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# Research of curriculum reform about creative personnel training

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## ABSTRACT

Highly qualified creative personnel training is the hot spot in China. It compares the difference of higher education between China and America. Taking curriculum reform of Oracle database developing course as an example, it suggests advice and practice of creative personnel training from the aspects of curriculum design, teaching contents, teaching methods and Assessment.

## KEYWORDS

Creative; Higher education; Personnel training; Curriculum reform.



## INTRODUCTION

Quality-oriented education is a major theme of educational reform in 21st Century. Many universities put highly qualified creative personnel training in advance when they design training objectives. To train creative ability of the students, that means to train student's ability of learning new knowledge and using their knowledge to solve practical problems, to be creative and highly adaptable specialized personnel. In the increasingly fierce competition and degree of internationalization crescendo today, the comprehensive quality of Chinese college students are lower gradually revealed. One of the more prominent aspects showing in the area of innovation ability, team cooperation ability, practical ability, independent life ability etc.. It becomes a hotspot in Chinese higher education that how to train qualified creative, compound and international talents[1,2].

Taking curriculum reform of Oracle database developing course as an example, it suggests advice and practice of creative personnel training.

## COMPARISON OF HIGHER EDUCATION BETWEEN CHINA AND FOREIGN COUNTRY

### Difference of culture background and teaching mode

In the Peking University Centennial Symposium, the former president of Harvard University Dengting Lu pointed out: in the process towards the new century, the best education is conducive to the formation of the people of innovative thinking quality, make people more thinking, more pursuit of ideal and insight, become more perfect, more successful person.

The design of twelve standard training goal of undergraduate in Princeton University contains the knowledge, ability and quality structure needs for innovative talents: with clear thinking, ability of expression and writing; With the ability of systemically reasoning with criticism methods; with the ability to conceptualize and solve problems; with the ability to think independently; with the ability to take initiative and work independently; with the ability to cooperate with others; with the ability to judge, to understand something; with the identification of important things with trivial things, enduring things and things ability; with the ability to become familiar with the different ways of thinking; with the ability to master knowledge in a particular field depth; with the ability to observe different disciplines, culture, philosophy of relevant place; with the ability of life study.

In many universities in America there are no difference in major when students in the first or second grade. For the fresh man, they don't need in a hurry to determine the major. After they study the "core courses", --which include literature and art, history, natural sciences, social analysis and moral, foreign culture, etc., --they understand the basic research ways of different area and get the basic knowledge about the areas, and then they can determine their majors according to their interests. Global education is emphasized further in the aspect of arranging curriculum in recent years. The study of courses can go out of the country, to the world, as a kind of learning about the world, and can obtain corresponding credits. If they don't like their major the other day even after they have chosen one major, they still can apply for and change their major, even change credits in different university and different major.

Students in China need to pass the national entrance exam to go to universities. Before they go to the universities, the students need to choose their major at first. After they go to the universities they can't change their major, even they are not interested in. This situation has changed a little in recent years, some universities carry out a broad categories enrollment, it permits students choose their major under the broad categories after one and half a year's or two years' study. For example, students in management college, Beijing Union University enroll as broad categories of business administration. After one and half a year's study, students can choose their major, such as information management and information system, E-business, finance, and etc.. But if your scores are not good enough you are not permitted to pop major. Once you enroll one major you cannot change major until graduate. Of course, students in some university could apply for some second major[3].

### Difference of curriculum design

Here we choose two curriculums to compare. One is from computer information systems, information & computer sciences department, college of arts and sciences, Metropolitan State University. The other is from information management and information system, information management department, college of management, Beijing Union University. Both of them are bachelor degrees.

Usually the minimum credits in American universities are at least 120 credits, including 48 credits Gels, 40-60 credits major, the other is 40 credits Elective. For information systems major in Metropolitan State University, the minimum credits are 120, including 48 credits Gels, 56 credits major, 16 credits Elective. 1 credit is about 12 ½ class hours. The Gels courses include liberal studies communication, higher order thinking, natural sciences, mathematical / logical reasoning, history and the social and behavioral sciences, humanities and the fine arts, human diversity in America, global awareness, ethical and civic responsibility, people and environment.

For information management and information system major （version of 2008） in Beijing Union University, the minimum credits are 204 credits, including 74 credits Gels, 130 credits major; the other is 10 credits Elective which is already included in the 74 credits Gels. For version of 2011, the minimum credits are 170 credits, including 53 credits Gels, 101 credits major; the other is 16 credits Elective which is already included in the 74 credits Gels. 1 credit is about 11 5/12 class hours. The Gels courses include history, philosophy & political science, math, English, PE, arts and innovation courses.

The American students are required to study both written and oral communications whereas the Chinese students have no communication requirement. On the other hand, American mathematics requirements are weak in comparison to the Chinese requirements. American students are typically introduced to a wide variety of topics in the sciences, social and behavioral sciences, the humanities and fine arts. In contrast, the Chinese students focus on a few areas in depth - math, politics, English and physical education, with limited elective choices in art, science and the social sciences. Overall, the Chinese general education requirements are much larger than their American counterparts. The Chinese general education requirements are tailored to support the Information Management and Information Systems major. But from the version of 2011, this situation has improved a lot. The total credits reduce form 204 to 170; credits of major course reduce form 204 to 170; elective credits add from 10 to 16, especially add courses of quality education, courses of innovation and starting a business. It is encouraged for the students to pass an entrance examination and get professional certificate, listen to academic report, attend kinds of contests to get related credits, so as to train student abilities of creative, applied and practice.

But in the aspect of Gels education, it is lack in China, especially in humanity attainment. It suggests that encourage the training of innovation and creation of services outsourcing personnel training. Increase Gels education in curriculum, such as language culture, math, IT technique, and so on, to train the communication ability of students.

**Difference of teaching methods**

American students are encouraged to be proactive, independent and creative learners. They choose their majors and courses themselves. Therefore, it's more likely they are involved actively during class time. They ask questions and they want faculty input. They also know why they need to finish assignments and the importance of get them in to the faculty on time. The teacher will give some reference materials after class, students should search and learning related knowledge themselves. Some teachers give some references, student write thesis after reading. All you write in your thesis must show your own thoughts, because you will not get a high score if you just repeating the professor's opinion or what the content of the book. This way of study is very important to train students think themselves and use knowledge to solve problem creatively.

Chinese teachers teach according to the syllabus, the curriculum content, curriculum schedule is very detailed, so they do not have much space to play themselves. Students are more dependent on their professors for direction. Students take notes during class. Doing well on the final exam remains the only path to success in most courses. Before the final exam, students memorize their notes in order and faculty members help them as well. Such a method is not good in evaluating a student's true ability in applying theoretical knowledge and can be damaging to those with more creative minds. A serious examination of assessment methods is worthwhile. A model of giving students the responsibility to learn for themselves by encouraging creative and active participation in making course choices may be worth looking into.

**Difference of Assessment**

In American universities, it is the student's responsibility to pass the course. From the syllabus, the students know how they can pass the exam of the course. In the syllabus, it is clear how many assignments you need to hand out and how much score every assignment is. How many quizzes you have and how much score every quiz is. And how the final grade is consists of.

In Chinese universities, it is the faculty's responsibility to get students pass the course. Usually the final exam determines student's final grade of the course. Students do not have much control over the final grade. Doing well on exam remain to be the only path to be successful in most of the course. Before the final exam, students would like to recite their notes in order to pass the exam.

## CURRICULUM REFORM OF CREATIVE PERSONNEL TRAINING

Here we choose Oracle database developing course as an example.

**Reform of teaching contents**

Teaching content emphasizes the combination of theory and practice teaching. Using case driven, Oracle database developing course import associated case in the classroom teaching process to guide the students think deeply. And to understand and master the theoretical knowledge taught from the case analysis, make the abstract theory visualization and concretization so that explore motivate students' active learning. For the part of the principle of database, it introduces the database design, standardization theory, E-R diagram, PL/SQL language design principle and technology. Through study the development of case, it makes students master the basic principle of Oracle database management system and the basic operation, master Oracle relational database language, master the operation and use of Oracle, database establishment and management, data table establishment and operation, use of PL/SQL language and programming, have the ability of preliminary design, use and develop Oracle database.

Using case in the process of teaching to explain theory, it not only can improve the theoretical level of the students, let the students master the basic theory of database, but also can enhance the ability of students' use of theory in practice.

**Reform of teaching mode**

The traditional teaching mode hinders the training of innovative talents. The promotion of sense of innovation and practical ability is restricted by traditional teaching methods, and teaching mode is the general name that teacher and students

complete the teaching task, way and means of teaching and learning methods in teaching and learning activities. It is directly related to the success or failure of the teaching work, teaching efficiency and personnel training direction and quality. At present many Chinese university classroom are large class, "chalk and talk", "spoon feeding" is still the basic pattern of university classroom teaching. College Students' learning focus on the ready-made knowledge given by teachers, the teaching atmosphere that begins with the question, bases on finding, reflects the research and the main body is not strong. This kind of teaching method only focus on imparting knowledge and neglecting the students' learning, without considering the inherent needs of students, is hard to inspire students' curiosity, and also hard to provide students with environment required by innovation and innovation practice opportunities required by innovation. It will largely suppress the students' initiative and creativity development[4,5].

Oracle database developing course aims at cultivate the spirit of innovation and improve practice application ability. It uses many kinds of teaching method in teaching, gives full play to students' learning potential and enthusiasm.

**Reform of teaching method**

It should teach students according to the teaching objective, teaching contents and teaching object of one course. In the study of teaching method based on applied, use "participative", "project drive" teaching method in class, integrate teaching methods like case teaching, talking lass into traditional teaching. To carry forward elicitation method of teaching, talking class and participative teaching method to help the students learn how to study, learn themselves, and improve their practice skill and problem solving ability. To emphasize the principal position of the students in teaching, emphasize the interaction between teacher and students, fully shift the students' active, initiative and creative. Pay more attention to inspire the active of the students to learn themselves; exercise students' coordinate ability, communication skills and integrated apply ability of theoretical knowledge; train ability of solving practice problem and team work spirit[6].

In "Oracle database developing" course, "project drive" includes stages like project choose and design, project implement and project evaluation. In the stage of project choose and design, the teacher design several project task, after discuss with students then define the object and task of the project. 3 to 5 students can be one group, and the students define everyone's work and cooperate. In this stage there is a higher comprehensive demand to the teacher, they should have rich experience of developing project. The detailed project could come from enterprise's practical project, and could be also developed by teacher. Every project obeys the rule of module rise, again every model design in detail to be different level of ability demand. The difficult and easy level is different according to students' different abilities. Students could choose different project according to their own situation. In the stage of project implement, the teacher should mainly guide students the method to solve the problem when students meet problem. The guide depth is different according to different level students. In the stage of project evaluation, teacher and students altogether give evaluation after discussion and exhibition; the evaluation should pay more attention to the student's ability training in project. Students learn as one project group and teacher give different level guide according to student's different level, so it dig deeply the students' study potential.

Students finish the study of the course after finish the "project task", and the evaluation is mainly according to their "project result" so as to train the students' innovation ability and team work spirit.

**Construct network school to meet the students' individualized learning**

It should make full use of network school and other advanced means as a teaching aid, to extension and supplement of classroom teaching very well. The design of network school content allows teachers and students' interaction, forms open, interactive and sharing mode, cultivate students' inquiry learning ability, innovation ability, and is conducive to the students' autonomous learning, cooperative learning, research learning and individual learning.

The course basic information of "Oracle database development network school" includes all kinds of teaching documents and data, such as introduction to the course, teacher introduction, electronic lesson plans, syllabus, teaching schedule, multimedia courseware, case teaching, course video, reference materials, and the cyber source links related to courses, etc.. It also includes online discussion, question answering and online test, students can carry out learning, discussion, homework, counseling, question answering, experiment, test online etc.. It provides coaching and communication between teachers and students interaction for the students' autonomous learning, and teachers give students different levels guide in different depth so as to meet the students' individual learning needs.

Students completed the network school tasks and the degree of participation can be regarded as the main basis to evaluate student's stage achievement.

**Reform of Assessment**

We can find huge difference to compare the evaluation method between China and America, just as what we have discussed above.

It suggests reforming the evaluation method to more scientifically evaluate students. It could build diversified evaluation system according to students' comprehensive applied ability. The evaluation contents could be basic knowledge, skills and professional skills, and so on. The evaluation way could be diverse, such as evaluate on computer, works evaluation, practice reports, survey reports and enterprise evaluation, and so on. Pay more attention to evaluate procedure and also evaluate the comprehensive ability and professional skills.

Students completed the network school tasks and the degree of participation can be regarded as the main basis to evaluate student's stage achievement.

## CONCLUSIONS

It takes curriculum reform of Oracle database developing course as an example, it suggests advice and practice of creative personnel training from the aspects of curriculum design, teaching contents, teaching methods and Assessment.

The innovation ability is the decisive factor of the worldwide economic and technological competition. Innovation must be innovative talent which mainly depends on the innovative education and training. A university is to cultivate high-level professional talents. High level talents play a decisive role in the national innovation system, and are the main force in the talent team. Therefore, to strengthen the innovative education in university is of special significance for the construction of an innovative country.

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