical as main evaluation index of a software works, accounting for 50% of the overall. Among other assessment index, daily attendance and performance 15%, the literature review and comments 15%, the thesis 20%. After project training, select 15% of outstanding project, the project which was not put into practical application without candidacy. Tendentiousness assessment guide students to try to solve practical problems in the process of the project design and development. More efforts were paid to make the project more practical and more easy to use.

4. Achievement

Since the training mode of introducing project practice carried on in 2004 for computer specialty, significant effect was achieved. Student's learning enthusiasm was high; many students worked day and night in the stimulant teaching room to develop projects. The stimulant teaching room peremptory became company software development room. Student's practical ability, self-educated abilities and unity cooperation ability got the general improvement. When participation in various extracurricular technological competition activities, project training works were successively grouped total score first in the 15th, the 16th and 17th session of electronic computer competition undergraduate group in Jiangxi
province. In college students, "challenge cup", and national mathematical modeling competition extracurricular race also award-winning. Students also won “the national league May 4th red flag”, “the advanced class of Jiangxi province”, “Jiangxi province league May 4th “and other honorable titles. Through the project practice, developing a group of management software and putting into use, have achieved good economic and social benefits. The computer professional student employment ranked for years.

In order to better evaluate project training effect, we issuing a questionnaire after and before project training for three consecutive years. Design problems included software development and maintenance understanding, project management understanding and mastery of development tools etc with 162 recoveries. By statistical analysis of questionnnaire survey, it was found that after project training most of the classmates understood software engineering techniques and tools more deeply, development of application more adept, the unity cooperation consciousness more strong, independent completed project confidence obviously enhanced.

5. Existing problems

Although it achieved significant results for introducing project training talents training mode in actual teaching process, we still found some serious problems. Due to lighter course task during the fifth semester, a handful of students relaxed to own request. They put their time and energy into the game instead of design and development in stimulant room. In addition, the project training also presented high requirements for teachers. Some teachers lacked of project development experience to guide students. In the future practice process, we will constantly strengthen management, strict with students, take effective measures to strengthen the construction of teachers' team to improve teachers' comprehensive quality. We will constantly improve the talent training mode, sending more market economy adapted, more competitive computer professionals to the society.

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