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Preface

We are delighted to invite you to participate 2011 2nd International Conference on Education and Educational Technology (EET 2011) in Chengdu, China, October 1–2.

Chengdu is the capital of Sichuan Province, which is known as the "Heavenly State" (Tian Fu Zhi Guo). Being the natural habitat of cute giant pandas, Chengdu is located in the west of Sichuan Basin and in the center of Chengdu Plain. It covers a total area of 12.3 thousand square kilometres (4,749 square miles) with a population of over 11 million.

Benefiting from Dujiangyan Irrigation Project which was constructed in 256 B.C., Sichuan Province is reputed as "Tian Fu Zhi Guo", literally a place richly endowed with natural resources. Chengdu, as the capital, is extremely productive. The Min and Tuo Rivers, two branches of the Yangtze River, connected to forty other rivers, supply an irrigation area of more than 700 square kilometres (270.27 square miles) with 150-180 million kilowatts of water. Consisting of abundant mineral resources, the land is extremely fertile. The history of Chengdu can be traced back 2,400 when the first emperor built his capital here and named the city. Through thousands of years its original name has been kept and its position as the capital and as the significant center of politics, commerce and military of the Sichuan area (once called Shu) has remained unchanged. Since the Han (206B.C.-220) and Tang (618-907) Dynasties when its handicraft industry flourished, Chengdu has been famous for its brocades and embroideries. Shu embroideries still enjoy a high reputation for their bright colors and delicate designs, ranking among the four main embroideries in China. Chengdu was the place where the bronze culture, an indispensable part of ancient Chinese culture, originated, the place where the Southern Silk Road started, and the place where the earliest paper currency, Jiaozi (not the dumpling!), was first printed. It is listed among the first 24 state-approved historical and cultural cities and owns 23 state and provincial cultural relic units.

The objective of EET 2011 is to provide a forum for researchers, educators, engineers, and government officials involved in the general areas of Education and Educational Technology to disseminate their latest research results and exchange views on the future research directions of these fields.

2011 2nd International Conference on Education and Educational Technology (EET 2011) is sponsored by Beijing Normal University. The mission is to bring together innovative academics and industrial experts in the field of Education and Educational Technology. The EET 2011 will also include presentations of contributed papers and state-of-the-art lectures by invited keynote speakers. The conference will bring together leading researchers, engineers and scientists in the domain of interest.

We would like to thank the program chairs, organization staff, and the members of the program committees for their hard work. Special thanks go to Springer Publisher.

We hope that EET 2011 will be successful and enjoyable to all participants. We look forward to seeing all of you next year at the EET 2012.

Yuanzhi Wang, Intelligent Information Technology Application Research Association, Hong Kong.

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A Few Thoughts about Examination Method of Holding a Post Education in the Military Academy

Hong-fu Qiang, Qi-yuan Zhong, and Li-long Tan

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Abstract. Examination is a very important part in the teaching work, and plays an important function. Holding a post education is a very significant part in the military academy education system. According to the several years teaching experiences in the holding a post education, a few thoughts about examination method of holding a post education is put forward, which can improve the fair and equity of the examination.

Keywords: holding a post education, examination method, teaching effect.

1 Introduction

Examination is a very important section in process of teaching, and it is a very important measure to check the teaching quality and learning effect. Through examination, two purposes can be achieved: one is that the learning effect of students can be checked, evaluating the mastery degree and application ability to professional knowledge; the other is that the comprehensive effect of teaching and learning can be measured. To the teachers, examination can promote teachers to find the questions in the teaching, and can give evidence to improve the teaching quality. So, examination is a very important means to promote learning, also is a very important feedback means to promote teaching. A reasonable examination method would make an important significance to cultivate satisfactory climate for learning and examination, to cultivate consciousness and ability of creative, to promote quality education centered on creative in an all-round way.

2 Holding a Post Education and Its Characteristics

Holding a post education in the military academy is a training mode whose purpose is to make the training applicants acquire professional knowledge and techniques which are adapt to the need of troop and holding the post. At present, in the military academy education system, there are holding a post education and graduate education. With the establishment of new academy system, relative separation between the holding a post education and graduate education are achieved. The training mode centering on holding a post education is improved more.

Comparing the holding a post education with the traditional graduate education, there are following several characteristics:

2.1 Directivity of Teaching Aims

The teaching aims of holding a post education is to make the training applicants acquire professional knowledge and techniques which are adapt to the need of troop and holding the post. Teaching aims are set according to the post demand of troop. So, the teaching aims of holding a post education is directive.

2.2 Comprehensiveness of Course Offering

In order to make the training applicants acquire professional knowledge and techniques which are adapt to the need of troop and holding the post, the course is set comprehensively and the teaching mode is topic teaching. One course includes several topics, and different topic is taught by different teacher. The topic teacher is backbone teacher who has been teaching this topic or related professional teaching for several years, and has a great deal of teaching experience, and is familiar with the circumstances of troop. The topic should be taught according to the actual post demand of troop, the status and prospect of domestic and abroad. This topic teaching not only can satisfy the demand of post for students, but also can widen thinking of students.

2.3 Pertinence of Teaching Contents

The teaching contents should be pointed set. What is called how to battle, how to train, how to teach. The cultivated talents are what kind of talents troop prefer. What the teacher has taught is what kind of professional knowledge troop prefer. Closely around the demand for holding a post, the teaching contents are customized set.

2.4 Gradation of Teaching Organization

The mode of teaching organization is cascade promotion training. Training is before promotion, and no training, no promotion. To different training cascade, appropriate teaching contents and teaching methods should be set. The training contents of company commander and battalion commander should be different. Before promotion, corresponding training should be made first. Professional knowledge and techniques adapt to the promoting post should be stored in advance. Without training, promotion would not be considered.

2.5 Practicality of Teaching Method

Holding a post education is a kind of training of professional knowledge and techniques for military post demand. The professional knowledge and techniques that the military post demands is practical. So, the teaching method of holding a post education is different from the graduate education, and the teaching method of holding a post education lays particular stress on practice more. For example, visits to some troops for students can be arranged, taking part in the troop exercises for

students can arranged, teaching on the spot about weapons and equipments can be arranged, drill online depending on training software developed can be arranged and so on.

3 A Few Thoughts about Examination Method of Holding a Post Education

Examination should be an important means which can promote the students develop personality and can bring about an all-round improvement of the qualities. The examination method and the questions design should create an objective, fair and impartial environment which can stimulate potential and can promote creation ability. In the procedure of preparing examination and examination, students can acquire information initiatively, using all kinds of thinking activity. To the holding a post education adapting to post demand, the examination method should be different from graduate education. According to the several years teaching experiences in the holding a post education, thinking about the characteristics of holding a post education, examination method can be considered from the following points:

3.1 Making a Speech or Defense

Because the teaching form of holding a post education are course setting synthesized and topic teaching. According to the demand of holding a post, different topic is set. To different training level, according to the training situation of troop and present status of weapons and equipments, the teachers can guide students to analyze some fault reasons of weapons and equipments and corresponding methods of eliminating. The students of holding a post are mostly from grass-roots brigade and regiment, familiar with the troop situation. According to the enlightenment of topic teaching, thinking about the existing problems in works and troop construction, students can improve or design some system components themselves. Teachers can give appropriate enlightenments and reminds, and organize students to make a speech on the platform. The students and teacher under the platform can query courageously the speech in class. The speaking student should explain the query. This method not only can cultivate the speaking student language skills, practice courage, self-confidence and remain resilient, but also can make student understand the professional knowledge deep and comprehensively, stimulate potential and can promote creation ability.

3.2 Oral Examination

Because the time of holding a post education is short, but the content is more and covered a wide field. On the listening to the lecture, students can contact with a large amount of information which is not contacted within a shorter period of time, broadening their outlook indeed, adding something to knowledge. But for so much knowledge, if the examination method is the traditional written test, the students would be weighing heavily on the spirit, and the effectiveness is not so good. Based on holding a post education teaching experience for several years, oral examination

can be taken in which questions would be random extracted on the spot and answered on the spot too.

In the oral examination, the questions of every student are different. The questions of the oral examination include two sections:

(1) Expounding Problems Which Can Be Brought into Full Play

This kind of oral examination problems can be extracted by students several minutes early. So, students have several minutes to prepare. Two to three expounding problems can be random extracted from question bank. And one to two problems among them can be selected to answer. This method is very flexible. The score of this problem is more. Its purpose is to check whether students achieve mastery through a comprehensive study of the subject and whether the students apply what they learned to the practice in actual work flexibly.

(2) Examination Questions to be Answered on the Spot

This section of oral examination questions are extracted on the spot, which should be answered on the spot, without preparing time. This section of oral examination questions are usually main points that should be kept a tight hand on. To this kind of examination method, students should review what they had learned all-around. But they need not learn everything by rote, emphasizing on understanding and application flexible.

3.3 Partly-Open Book Exam and Partly-Closed Book Exam

The so-called partly-open book exam and partly-closed book exam is that students can carry some reference materials to the examination rooms. But these reference materials are not books. Reference materials should be important contents summarized by students according to the teaching contents in class, which was written on a blank sheet of paper that is given by teacher several days earlier. The amount of questions summarized should not exceed that blank paper. These reference materials must be handwritten, must not be typed and must not be copied, or expropriated.

Taking this partly-open book exam and partly-closed book exam, pressure and burden on students from closed-book exam are avoided, and the risk of cheating in an examination can also be avoided. If taking open book exam, students may fail in an examination because of paying no attention or no reviewing. At the same time, there is some confusion in examination rooms caused by open book exam. But these circumstances above mentioned can be avoided by taking partly-open book exam and partly-closed book exam. This kind of examination method can promote students to learn, to think, to summarize initiatively, not learn by rote, which can reduce pressure and burden on students. The range, amount, flexibility and difficulty of examination can be increased appropriately.

4 Conclusion

Taking a reasonable examination method for holding a post education can make students have a better understanding of learning method, can inspire in students a love for learning initiatively, from “learn to how to do something” to “how to learn

something”, can make students learn “living” knowledge much more, can improve comprehensive quality more quickly, and cultivate first-class professional and technical personnel much more for troop.

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The Instructional Material Blended with Needham 5 Phases Strategy in Teaching Visual Art Education

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Abstract. This paper presented an instructional material integrate with technology and approaches to develop an effective computer based learning (CBL). This software was developed focusing on the historical of Malay traditional craft to help visual art teacher in daily teaching and learning. Multimedia courseware is the platform to students communicate, share and explore knowledge, these will be an opportunities during there learning session. The research question rises based on a possibility of multimedia courseware that employs a non-linear, problem-based, student-centered, constructivist approach to assist student's learning. The uniqueness of this software is combined various types of Malay traditional craft in one complete teaching and learning courseware. In addition, multiple intelligence approaches was take apart to give impact in the teaching and learning process. This paper will discussed the effectiveness of instructional material and the implementation Needham 5 Phases Model in teaching visual art education.

Keywords: Instructional Material, Art Education, Constructivism, Needham 5 Phases.

1 Introduction

Nowadays, teaching art no more used chalk and talk. ICT in classroom is the option can be used as alternative to delivery content in teaching. Now, multimedia courseware is optional medium that teacher can chose to communicate, share and explore the knowledge during the learning process.

Why need crafts component been focused? So far, we produce so many books in market but the issue is we didn't have any compilation of seven core or niche areas in craft to be referred. Generally, new generation communicates with online and it cost paperless, the author intended to have one multimedia courseware that can use for teachers as a reference and guidance for their teaching materials.

The idea to have an innovation based on the Malay traditional crafts multimedia courseware can assist to successful of the introduction to the topics especially crafts with seven core / niche areas. It's also able to attract the student's attention with the element offered by using multimedia. This is also able to minimize teacher's time allocation in preparing teaching aids.

However the bigger concerns are to design strategies used in such environment. Although the integration of such elements within a CBL environment is expected to motivated learners, how can we ensure that their learning will be at the optimum level? In specific, what is the best courseware approach to assist visual art education among our students? Even though there is no technology attached in the teaching art, most of them are chalk and talk, demonstration and activity. The presentation was highly structure and the students are expected to go through the content and respond to the activity. Hence, with a modernized from design, media in demand, and instructed content will promise that this software will give more independent and autonomous to the learners.

Therefore, the innovation will create an impact to the individual, society and institution where is the learning material will offered a wide information and knowledge about Malay traditional craft. Otherwise, this innovation is a one way in order to prevent and preserve the art, culture and heritage. In commercialized opportunity, this software has highly potential and valuable in promoting Malay craft not only for Malaysian but maybe the others who love craft.

Furthermore, with this innovation we will more aware and appreciate the beauty of traditional crafts simultaneously to maintain our cultural heritage of the Malay society through art. This innovative still maintains the Malay cultural tradition and hopefully this will give a very positive impact on combining education and promoting a better understanding of culture.

2 Literature Review

This paper presented a literature review concerning the definition of computer-based learning, art education and the instructional model that implemented in this paper.

A. Computer Based Learning

(Sharon E. Smaldino, James D. Russell, Robert Heinich, Micheal Molenda; 2005) had done some research and they found that, computer-based interactive media creates a multimedia learning environment that including both video and computer-assisted instruction, which recorded visuals, sound, and video materials presented to the viewers who not only see and hear the pictures but also make active participation in learning. With this we know that through the usage of this learning courseware will give advantages to both teacher and students in the teaching and learning process.

According, theory by (Mayer; 1997), stated that the learner possesses a visual information processing system and a verbal information processing, such as the auditory narration goes into verbal system whereas animation goes into the visual system. Beside that, in multimedia learning the learner engages in three important cognitive processes. The first cognitive progress selected from the verbal information, which is text base to visual information, is the image base. The second cognitive process, organizing and applied word base to create verbally base and form image base to create visually base. Finally, integrating it to foster students learning. From here we know that it is better to present an explanation in words and pictures than solely in words.

Moreover, (Ben Davis and Jennifer Trant; 1996) stated multimedia can help a user recognize word, term and their contextual meaning. It also can be used to support different learning, method and style. At this point, we know that through using learning software could assist teacher in explaining topic much easier and effective, simultaneously have a potential to replace the traditional teaching method.

Nevertheless, they added later that by using multimedia could also be used to pursue the didactic aim of furthering creativity. Through this it can help students to increase their ability in carrying out their assignments with more creative and innovative.

B. Art Education in Malaysian

Visual art education converges to visual arts and not referring to other art such as music art, literature art, art of dancing and art of self-defense. It is closely related to fine arts, visual communication, industrial design and craft. Based on previous research have been done by Syed Ahmad Jamal (Vol.14) he founded that art education was eventually introduced in schools, his focus was on craft-oriented rather than fine art approaches. He was focused on the training of crafts such as basketry, pottery, basic carpentry and others.

In addition, Lainer (1975) stated that art is a form of exposure to enable the experience of aesthetic values that has intrinsic values and need in making judgements. Hence, we cultivate a new generation culture and heritage awareness, aesthetic values, imaginative, critical thinking, creative and innovative. Moreover, through that combination between theoretical and practice those indirectly contribute to the development of individuals experience, skills and knowledge into art.

C. The Instructional Model

Constructivism theory is a one model about learning styles and human brain. Science subject already used the constructivism theory in their learning process. As founded by Susan (1994), the constructivism not a new one concept. Constructivism already used in philosophy part, sociology and anthropology, psychology and education. Her addition, the constructivism theory is a learning theory very dominates in education system especially in the Mathematic and Science subjects starting year 1980. Otherwise, using the constructivism theory very important because it is one-paradigm changes from behaviorism to cognitive theory. The Needham's Five Phase Constructivist Model (1987) the author intended to used as stated below:

- 1st Stage: Orientation
- 2nd Stage: Generating Ideas
- 3rd Stage: Restructuring Ideas
- 4th Stage: Applying Ideas
- 5th Stage: Reflection

Based on the literature review, why craft component have been chosen? It's because the seven-niche area in craft of Malaysian such as Batik, Gold thread Embroidery,

Beds and Sequin thread Embroider, Weaving, Wood Craving, Shadow Play and Wau. These niche areas are the component that taught in secondary school in Malaysian.

The growths of ICT in classroom, the author believe teaching visual art education will become more interesting and informative. The change of material into new media will give a broad opportunity to the learner's discover and learn art in a different view.

The new media that the author transmit into multimedia courseware offered to the learner's one curriculum of visual art education that inclusive theoretical framework to enhance teaching and learning. So far, this courseware was implemented the Needham 5 Phases as a learning strategy to ensure the learner actively engaged and responsible with the learning.

The purpose of the study

- 1) To investigate the effectiveness instructional material for visual art education.
- 2) To implement Needham 5 Phases Constructivist Model into teaching and learning material for visual art education.

3 Research Methodology

Initially, this paper was conducted quantitative method. The purpose of the study 1) to develop an instructional material for visual art education and 2) to implement Needham 5 Phases Constructivist Model into learning material in teaching visual art education. Number of sample involved in this study is 30 art teachers. These 30 arts teachers were represented the whole population of Visual Art Education teachers in Shah Alam, Selangor area. The researcher was used random sampling. At the start of each data gathering session, students were briefed about the purposed of data collection, how to fill the questionnaire and how to start the multimedia courseware. The author promised confidentiality and anonymity of all information gathered.

4 The Result

The author was intended to display the research results with data analyzed getting from the questionnaire. Moreover, this also intended to present the analysis of data gathered. Based on Table 1, the items were constructed to identify the effectiveness of instructional material in teaching visual art education.

Based on Table 2, the items were constructed to determine the implementation of Needham 5 Phases into learning material. The result was analyzed based on 5 Phases strategy involved in producing learning material for teaching visual art subject in school.

Table 1. The Analysis of the Effectiveness of Instructional Material Teaching Visual Art Education Curriculum

| No | Item | Mean | SD |
|----|---|------|------|
| 1 | Teacher needs to use multimedia courseware during teaching the Visual Art subject. | 4.60 | .558 |
| 5 | Multimedia courseware can increase the student's skills. | 4.55 | .565 |
| 3 | Teacher needs to use multimedia courseware to increase the student's interest for Visual Art subject. | 4.53 | .566 |
| 9 | Multimedia courseware can be used as an induction set teaching in classroom | 4.50 | .567 |
| 7 | Multimedia courseware can help the students to relate the prior and new knowledge | 4.46 | .566 |
| 2 | Use multimedia courseware will make classroom more interesting | 4.38 | .555 |
| 4 | Multimedia courseware can help the students to understand better | 4.35 | .546 |
| 6 | The used of multimedia courseware important to support and help teacher in classroom | 4.31 | .536 |
| 8 | Multimedia courseware can assist as a supplementary material for T&L. | 4.28 | .523 |

Table 2. The Analysis of Needham 5 Phases into Learning Material Teaching Visual Art Education

| No | Phase 1: Orientation | Mean | SD |
|----|--|------|------|
| 1 | Teacher need to prepare the teaching environment for create the student interest toward study. | 4.81 | .469 |
| 3 | Newspaper cutting related can be use as a teaching aid for Visual Art subject. | 4.75 | .508 |
| 5 | Induction set with students needs before do the teaching and learning. | 4.70 | .530 |
| 2 | Teacher can use projected media as an introduction of teaching | 4.63 | .551 |
| 4 | Teacher needs to do the QNA session among students related with the topic. | 4.60 | .558 |

| No | Phase 2: Generating Ideas | Mean | SD |
|----|--|------|------|
| 7 | Teacher needs to do the discussion activity in the small group among students. | 4.73 | .516 |
| 9 | Teacher as a facilitator or instructor in the classroom. | 4.71 | .523 |

Table 2. (continued)

| | | | |
|----|--|------|------|
| 6 | Teacher need to give the explanation about the topic before start the teaching | 4.70 | .530 |
| 11 | Teacher needs to prepare the teaching aid for students. | 4.68 | .536 |
| 8 | Teacher need to do the activity using the concept mapping related with topic. | 4.65 | .546 |
| 10 | Students need to discuss among the students in the group related with topic. | 4.60 | .558 |
| 12 | Teacher need to give command and instruction to their students | 4.58 | .561 |

| No | Phase 3: Restructuring Ideas | Mean | SD |
|----|---|------|------|
| 13 | Teacher needs to prepare the activity so that students can challenge their knowledge. | 4.80 | .480 |
| 15 | Teacher needs to use the easy and simple language for students understand it. | 4.78 | .490 |
| 17 | Teacher need to support the real situation into teaching concept | 4.76 | .499 |
| 14 | Teachers need to give structure exercise. | 4.61 | .555 |
| 16 | Teacher needs to discuss the idea from students before do the exercise. | 4.60 | .558 |

| No | Phase 4: Applying Ideas | Mean | SD |
|----|--|------|------|
| 19 | Teacher needs to observe their students during do the exercise. | 4.75 | .508 |
| 18 | Students need to apply the new knowledge to start the Visual Art exercise. | 4.60 | .558 |
| 20 | Teacher need to added a moral value in the classroom | 4.58 | .561 |
| 19 | Teacher need to observe their students progress in classroom | 4.75 | .508 |

| No | Phase 5: Reflection | Mean | SD |
|----|---|------|------|
| 21 | Students need to reflect the new and prior knowledge. | 4.83 | .457 |
| 23 | Teacher need to evaluate the student through the presentation | 4.71 | .523 |

5 The Discussion

A. The Effectiveness of Instructional Material Teaching Visual Art Education Curriculum

Multimedia is the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive application or presentation to convey a message or information to an audience. In other words, multimedia means “an individual or a small group using a computer to interact with

information that is represented in several media, by repeatedly selecting what to see and hear next" (Agnew et. al, 1996).

Neo & Neo (2001) defined multimedia as "the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive application or presentation to convey a message or information to an audience" (p.1). There is often confusion about the difference between hypertext, multimedia, and hypermedia.

Furthermore, the multimedia as teachings aid can provide the opportunities to students apply a new skills and knowledge with support and feedback from their friends. Additionally, multimedia can provide positive impact on student's development and the implementation is more effective rather than traditional learning process.

Multimedia has also been shown to elicit the highest rate of information retention and result in shorter learning time (Ng and Komiya, 2000; Hofstetter, 1995). Multimedia application design offers new insights into the learning process of the designer and forces him or her to represent information and knowledge in a new and innovative way (Agnew, Kellerman & Meyer, 1996).

"Using multimedia in the teaching and learning environment enables students to become critical thinkers, problem solvers, more apt to seek information, and more motivated in their learning processes" (Neo & Neo, 2001, p.4). Reeves (1998) described the difference between two approaches of how media and technology could be used in schools: "First, students can learn "from" media and technology, and second, they can learn "with" media and technology. Learning "with" technology is referred to in terms such as cognitive tools and constructivist learning environments" (p.1).

B. The Needham 5 Phases into Learning Material Teaching Visual Art Education

The classroom was structured toward creating a problem-based learning environment for the students in a multimedia design context in order to harness their abilities to use and appreciate media effectively when representing various pieces of information to convey a message to the audience. This problem-based learning environment is employed to develop the students' capabilities to solve real-life problems and to exercise analytical, critical and creative thinking in their work (Boud & Feletti, 1999; Newby, Stepich, Lehman & Russell, 2000).

Thus, by designing a multimedia application that is multi-sensory and interactive, the students are challenged to learn more about their chosen subject material and to develop their abilities to analyze and draw conclusions from it.

In addition, the author founded that using Needham's Five Phases Constructivist Model in teaching and learning Visual Art subject by multimedia very effective and got helping students to understand a concept and content of Visual Art subject better.

Besides that, the author also founded that using Needham's Five Phases Constructivist Model by multimedia can increasing the student's interest for Visual Art subject. Using this model can make a teaching and learning process Visual Art more to student centered and it also can grab the student's attention for Visual Art subject.

6 The Implications

Promoting new approaches in multimedia strategy using Needham's Five Phases were presented several implications regarding the research. The author was highlighted the implications for teachers, students and Visual Art subject. The explanation stated as below:

A. Implications for Teachers

Based on the research findings, the author was highlighted the implementation multimedia-using Needham's Five Phases model are helping teachers' teaching and learning in Visual Art subject. The Needham's Five Phases is a valuable teaching strategy that assisted teacher to meet the instructional goals or objectives of lesson. However, teacher should be prepared themselves with the knowledge and skills to enable the successful of teaching and learning. The classroom setting and infrastructure will take a place to ensure the successful of using the instructional materials.

B. Implications for Students

The findings show that, the students are highly motivated and interested during the learning process. The Needham 5 Phases strategy ensures students to engage and participate actively with the learning. Self-awareness, responsibility and independent will drive student learn much better. It is an effective strategy to prepare students to the working environments and the real world situation.

C. Implications for Visual Art Education

The Needham's Five Phases has the potential in Visual Art subject because of the following factors.

- i. Students were encouraged to work in-group during Visual Art activities or exploration in the studio.
- ii. Thought art subject involved 3 learning domain; such as cognitive, affective and psychomotor.
- iii. Creativity dimension covered art history, art production and art appreciation to engage the students with the art knowledge.
- iv. Design, innovation and invention were adopted in visual art curriculum to develop students potential towards creating new ideas for a better living.
- v. Visual Art classes are usually two periods with 40 minutes each, had enough time while using multimedia as a teaching aid.
- vi. Increase students motivation and interest to participate and learn visual art, making teaching lively and supportive.
- vii. End-up the activities with the sharing session and added value can be implemented to the student's

In Malaysian standard curriculum called as KBSM, the integration of technology into teaching is a part of strategic planning. In addition, to ensure students got more variety in learning and diverse their knowledge widely. Teachers also responsible to used technology as advantage for them improve their pedagogy skills.

7 Conclusion

From the findings, students were enjoyed doing an activity by multimedia compared to traditional way. In addition, the findings also provided the important of having multimedia as teaching aids. Furthermore, students tend to be self-autonomous by making discussion; sharing ideas and preparing students work cooperatively. All the findings was clarified and related with several supported from previous researchers. The author believes, the findings of this research disseminated to encourage other teacher to consider the possibilities of this approach. Teaching and learning by multimedia using Needham's Five Phases should be practised and promoted to ensure the successfulness in the Visual Art subject.

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A Few Thoughts about Preparing Lessons Effectively in the Holding a Post Education

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Abstract. Preparing lessons is a very important part in the teaching work. It can reflect the quality of the teaching and the learning effect. Preparing lessons plays an important function in the teaching work. According to the several years experiences of teaching and preparing lessons, a few thoughts about the definition and demands of preparing lessons are put forward, which can improve the effectiveness of teaching.

Keywords: holding a post education, preparing lessons effectively, teaching design, teaching effect, teaching method.

1 The Definition of Preparing Lessons Effectively

Preparing lessons is an important part of teaching work, also an important reflection of whether the teaching quality and learning effect are good or not, which plays an important role of teaching. In the broad understanding, the so-called preparing lessons effectively is the teacher's lifelong lessons, and narrowly is all the preparatory work a teacher makes before class. Preparing lessons effectively is relative to low-efficient or ineffective preparing. The so-called low-efficient and ineffective preparing lessons are the lack of teaching design and resources when preparing lessons. That is to say, teachers did not study the teaching materials seriously, and did not master the students' situation. Teaching contents are lack of relevant and innovative, and the teaching methods are no scientific, and the preparation is insufficient, etc.

Preparing lessons effectively means that teachers devoted themselves to the teaching preparation, from making the teaching plans and curriculum designs, making use of teaching materials fully, and preparing resources sufficiently to mastering the situations of students ahead and preparing strong innovative lesson plans which can influence every aspect of teaching. It is comprehensive embody of teachers' enterprise, responsibility, love, and pursuing the perfection of the integrated.

2 The Demands of Preparing Lessons Effectively

To make the teachers' preparing lessons effectively achieve the purpose of improving the quality of teaching and teaching effect, promoting the students to love study and improving the effect of study, based on the teaching experiences for several years,

“the six ready” should be adhered to the organic unity in the process of preparing lessons.

2.1 Design Ready

The so-called “Design Ready” is to prepare the effective teaching design in the process of preparing lessons.

(1) According to talents education program and curriculum standards, the scientific teaching aims are set.

(2) According to different training levels and different teaching contents, reasonable teaching strategies are used.

(3) The teaching contents should be fairly and orderly arranged. The teaching important points should be made stand out and the teaching difficult points should be emphasized.

Through the effective teaching design, the teaching effect of "the head of tiger, the belly of pig, and the tails of leopard" is achieved. The so-called "the head of tiger" means that the opening must have the momentum, addition to hack, which can immediately attract to students' attention and interest in learning; The so-called "the belly of pig" means that the teaching contents should be fully, comprehensive and wonderful; The so-called "the tails of leopard" means that the end should be strong and draw to a power, just like the leopard tail, which can inspire students to study and research enthusiastically.

2.2 Resources Ready

The so-called “Resources Ready” means that the resources should be prepared effectively in the process of preparing.

(1) Preparing lessons is not to copy the teaching materials, but to abstract, conclude and summarize the materials effectively. The reference books and information should be made effective use of to enrich the teaching contents.

(2) Students who accept the holding a post education are from different posts of grass-roots. Although the foundation of specialty and demands are different, students have abundant work experience in grass-roots, and are familiar with the problems that the troops faced with and the actual situation of weapon and equipments. They took part in the holding a post education with strong purpose, with many problems. Teachers should make full use of the post experience of the students to discuss about the feeling and word experience.

(3) Sample base for experimental teaching and audio-video resources such as video, audio animations .etc should be made full use of. Teaching on the spot by use of the existing weaponry and equipments in schools may be adopted to make students have a more direct understanding of weaponry. Teaching on the spot could attract more students than simply theoretical teaching which can make the students get a deeper understanding in the listening, operating, asking and discussing.

2.3 Teaching Plans Ready

The so-called “Teaching Plans Ready” means that in the process of preparing lessons efficient teaching contents should be prepared for.

(1)Essence

The important and difficult points should be made stand out. Not every point should be emphasized. The important and difficult points should be focused on and should be well rubbed in. If every point was explained, students would not find the keys and difficulties.

(2)New

The new technologies, theories and the global trend of development of the professional knowledge should be increased. The new situation, new problems and new policies of the troop construction and weaponry should be familiar with.

(3)Practical

In order to attract the students' attention and interests, the teaching contents should meet the students' demands of posting and development, but not be from practice.

(4)Flexible

The typical examples are required which can inspire student interests. The typical examples can be positive examples or opposite examples whose purpose is to get a deeper understanding and to stir the interest of learning.

2.4 Student Situation Ready

The so-called "Student Situation Ready" means that the students' situation should be in the know in the process of preparing lessons.

(1)Base of knowledge

Teachers should know how the students' foundation is, what the students have already mastered and what they are lack of. Through this, teachers can strengthen the study of corresponding knowledge and take appropriate teaching methods in the process of preparing lessons relevantly, but not to teach what they have mastered again, which would not attract the students and make the teacher image to be impaired.

(2) Psychological Characteristics

Teachers should understand students' idea in mind ahead and also should know what purpose of students come here to study, whether for solving the problems troops facing with, or for personal development in the future.

(3) Holding a Post and Development Demands

Holding a Post demands at present or in the future, development and promotion demands in the future are leading factors of preparing lessons effectively.

2.5 Teaching Method Ready

Teaching Method Ready is to take effective teaching methods in the process of preparing lessons. Holding a post education is a kind of training of professional knowledge and techniques for military post demand. The professional knowledge and techniques that the military post demands are practical. So, the teaching method of holding a post education is different from the graduate education, and the teaching method of holding a post education lays particular stress on practice more. For example, visits to some troops for students can be arranged, taking part in the troop exercises for students can arranged, teaching on the spot about weapons and

equipments can be arranged, drill online depending on training software developed can be arranged and so on. The teaching of theory lessons is different from graduate education. Many kinds of flexible teaching methods such as heuristic method, discussion, and case are used according to different training levels and different courses. It should be emphasized that PPT can only play a supplementary role. Therefore, it would be inefficient for teaching to get all the contents in PPT, and read according to the full PPT. The amount of information in the PPT is large, but the amount of information that students could understand is seldom and the teaching effect is not good.

2.6 State Ready

The so-called “State Ready” means that the teachers should keep effective state themselves.

(1) Teachers must understand the advanced theories at home and abroad, and update it in the teaching process in time.

(2) Teachers should make the teaching contents to be kept tight hand on and can teach fluently without manuscript, which are the minimum requirements for teachers. If teachers were not familiar with the teaching contents, tongue-tied, looking down at the teaching plans sometimes, the psychology of students would have a resistance. On the other hand, teachers can't see the reaction of students, an effective interaction in class could not be achieved.

(3) Breeding abundant Teaching Energy

No passion, no soul, just like a pool of dead water, and it is hard to arouse the students passion. Teaching energy is the external representation of loving work, responsibility and enterprise, which would be revealed by voice and facial expressions naturally, and could not be imitated and represented by anyone who don't love teaching and working.

3 Conclusion

Through “Ready” the formal six contents, the preparing lessons effectively is done nearly, in addition to the vivid teaching in class, which can learn “into eyes”, “into ears”, “into brain”, “into heart” and “into soul”.

The so-called “into eyes” means that the students want to read, like to read, like reading in class. The so-called “into ears” means that the contents are wonderful and attractive, so that students like to listen to. The so-called “into brains” means that the students in class would like to think and focus on the things they had seen and heard. The so-called “into heart” means that through thinking, students would have their views on some problems, so that forming the new world and values outlook finally, and then reaching the effect of “into soul”. This kind of teaching based on the preparing teaching effectively would improve the teaching quality of holding a post education obviously, train the talents that the troop really need and can effectively improve the army's fighting effectiveness.

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The Research on English Learning for PE Majors

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Abstract. College PE has some special characteristics in public English teaching of higher vocational colleges. The English foundation level of PE major students is relatively weak compared to other specialized field College students. However, they also have to pass the national College English Test. Furthermore, the development of modern sports science and sports internationalization has put forward some higher requirements to college PE major's English level. From this, it can be seen that English learning is more and more important to culture of college PE major's vocational ability. This paper analyze teaching counter-measure improve the college PE majors public English from communicative language teaching and appreciation education, and its application and action promote and increase college PE majors English learning.

Keywords: English learning, college PE majors, higher vocational colleges.

1 Introduction

In today's higher vocational colleges, the arts, sports majors generally low standard of English in public, sports colleges and universities students are a special group of students to recruit them the whole sub-culture than other professional students into the school scores much lower, they are relatively weak foundation in English, generally accurate pronunciation, basic grammar, vague, the basic vocabulary can not be achieved. Therefore, whether the expression of everyday language, or the written word in the radio, or reading comprehension, is a big problem, writing is even unable to write complete sentences. It can be said of their basic knowledge of English in high school simply do not build up the structure. In addition, students in professional sports lack of basic interest in learning English. No matter which class, interest is always the best teacher. Enter university art, physical education students, compared to other professional students, the foundation sent a lot of their own, and both used the same textbooks, teachers often use the same syllabus, classroom teaching is the same way This is bound to result in art, physical education students from other English proficiency level of students in English and farther. It easier for the arts, sports students learning English have a sense of oppression and frustration, they would lose even further interest in English. Lack of interest, they are always depressed in the classroom, there is no spirit, much less actively cooperate with the classroom teacher. After class, they are reluctant to spend time on the knowledge learned in the classroom to consolidate, which makes the English caught up in a repressed passive teaching. The

actual status of these education pose serious problems for English teaching: students are generally poor cultural quality of English as a lot of practice to be accumulated and the program, students enter the school before the English Teaching and English Language Teaching Higher Education interface, the formation is major gap, regardless of students to learn more bitter (and some students give up because of poor foundation), the teacher taught more tired, and teaching results are not satisfactory, the course of the semester examinations in English and higher failure rates; participating countries unified organization of the A, B grade English exam, pass rates also remained at a very low level, which further advanced studies for students, job employment poses a serious obstacle. Therefore, how to improve the vocational college arts, sports level students learning English has become the Higher Vocational Colleges in the English language teaching need to be solved a problem. To solve this problem, we propose two practical methods of teaching and learning strategies.

2 Communicative Approach

Communicative approach is to use language as a tool to express ideas and feelings, focus on students of the language communication skills. Communicative teaching students the communication skills of its purpose and its own characteristics and is particularly feasible. Littlewood pointed out: "communicative language teaching Communicative Approach is one of the distinguishing characteristics of not only focus on language structure, but also on the function of language." Numan pointed out that the communicative approach their five characteristics: With emphasis on the purpose of the target language to communicate ; in the process of learning to use the real situation; focus on the learner's language learning, more attention to the learning process; emphasis on personal involvement of students; try the combination of curricular and extracurricular learning. In addition, the Ministry of Education issued in 2000, "Higher Education and English Teaching basic wood requirements", the requirement to train students in the actual use of language as the goal, to achieve higher application personnel training for the ultimate goal. Communicative Approach to English Teaching in Higher Sports Application is as follows.

2.1 The Teacher Role Changes, and Enhance the Dominant Position of Students

Communicative approach to the high demands made of teachers. In the communicative approach, teachers should realize that students are the center of the classroom so that students fully aware of their dominant position to mobilize their enthusiasm and initiative. This requires teachers to take the initiative to take on the teaching activities of the facilitator, participants, analysts, consultants and other roles. In the concrete teaching practice, teachers should create a real scene. One of the important characteristics of communicative approach is through the creation of scenarios to train students to achieve the ultimate goal of communicative competence. Teachers, according to textbooks, conscious of the stresses around the theme of each lesson content, as much as possible the creation of related or similar real scene for students to practice, in this process, as much as possible to encourage students to use the target language conversation, in order to achieve the purpose of communication. Should be

emphasized that, vocational arts, sports and the ultimate goal of students learning English is the language of communication with others. This requires that teachers must be the creation of relevant and practical scenario is to apply their knowledge to enable students to life in peacetime and future work can be used in communication scenarios.

2.2 Enhanced Learning Ability of Students

Individual differences of students, such as age, gender, personality, learning motivation, learning anxiety and cognitive style, are affecting students of foreign language acquisition factors. Similarly, these also affect the learning ability of students factors. To enhance the learning ability of students must let the students know how to enhance their own learning. On the one hand, students learning strategies. Communicative approach is student-centered emphasis, focusing on the learning process, students focus on personal involvement. This requires teachers to actively establish a dominant position of students in the classroom to give students more space and more importantly, to stimulate students interest in learning to enable students to actively participate in internal and external to the classroom. But the vocational arts, physical education students is relatively weak foundation in English grammar system is not perfect, is relatively weak in all aspects of speaking and writing. Therefore, teachers should be appropriate in the Teaching of learning strategies to enhance student self-confidence. Learning strategies include O'Malley & Chamot divided by the metacognitive strategies, cognitive strategies and social affective strategies or direct Oxford point and their respective strategies and indirect strategies contained in the subclass. This is for students to learn English is very good. Thin basis because the students would require teachers to be individualized, develop some strategies to help students be a good place for students to learn gradually formed its own set of methods. In the classroom, teachers can carry out some activities such as group discussion, student peer assessment, etc., are conscious of the students training, help students develop their initiative, to stimulate interest of students; the same time, due to a conscious extra-curricular Activities in English corner English speaking contest and other activities. On the other hand, strengthen the use of multimedia tools and networks. In teaching, more intuitive multimedia, allowing students to clearly see the associated picture, which is conducive to teaching. Individual's ability and knowledge are limited, but the rapid development of the network, teachers can guide students to use the Internet for information search, knowledge use and innovation to enhance students ability to gradually enable students to study the formation of self-awareness, but also contribute to a more good to enrich the classroom, to make up for lack of classroom teaching. In addition, in the menu: Format paragraph, Cancel "if the document grid is defined, then automatically adjust® the right indent," "If the definition of the document grid, the grid alignment" option.

3 Appreciation Education

"Appreciation Education", also known as encouraging education is the theoretical point of view of pedagogy and psychology, is to recognize the difference, allowing the

failure of education in line with the law of life and growth. The object of education to praise, encourage, appreciate, to bring it to boost confidence and improve the courage to overcome difficulties, the potential ability to play, a way to achieve educational goals. The key and goal is the leading role of teachers, students play the main performance, so that students have the right of their own evaluation and positioning, overcome the ego and low self-esteem of the psychological barriers, change their attitude. 20th century, early 80s, American linguist SDKrashen proposed the famous "five hypothesis", that Acquisition - Learning Hypothesis, the natural order hypothesis, monitoring hypothesis, the Input Hypothesis and the Affective Filter Hypothesis, according to the Affective Filter Hypothesis, the main emotion learning motivation, self-confidence, anxiety and other three aspects of the learner's second language acquisition has an important influence. How in the classroom teaching to improve the use of the hypothesis that the effect of foreign language teaching is the concern of foreign language teachers. Appreciation education is essentially the advantages of students through the discovery, improve their self-confidence through praise, to help students get a good learning attitude to language learning. Application and results of appreciation education. Zhou Hong is a type of civilian experts in education, practice is the appreciation of the president and advocate of education, the UNESCO Chair of the Central family education experts, known as "Dad appreciated." He born deaf, half of 3-year-old daughter was also unable to develop into the opening speech, Dr. America, and with her all the education law to a large number of "poor health", "the losers" training talent. In recent years, appreciation of education on the teaching of all subjects used in quite a few papers, including English. Zhu Fengyun in 2004 "competition and appreciation of education in English education in the implementation of the" made in competition, appreciation of education is English important part of culture, the call of human nature, but also humanistic spirit. In English teaching, combining the two can get even better results in English education. Langley in the "appreciation of the function of education and its implementation method," a paper suggests that teachers should be implemented in the education process the necessary appreciation of education, the educational function of the appreciation and implementation of the method made certain of. Currently published articles on the implementation of appreciation of education, the majority affirmative, praised the attitude. There are some people negative attitude. Such as Jean Lee in "Education Discipline' Review" is mentioned in the article: When the appreciation of education, pleasure and education of a wave after wave of calls, especially when "democracy, equality, rights" and other slogans as major news media momentum of the tools, education, discipline seems to be "across the street rat", the teachers are even more news, "punish" the mere mention. However, disciplinary punishment has a positive and reasonable.

Appreciation of education as an educational method and means, in large measure to enhance the sports, arts students learning English, so that students interest in learning, learning confidence and learning skills have been greatly improved. Meanwhile, the appreciation of education to create a relaxed learning atmosphere of freedom, eliminating the fear of English learners, but also enhanced their sense of participation and cooperation. Between teachers and students appreciate the education for students between the emotional exchange, facilitate the individualized, personalized, and help students develop creative thinking.

4 Summary

In short, vocational college physical education students with the typical characteristics of its foundation in English is poor, the overall level of motivation is also lower than other professional students, but to learn English to improve their professional competence is very important. Teachers in the teaching process should be adept at communication and appreciation of teaching methods and means of education, communicative approach requires changing role of teachers, enhance the dominant position of students, enhance student self-learning ability; appreciation of the key concepts and goals of education through teacher the leading role played by student's performance, so that students have the right of their own evaluation and positioning, overcome the ego and low self-esteem of the psychological barriers, change their attitude. This English multiplier effect will be achieved.

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Further Issues about Classroom Teaching of Holding a Post Education in Military Academy

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Abstract. Holding a post education in military academy has its own characteristics. In this paper, according to the experiences of teaching and serving in grass-roots unit of author, some further issues about classroom teaching of holding a post education in military academy are discussed.

Keywords: holding a post education, teaching effect, teaching method.

1 Holding a Post Education and Its Characteristics

So-called holding a post education in the military academy is a training mode whose purpose is to make the training applicants acquire professional knowledge and techniques who are adapt to the demands of troop and holding the post. In the recent army academies conference, new-style academy education system is established, in which the main body of holding a post education is established and improved, and relative separation between the holding a post education and graduate education is achieved. Graduate education in the military academy is relying gradually on the national graduate education. So, the proportion of holding a post education in the military academy education system is gradually been risen.

Comparing the holding a post education with the traditional graduate education, there are following several characteristics:

1.1 Directivity of Teaching Aims

The teaching aims of holding a post education is to make the training applicants acquire professional knowledge and techniques which are adapt to the demands of troop and holding the post. Teaching aims are set according to the post demand and professional demand of troop.

1.2 Comprehensiveness of Course Offering

In order to make the training applicants acquire professional knowledge and techniques which are adapt to the need of troop and holding the post, the course is set comprehensively and the teaching mode is topic teaching.

1.3 Pertinence of Teaching Contents

The teaching contents should be pointed set closely around the demand of holding a post in the army. The post demand for applicants in different levels and in different positions should be seriously made out so as to set up talents education program and arrange properly teaching contents. What is called how to battle, how to train, how to teach. The cultivated talents are what kind of talents troop prefer. What the teacher has taught is what kind of professional knowledge troop prefers.

1.4 Gradation of Teaching Organization

Because holding a post education is a series education, not a temporary education, the mode of teaching organization is cascade promotion training. To different training levels, appropriate teaching contents and teaching methods should be set. For primary training of low level, some modeled contents can be stressed to introduce, such as training program and bylaws and so on. But for advanced training, some contents should be stressed to introduce about some strategic thoughts, hot and difficult points referring to important military transformation, etc. Teaching contents should be set up to be distinguished from graduate education, differentiated by levels, and promoted gradually to ensure consistency, integrity, and gradual of courses whose purpose is to make students learn new contents and new knowledge each time in training.

Training is before promotion, and no training, no promotion. Talents should master professional knowledge and skills accordant to the posts before promotion.

1.5 Practicality of Teaching Methods

Holding a post education is a kind of training of professional knowledge and techniques for military post demand. The professional knowledge and techniques that the military post demands is practical. So, the teaching method of holding a post education is different from the graduate education, and the teaching method of holding a post education lays particular stress on practice more. For example, visits to some troops for students can be arranged, taking part in the troop exercises for students can arranged, teaching on the spot about weapons and equipments can be arranged, drill online depending on training software developed can be arranged and so on.

2 Further Issues about Classroom Teaching of Holding a Post Education

2.1 Being Familiar with Troop Situation and Giving Effectively Lessons

The students taking part in post education all come from different posts of each grassroots troop. Although having different professional foundation and different requirements, they all hold abundant work experiences in the grassroots and are familiar with the problems which the troop confront and the actual circumstances of weapon equipments. Taking training more purposively, they come to learn with some problems.

Besides abundant and solid professional theory and knowledge, teachers engaged in post education need to tightly track the frontier of weapon equipments in the troop, and to learn new techniques and new knowledge. They should be familiar with the actual situation of the troop and pay attention to requirements of the troop, holding a post and development demand of students. The teaching contents should be what students think about and what troop needs. If divorced from actual situation of troop, posting education would not take hold of key factors, like “titillating on shoes”.

In addition, the purpose of teaching is not only imparting knowledge, but also imparting effective method of study knowledge, “giving the human fish is not better than teaching them to fish”, otherwise it is fish in troubled waters. Teachers should foster tightly the awareness of effectiveness, carry out effective teaching design, prepare effectively teaching resources, set up effective teaching contents and take effective teaching methods to make teaching aims consistent with students’ requirements.

2.2 Forming Own Style and Giving Innovative Lectures

For teachers, innovation means their own style. Lu You once said, “The reason why I look beautiful isn’t the cutting effect, but is my manner.” Because people are different, lectures also have their own characteristics. Of course, innovation should be based on solid fundamental teaching techniques and teachers must have the courage to explore and strike out on their own, without parrot. Based on experiences in teaching for several years, forming own style, the following aspects should be paid attention to:

(1) Characteristics

People are different, and characteristics are different. Some teachers give a lecture with excessive passion and melodious voice, and language expression is wonderful as the color of brocade and very good. Some teachers give a lecture peacefully and slowly, but can convert the complex into the simple, change the insipid into the charming. Some teachers give a lecture like sifting gold from sand and have their own opinions sometimes. Because of the distinctness of individual, teachers couldn’t be required to keep the same style completely, but should be encouraged to hold their own characteristics with various qualities.

(2) Lecture art

Lecture art is based on solid basic skills and long-term teaching practice. To form own lecture art the following several aspects should be considered:

① Content Designing Art

Students participating in post education almost have experience of higher education, and most of them are undergraduates, a part of them postgraduates and doctors. They are good in both cultural foundation and receptivity, so content designing in teaching should be different from graduate education. It should be adjusted to the troop, the equipments and application and should possess interesting points to attract students.

②Method Application Art

According to the post experiences and characteristics of students, teachers can teach in accordance with students' aptitude, converting original methods such as inheriting type and force-feeding type into heurism type, rhetoric question type, discussion type and case teaching method and so on. Teachers can begin by introducing the more common problems, then analyze by layers and enlighten by steps, gradually develop students' thinking. Teaching methods such as equipment operation, example demonstration, multimedia animation, videos data and so on, can be used to break down difficult points which are hard to comprehend or a little abstract into small direct problems connected to each other, ultimately make students thoroughly understand key points and difficulties.

③Communication Art in the Class:

Because students participating in post education come from different grassroots of the troop and different posts, and are familiar with the troop situation, they come to learn with the questions about their posts and troops construction. Lecture communication is very important for students in hopes of consulting teachers about professional difficult questions and communicating with others to learn from each other, and complement themselves. There is a requirement for teachers to possess certain ability and art of reining in the class to make students take the initiative to participate in the class discussion, actively speak and argue with each other, but the class is under control of teachers. Sometimes teachers can give proper inspiration and guidance in time to keep the discussion and speech follow the prepared direction, not deviate theme.

(3) Innovation

The history of mankind is a history of innovation. The purpose of personnel training in colleges and universities is to cultivate high-caliber innovative talents. So, teachers in the teaching process should always have innovation awareness, give innovation lessons and cultivate innovative military talents for troops. Based on teaching experiences for several years, the following several aspects about innovation may be considered:

①Putting Forward New Viewpoints for Old Problems

For the more common old problems, teachers can give their own solutions according to understanding for several years. Of course, the new viewpoints should be profound and meaningful, and formed after long-term accumulation of professional knowledge and experiences.

②Exploring New Fields, Studying New Problems

Based on experiences in individual research field for several years, teachers can track troop development frontier and militarized struggle preparations with their own sharp thinking, then search own modes to explore new fields and study new problems, and expand the thought for the development of students.

③Relying on New Techniques, Applying in New Methods

Science and technology have been developing rapidly. A college teacher should always track the frontier and the global trends of his own study field, and learn new knowledge, new technology and new method. A college teacher should explore

boldly, dare to be the first one and dare to apply new technologies and new methods to the force construction and weapon equipment development, and should impart the spirit dared to explore and innovate to students and cultivate their innovation awareness.

2.3 Modestly Hearing Comments and Giving Pragmatic Lessons

Chairman Mao said: “modesty helps one advance!” During preparing lessons, teachers need to consult the notions of experts and professors, especially the elder teachers who possess a broad spectrum of professional theory and knowledge, abundant experience in teaching and can give an evaluation to ensure lesson quality by organization tests for giving a lesson. In addition, teachers need pay attention to the class circumstances and the students’ learning effect at any moment in the teaching process, hear and adopt the feedback from students in time, and carry out dynamic modulation on teaching scheme and teaching contents to fulfill students’ requirement in good time. Teaching discussions and communication activities need to be organized at regular intervals to solve new problems in teaching. Teachers should encourage students to express their opinions and put forward questions, and modestly hear and adopt feedback about suggestions and problems from students, and give the answers in time. Teachers should tightly foster such awareness: we can’t guarantee that every lecture is the truth, but we must ensure that each lecture is closer to the truth. Finally the purpose that teaching benefits teachers as well as students is achieved.

3 Conclusion

Class teaching is the most direct way to impart knowledge. Teachers must prepare carefully in order to make students learn knowledge in the class. In those years, Marshal Liu Bocheng consulted a lot of materials in order to give a good lecture, after long time of earnestly preparing a lesson he had profound sense to say: “how much effort giving a good lesson consumes!” Holding a post education has become the main task and development trend of military academy. Due to its own characteristics, posting education can’t follow traditional class teaching mode of graduate education which is step-by-step, from principles to formulas and from concepts to examples. Therefore, exploring scientific and reasonable teaching modes adapt to the military posting education is particularly important.

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Teaching Practices of Integrated Circuit Basis and ASIC Design Courses

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Abstract. This paper presents teaching practices of Integrated Circuit Basis and ASIC Design courses for IC design undergraduate specialty at Ningbo University to meet strong demands for designers of ASIC chips and electronic engineers of home electronic products. The teaching content, teaching methods, and experiment teaching modes of the Integrated Circuit Basis and ASIC Design courses are explored and developed at Ningbo University by referencing advanced teaching practices. The teaching practice results have some value for Integrated Circuit Basis and ASIC Design courses of other similar universities.

Keywords: Undergraduate education, IC design undergraduate specialty, Teaching practices, Integrated circuit basis, ASIC design.

1 Introduction

The integrated circuit is the core technology of information industry in a country or region, and it represents the key competitiveness. Therefore, undergraduate specialty construction of IC design can help develop the national and regional information science, and has extremely vital significance for enhancing original innovation ability.

The IC design and application undergraduate specialty is an inter-discipline emerging one with high technology integration. It is a recent new undergraduate specialty all over the world, although it has began for postgraduate teaching long ago [1-5]. Therefore, teaching contents, teaching methods and experimental modes of its core courses are not mature experience for reference. One of the keys of the specialty construction is how to set teaching contents, teaching methods and experimental modes of the core curriculums reasonably and effectively.

A series of IC core courses for IC design and application undergraduate specialty have been developed at Ningbo University to meet strong demand for designers of ASIC chips and electronic engineers. In this paper, the teaching content, teaching methods, and experiment modes of Integrated Circuit Basis and ASIC Design courses are presented, which are developed by referencing developing experiences of IC postgraduate students at Ningbo University and advanced teaching experiences of microelectronics [1-6]. Teaching innovation and practices for IC design and application undergraduate specialty have been carried out, which includes course syllabus, lecture notes, experiment guide books, etc.

2 IC design Core Courses

The training goal of IC design and application undergraduate specialty is ASIC design and application ability of electronic information systems. The students should be skillful at basic theory, principles and knowledge of IC design and application with integrated circuit design tools. The students can engage in research, design, and application of IC chips and electronic information systems with some innovation ability of engineering and technique.

Through four years of learning and training, our undergraduates should have a solid mathematical and physical base, and they should master theory, principle and design methods related on analog circuits, digital circuits, IC design, and IC manufactures with the related knowledge and ability. They should also be skillful at IC design tools, and have design capabilities of ASIC chips by using these IC design tools. Moreover, through four years of learning and training, students should have basic skills in literature search, strong ability of self-study, practice ability, and certain scientific research ability and innovative consciousness.

After careful thorough investigation and demonstration, finally we determine that the curriculum system of the IC design and application undergraduate specialty is composed of four parts, named as comprehensive education courses, compulsory courses in big academic subjects, professional education platform courses, and professional module courses of IC designs and applications. The basic theory and knowledge of mathematics, physics, circuit theory, analog circuits, digital circuits, and computer related courses are covered by comprehensive education courses, compulsory courses in big academic subjects, and professional education platform courses at Ningbo University. The core courses in professional module of IC design and application undergraduate specialty are shown in Table 1.

Table 1. The core professional courses in IC design and application undergraduate specialty at Ningbo University

| Course name | Lecture hours per week | Experiment hours per week |
|---|--------------------------|---------------------------|
| Integrated Circuit Basis | 2.0 | 2.0 |
| ASIC Design | 2.0 | 2.0 |
| Automatic Design of Digital System and Its Practice | 1.0 | 4.0 |
| Mixed-Signal IC Design | 2.0 | 3.0 |
| Analysis and Design of Digital System | 2.0 | 2.0 |
| Special-Purpose Chip Design | Three weeks (Short term) | Three weeks (Short term) |

The core professional courses in IC design and application undergraduate specialty include mainly: Integrated Circuit Basis, ASIC Design, Automatic Design of Digital System and Its Practice, Mixed-Signal IC Design, Analysis and Design of Digital System, and Special-Purpose Chip Design. The Integrated Circuit Basis course focuses on IC design basis, working principle and design method of ICs. The ASIC Design and Automatic Design of Digital System and Its Practice courses introduce simulation, design, verification, and testing of IC chips. The Mixed-Signal IC Design and Special-Purpose Chip Design courses train students to resolve the actual engineering problems with the comprehensive adoption of fundamental theories, basic knowledge and basic technical ability through several projects, and develop student's team cooperation sprits. The organization structure of the core professional courses in IC design and application undergraduate specialty is shown in Fig. 1.

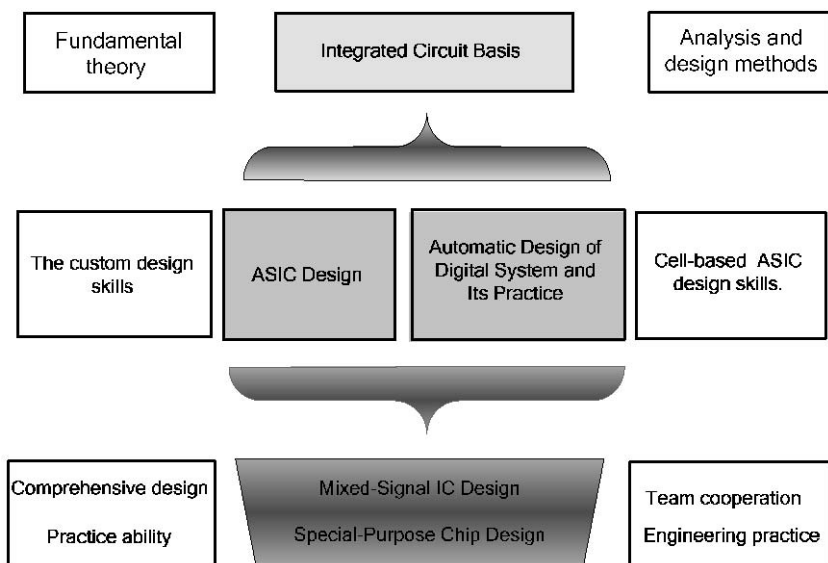


Fig. 1. The organization structure of the core professional courses in IC design and application undergraduate specialty at Ningbo University

The IC design and application undergraduate specialty is a recent new specialty in universities and colleges all over the world, although it has began for postgraduate teaching long ago. The teaching contents, teaching methods and experiment contents in the above core professional courses of IC design and application undergraduate specialty are not mature experience for reference. For the Integrated Circuit Basis and ASIC Design courses, we have draw up course syllabus by referencing developing experiences of IC graduate students at Ningbo University and advanced teaching experiences of microelectronics. The teaching content, teaching methods, and experiment teaching modes of the two courses are explored and developed at Ningbo University, which includes lecture notes, experiment guide book, etc.

3 Teaching and Innovation Practice of the Integrated Circuit Basis Course

The Integrated Circuit Basis course is one of the professional core curriculums in the integrated circuit design and application undergraduate program. The goal of this course is an understanding of IC fabrication process, semiconductor devices, layouts, transistors, and CMOS logic gate design. The course trains students to develop skills in analysis and design of CMOS logic gates, combination logic blocks, and sequential circuits, and use IC design tools for carrying out schematic input, simulation and optimization of IC digital circuits.

Lecture contents of the Integrated Circuit Basis course are shown Table 2. The main contents of the course include integrated circuit design basis, IC fabrication process, semiconductor devices, structure and characteristic of transistors, layout design rules, interconnect wires, CMOS combinatorial circuit design with different logic styles, CMOS sequential circuit, etc.

Table 2. Lecture contents of the Integrated Circuit Basis course

| Course contents | Detailed contents | Lecture hour |
|--|--|--------------|
| Introduction | The outline of integrated circuit design; Basic knowledge of design tools; Design flows of a chip | 2 |
| Manufacturing Process | IC fabrication process; MOS transistors; Chip packages | 2 |
| Devices | Semiconductor devices; MOS characteristics; Device mode | 4 |
| Transistors and Layouts | Structure and characteristic of transistors; Layout design rules; Layout design skills; A look into the future | 6 |
| Wire | Parasitic parameters (capacitance, resistance, and inductance); The parameters and circuit models of interconnect wires; SPICE models of wires; A look into the future | 4 |
| CMOS Inverter | Behavior and performance analysis of the static MOS inverter: power, delay, and power delay product of the static MOS inverter; Technology scaling and its impact on inverter metrics | 4 |
| Designing CMOS combinational logic gates | Static CMOS logic gates and their optimization methods: complementary CMOS, ratioed logic, pass-transistor logic, DCVL, CPL; Dynamic CMOS logic gates; New low-power high-performance design technologies | 6 |
| Designing sequential logic circuits | Static latches and flip-flops; Dynamic latches and flip-flops: Dynamic edge-triggered flip-flop, C ² MOS flip-flop, TSPC flip-flop; Oscillators, pulse generator, Schmitt toggle circuit; Clock strategy selection. | 6 |

Experiment class is an important teaching step, which teaches actual operation ability, training, and scientific research methods of IC design. The experiment training provides students with powerful learning experiences that they can easily transfer to a future workplace.

Experiment teaching contents of the Integrated Circuit Basis course is shown in Table 3. The main contents of the course include installation and operation of Linux operating system and IC design tools, schematic input and simulation by using Cadence Composer and HSpice tools, designs and performance analysis of CMOS combinational logic gates, sequential logic circuits, and complex CMOS circuits, etc.

Table 3. Experiment teaching contents of the Integrated Circuit Basis course

| Experiment content | Detailed content | Experiment hour |
|--|---|-----------------|
| Installation and operation of Linux operating system and IC design tools | Installation and operation of Linux operating system; Installation, configuration, and operation of IC design tools | 4 |
| Cadence Composer and HSpice simulation | Simulation methods of the CMOS circuits by using Cadence Composer and HSpice tools | 4 |
| Characteristics of CMOS circuits | Impacts and analysis of the circuit performance on device sizing by using HSpice simulations with Cadence Composer | 4 |
| Circuit design style | Performance analysis and comparisons for circuit design styles by using HSpice simulations with Cadence Composer | 4 |
| Designing CMOS combinational logic gates | Device sizing optimization for CMOS combinational circuits based on complementary CMOS, DCVL, and CPL by using HSpice simulations with Cadence Composer | 4 |
| Designing sequential logic circuits | Device sizing optimization for static flip-flops by using HSpice simulations with Cadence Composer | 4 |
| Design of complex circuits | Designs, simulations, and comparisons for complex circuits by using HSpice simulations with Cadence Composer | 5 |
| Introduction of the custom layout design | Custom layout design and DRC operation for CMOS static inverter by using Virtuoso Layout Editor | 5 |

4 Teaching and Innovation Practice of the ASIC Design Course

The ASIC Design course is also one of the professional core courses in IC design and application undergraduate program. The goal of this course is an understanding of full-custom layout design and verification, and cell-based ASIC design flow. The course trains students to develop skills in full-custom layout design, and layout verification by using IC EDA tools such as Virtuoso Layout Editor and Diva verification. The course also introduces design methods of basic digital modules including adders, shifters, multipliers, and memory, etc.

The lecture contents of the ASIC Design course are shown Table 4. The main contents of the course include ASIC introduction, Cadence system overview, full-custom layout design, layout verification with Diva and Calibre, Cell-based ASIC design flow, design of data paths and memories, etc.

Experiment class is an important teaching step, which teaches actual operation ability and scientific research methods of ASIC designs and applications. In the ASIC Design course, the experiment lesson is not less than theory classes, as shown in table 5.

Table 4. Lecture contents of ASIC Design course

| Course contents | Detailed contents | Lecture hours |
|-----------------------------|---|---------------|
| ASIC introduction | ASIC type; Design flow; ASIC economics; ASIC cell library | 2 |
| Cadence system overview | Cadence tools; Cadence system organization structure: library, cell, view, etc; Cadence environment settings; Cadence help system | 2 |
| Layout design | Custom layout design methods by using Virtuoso Layout Editor through CMOS circuit examples; Interactive DRC and LVS; Layout format conversion; Virtuoso Layout Editor environment | 6 |
| Layout verification | Verification tools: Diva and Calibre; Design rule check (DRC); Layout parasitic extraction (LPE); Parasitic esistance extraction (PRE); Electrical rules check (ERC); Layout versus schematic (LVS) comparison; Post-simulation | 6 |
| Cell-based ASIC design flow | Gate arrays; Standard-cell-based design flow; Standard cell design; Library structure; Place and route; I/O PAD cells; Packaging technology | 6 |
| Data paths | Structure of data paths; Basic operation function blocks: adders, multiplier, shifter, etc | 6 |
| Memories | Structure of memories; Storage cell; Address decoders | 6 |

In the ASIC Design course, experiment teaching contents are composed of three basic practices and five projects. The experiment contents strengthen design and practice ability of ASIC. In the five projects, the students are demanded to complete schematic input and pre-simulation for CMOS modules by using Cadence composer, then layout design and layout verification (DRC, LVS, and LPE), and post-simulation by using Cadence Virtuoso Layout Editor with HSpice simulation tool, and finally add I/O PAD. Through a lot of experiments and projects, the experiment teaching of the ASIC Design course train students to complete layout design and verification skills by using IC EDA tools to master the design ability of the ASIC chip that they can easily transfer to a future workplace.

Table 5. Experiment teaching contents of the ASIC Design course

| Experiment contents | Detailed contents | Experiment hours |
|----------------------|--|------------------|
| Custom layout design | Custom layout design and DRC operation for CMOS static inverter by using Virtuoso Layout Editor and Diva | 3 |
| Cell design 1 | Schematic input, pre-simulation, layout design, and layout verification for the basic CMOS gate by using Cadence Composer and Virtuoso Layout Editor with HSpice simulation tool | 6 |
| Cell design 2 | Schematic input, pre-simulation, layout design, and layout verification for the basic CMOS cell (Adder and flip-flop) by using Cadence Composer and Virtuoso Layout Editor with HSpice simulation tool. | 9 |
| 4-bit parallel adder | | 16 |
| 16-bit serial adder | First, complete schematic input and pre-simulation for CMOS modules by using Cadence Composer, then layout design and layout verification (DRC, LVS, and LPE), and post-simulation by using Cadence Virtuoso Layout Editor with HSpice simulation tool, and finally add I/O PAD. | 16 |
| 8-bit shift register | | 16 |
| 4×4 memory | | 16 |
| 10×10 counter | | 16 |

5 Conclusion

After several years of construction and practice, the Integrated Circuit Basis and ASIC Design courses have obtained many innovation achievements in course system, teaching content, teaching method, experiment mode, courseware construction, and construction for IC design experimental platform.

For the theory knowledge of the Integrated Circuit Basis course, we introduced the advanced concepts and methods of modern digital system design, to make students have an understanding for the frontiers of the discipline development.

For experiment teaching of the ASIC Design course, we constructed the progressive hierarchy of curriculum experiment system, strengthened experiment skill training, and develop their abilities to analyze and solve problems.

For content organization of the experiment teaching, we increased comprehensive experiment projects on the basis of basic experiment skills to improve students' design and practice abilities that they can easily transfer to a future workplace.

Through the Integrated Circuit Basis and ASIC Design courses, the students have greatly promoted knowledge application ability and project practice ability, and these can provide good foundation for their further study and develop.

From the above, IC design core courses for the IC design and application undergraduate program have been developed at Ningbo University to meet strong demand for designers and electronic engineers of ASIC chips, and have obtained some achievements, although the teaching practice time is not long. The teaching innovation and practices of the Integrated Circuit Basis and ASIC Design courses have been carried out, which includes lecture notes, experiment guide book, etc. The teaching practice results have some value for the Integrated Circuit Basis and ASIC Design courses of other similar universities.

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Teaching Practices of the Mixed-Signal IC Design Course in an Undergraduate Curriculum

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Abstract. This paper presents teaching and experiment practices of the Mixed-Signal IC Design course in an undergraduate curriculum at Ningbo University. Teaching practices of the Mixed-Signal IC Design course are carried out to meet strong demand for designers and electronic engineers of ASIC chips of home electronic products. The teaching content, teaching methods, and experiment teaching modes of the Mixed-Signal IC Design course are explored by referencing advanced teaching concepts. The results have some value for teaching of the Mixed-Signal IC Design course of other similar colleges and universities.

Keywords: undergraduate curriculum, teaching practices, digital and analog IC design, mixed-signal IC.

1 Introduction

The integrated circuit is the core technology of information industry, and it represents the key competitiveness in a country or region. Therefore, undergraduate specialty construction of IC design has extremely vital significance for enhancing original innovation ability. In order to meet strong demands for designers ASIC chips. IC design and application undergraduate programs have been developed in some universities in China. From 2006, Ningbo University has being offered the IC design and application programs for the undergraduate students of the Faculty of Information Science and Technology, which is one of the earliest ones in China.

The IC design and application undergraduate specialty is a recent new undergraduate specialty all over the world, although some courses have begun for microelectronic undergraduate postgraduate and teaching long ago [1-6]. A series of IC core courses for IC design and application undergraduate program have been developed at Ningbo University to meet strong demand for designers of ASIC chips and electronic engineers. In this paper, the teaching content, teaching methods, and experiment modes of the Mixed-Signal IC Design course are presented, which are developed by referencing teaching and developing experiences of IC postgraduate students at Ningbo University and advanced teaching experiences of microelectronics [1-6]. Teaching innovation and practices for the Mixed-Signal IC Design course have been carried out, which includes course syllabus, lecture notes, experiment guide books, etc.

2 IC Design Core Courses

The training goal of IC design and application undergraduate specialty is ASIC design and application ability. Through four years of learning and training, the students should have a solid mathematical and physical base. They should master theory, principle and design methods related on circuit principle, analog circuits, digital circuits, IC design, and IC manufactures with the related knowledge and ability. They should also be skillful at IC design tools, and have design capabilities of ASIC chips by using these IC design tools. Moreover, students should have basic skills in literature search, strong ability of self-study, practice ability, and certain scientific research ability and innovative consciousness.

The setting principles of the course system should include systematicness, completeness, advancement, and practicability. To achieve the training target, the course system of the IC design and application undergraduate program should cover all main IC design knowledge. In order to make students adapt to future work, the courses should reflect the advanced knowledge related on IC designs. The course system should also emphasize the engineering practice ability and team cooperation spirit of students, and trains students the capability of solving problems with the IC design knowledge that they can easily transfer to a future workplace.

After careful thorough investigation and demonstration, the curriculum system of the IC design and application undergraduate specialty is composed of four parts, named as comprehensive education courses, compulsory courses in big academic subjects, professional education platform courses, and professional module courses of IC designs and applications. The basic theory and knowledge of mathematics, physics, circuit theory, analog circuits, digital circuits, and computer related courses are covered by comprehensive education courses, compulsory courses in big academic subjects, and professional education platform courses at Ningbo University. The organization structure of the core professional courses in IC design and application undergraduate specialty is shown in Fig. 1.

The core professional courses in IC design and application undergraduate specialty include mainly: Integrated Circuit Basis, ASIC Design, Automatic Design of Digital System and Its Practice, Mixed-Signal IC Design, Analysis and Design of Digital System, and Special-Purpose Chip Design courses. The Integrated Circuit Basis course focuses on IC design basis, working principle and design method of ICs. The ASIC Design and Automatic Design of Digital System and Its Practice courses introduce simulation, design, verification, and testing of IC chips. The Mixed-Signal IC Design and Special-Purpose Chip Design courses train students to resolve the actual engineering problems with the comprehensive adoption of fundamental theories, basic knowledge and basic technical ability through several projects, and develop student's team cooperation sprits.

Experiment training is an important teaching step, which teaches actual operation ability and scientific research methods of IC designs. It provides students with powerful learning experiences that they can easily transfer to a future workplace. In several courses, the experiment teaching hours are all not less than theory ones, as shown in Table 1.

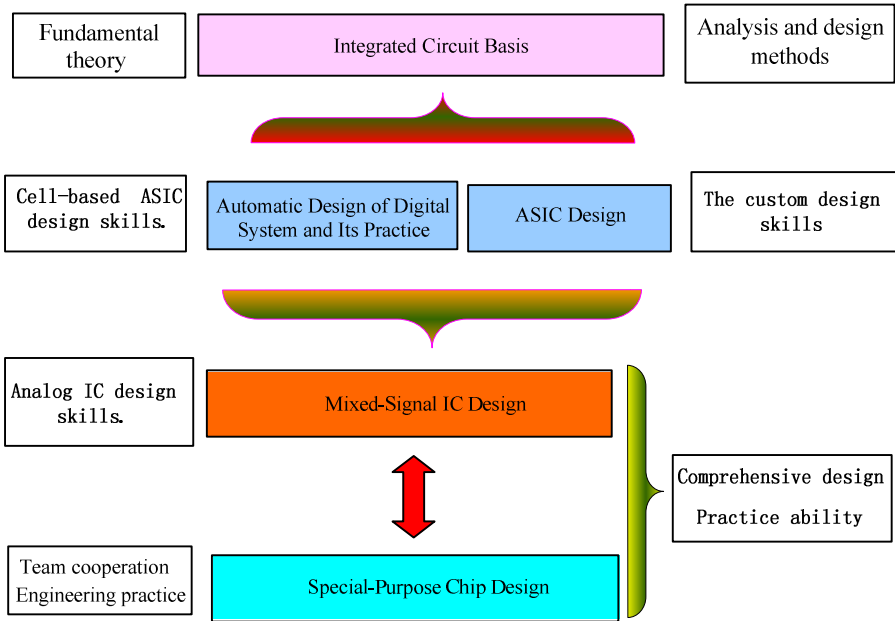


Fig. 1. The organization structure of the core professional courses in IC design and application undergraduate specialty at Ningbo University

Table 1. The core professional courses in IC design and application undergraduate specialty at Ningbo University

| Course name | Lecture hours per week | Experiment hours per week |
|---|--------------------------|---------------------------|
| Integrated Circuit Basis | 2.0 | 2.0 |
| ASIC Design | 2.0 | 2.0 |
| Automatic Design of Digital System and Its Practice | 1.0 | 4.0 |
| Mixed-Signal IC Design | 2.0 | 3.0 |
| Analysis and Design of Digital System | 2.0 | 2.0 |
| Special-Purpose Chip Design | Three weeks (Short term) | Three weeks (Short term) |

3 Teaching and Innovation Practice of the Mixed-Signal IC Design Course

One of the keys of the course construction is how to set teaching contents, teaching methods and experimental modes reasonably and effectively. The IC design and application undergraduate specialty is a recent new specialty in universities and colleges all over the world, although some courses have begun for postgraduate teaching long ago. The teaching contents, teaching methods and experiment contents in the above core professional courses of IC design and application undergraduate specialty are not mature experience for reference. For the Mixed-Signal IC Design course, we have draw up course syllabus by referencing developing experiences of IC graduate students at Ningbo University and advanced teaching experiences of microelectronics. The teaching content, teaching methods, and experiment teaching modes of the courses are explored and developed at Ningbo University, which includes lecture notes, experiment guide book, etc.

The Mixed-Signal IC Design course is one of the professional core curriculums in the integrated circuit design and application undergraduate program. It introduces basic knowledge and skill of mixed-signal IC devices, CMOS operational amplifier, CMOS OTA, filter, ADC, DAC, mathematical model, mixed-signal IC design method, etc. The goal of this course is an understanding of fundamental theories, basic knowledge, and analysis and design methods of the mixed-signal integrated circuits. The course trains students to develop skills at layout design and layout verification of mixed-signal integrated circuits.

Lecture contents of The Mixed-Signal IC Design course are shown Table 2. The main contents of the course include outline of mixed-signal IC design, devices of mixed-signal integrated circuits, CMOS operational amplifier, design method of mixed-signal IC, CMOS OTA and analog multiplier, filter, analog/digital and digital/analog converters, phase locked loop introduction, etc.

To achieve teaching goad of the IC design undergraduate specialty, the graduate students should have a series of knowledge and abilities from the system's ideas, design methods to the realization of the required chips. Therefore, students should be skillful at IC design EDA tools such as function modeling, logic simulations, logic synthesis, layout design and verification, layout place and route, post-simulation, and have design capabilities of ASIC chips by using these IC design tools, so that they have the skill and practice ability from the system's ideas to the realization of the required chips.

Experiment class is an important teaching step, which teaches actual operation ability, training, and scientific research methods of the Mixed-Signal IC Design. In the Mixed-Signal IC Design course, the experiment lesson is much more than theory classes. It provides students with powerful learning experiences that they can easily transfer to a future workplace. Experiment teaching contents of the Mixed-Signal IC Design course is shown in Table 3. The main experiment contents of the course include analog unit design (single stage amplifier), CMOS operational amplifier, bandgap benchmark source, pre-layout simulation of mixed-signal integrated circuits, LEF generation of the analog cell, layout verification of the mixed-signal integrated circuits, post-layout simulation of the mixed-signal integrated circuits, comprehensive design of mixed-signal ICs, etc.

Table 2. Lecture contents of the mixed-signal IC design course

| Course contents | Detailed contents | Lecture hour |
|--|---|--------------|
| Introduction | The outline of mixed-signal IC design; design methods; manufacturing and testing technology; development trend | 2 |
| Devices | Devices of Mixed-signal integrated circuits: Transistors, integrated resistance, capacitance and inductance | 1 |
| CMOS operational amplifier | Current mirror; Bandgap voltage source and temperature compensation; the structure and principle of the CMOS operational amplifier; several typical CMOS operational amplifier design; the design of comparison | 7 |
| design method of Mixed-signal IC | Design tools of mixed-signal IC; Simulation ADE and AMS for mixed-signal integrated circuits: VHDL/Verilog, Verilog-A, VHDL/Verilog-Spectre, AMS, Spice, Schematic and hybrid simulation; Layout design (Abstract generation, Verilog in Verilog netlist, Analog vcell, I/O, Digital cell and timing) with Virtuoso Layout Editor for mixed-signal integrated circuit; Automatical Layout design (Floor Plan, P&R, DFM, SI) with SOC Encounter; Layout validation (DRC, ERC, LVS, LPE) by using Calibre for hybrid integrated circuits, post-layout simulation by using NanoSim for hybrid integrated circuits. | 8 |
| CMOS OTA and analog multiplier | CMOS OTA; Analog multiplier | 4 |
| Filter | Passive filter; active filter; switch capacitance filter | 4 |
| Analog/digital and digital/Analog converters | the concept, system structure, analysis and design examples of Analog/digital and digital/Analog converter | 6 |
| Phase locked loop introduction | operation principle, performance parameters, analysis model, and its applications of PLL, frequency comprehensive and data clock recovery (CDR) circuits. | 2 |

In the Mixed-Signal IC Design course, experiment teaching contents are composed of eight basic practices and one project. The experiment contents strengthen design and practice ability of the mixed-signal IC design. In the project, the students are demanded to complete schematic input, pre-simulation, layout design, layout verification, post-layout simulation, and LEF generation for the analog cell, cell-based design (Floor Plan, P&R, DFM, SI) by using SOC Encounter for the digital cell,

layout design, layout verification, post-layout simulation for mixed-signal ICs, abstract extraction by using Virtuoso and Calibre, and add I/O PADs. Through a lot of experiments and projects, the experiment teaching of the Mixed-Signal IC Design course trains students to complete mixed-signal IC design skills by using IC EDA tools to master the design ability that they can easily transfer to a future workplace.

Table 3. Experiment teaching contents of the mixed-signal IC design course

| Experiment content | | Detailed content | Experiment hour |
|--|-------------|---|-----------------|
| Analog unit design (single stage amplifier) | | Master the design method of analog unit circuit; Complete principle diagram input, circuit simulation and optimization, layout design and DRC verification of the unit circuit. | 5 |
| CMOS amplifier | operational | Schematic input; Pre-simulation; Layout design; Layout verification; Post-layout verification; GDSII export; Abstract extraction. | 8 |
| Bandgap source | benchmark | Schematic input; Pre-simulation; Layout design; Layout verification; Post-layout simulation; GDSII export; Abstract extraction. | 8 |
| Pre-layout simulation of mixed-signal ICs | | Pre-layout simulation of mixed-signal ICs with Analog Artist Design Environment (ADE). | 5 |
| LEF generation of analog cell | | LEF generation of analog cell by using Virtuoso | 5 |
| Cell-based design | | Cell-based design (Floor Plan, P&R, DFM, SI) by using SOC Encounter | 5 |
| Layout verification of mixed-signal ICs | | Layout verification (DRC, ERC, LVS, LPE) of mixed-signal ICs by using Calibre | 5 |
| Post-layout simulation of mixed-signal integrated circuits | | Post-layout simulation of mixed-signal integrated circuits by using NanoSim | 5 |
| Comprehensive design of mixed-signal ICs | | Schematic input, pre-simulation, layout design, Layout verification, post-layout simulation, and LEF Generation for Analog cell; Cell-based design (Floor Plan, P&R, DFM, SI) by using SOC Encounter for digital cell; Layout design, Layout verification, post-layout simulation for mixed-signal ICs; Abstract extraction by using Virtuoso and Calibre; Add I/O PADs | 13 |

The eight basic experiments train students the operation skill and practice ability of mixed-signal IC. For an example, in the analog unit design (single stage amplifier) experiment, the student are demanded to master the design method of the analog unit circuit, complete principle diagram input, circuit simulation and optimization, layout design and DRC verification of the unit circuits. The schematic of the analog unit design (single stage amplifier) is shown Fig. 3. The students are demanded to complete the circuit designs and optimization, layout design and verification, and post-simulations. The students are demanded to complete the simulations of the amplifier, such as the DC transfer characteristics, frequency characteristics, phase characteristics, and transient simulations of the amplifier, as shown in Fig. 2-Fig. 4.

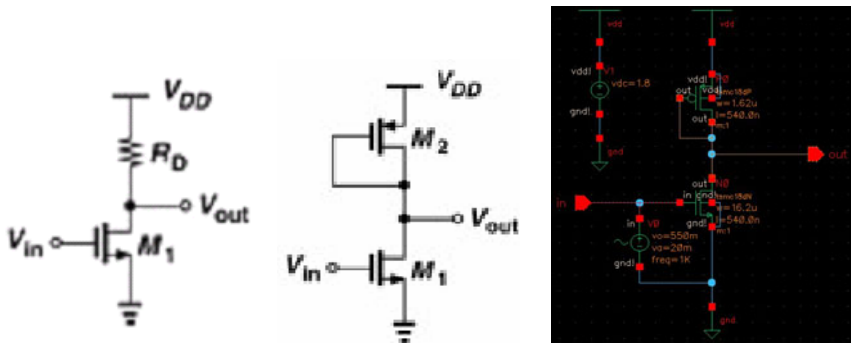


Fig. 2. Common source amplifier with the load of the diode

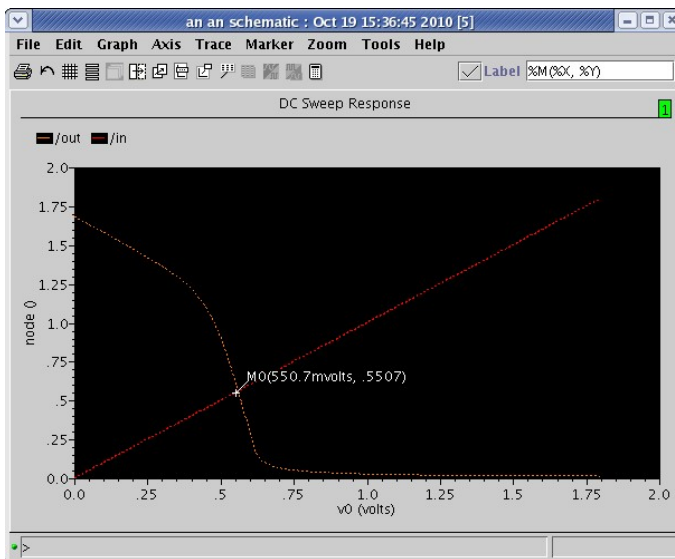


Fig. 3. DC transfer characteristics

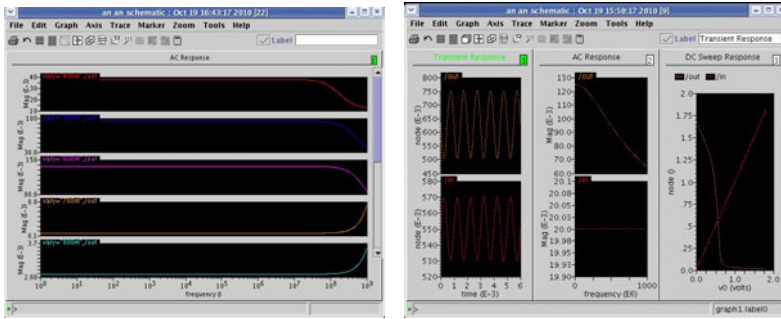


Fig. 4. Frequency characteristics, phase characteristics, and transient analysis of the amplifier

5 Conclusion

After several years of construction and practice, the teaching innovation and practices of the Mixed-Signal IC Design course have been carried out, which includes lecture notes, experiment guide book, etc. The Mixed-Signal IC Design course has obtained many innovation achievements in course system, teaching content, teaching method, experiment mode, courseware construction, and construction for IC design experimental platform. Through the Mixed-Signal IC Design course, the students have greatly promoted knowledge application ability and project practice ability, and these can provide good foundation for their further study and develop. The teaching practice results have some value for the Mixed-Signal IC Design course of other similar universities.

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Some Thoughts on Curriculum Reform for Art Design

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Abstract. The author, whose institute is undertaking a reform on teaching patterns, probed into and analyzed the current state of the teaching patterns for art design majors from a comprehensive university. In this article, the author brings up pros and cons of current teaching patterns, offering a new blueprint regarding the future directions to take, pointing out the positive and negative effects of the new curricular reform. It is the author's desire that this article can provide some thought-provoking and significant ideas and suggestions for the reform on the curriculum of art design, and meanwhile, call to attention the problems and deficiencies found in practice.

Keywords: art design teaching patterns, curriculum design, curricular reform.

1 Introduction

Recently, while learning the principles of scientific development, Weifang Institute, where the author works, has carried out a series of reforms in relation to education and pedagogy. In line with developmental laws of higher education, the Institute is trying to make these reforms more thorough and profound, to keep open-minded, to offer service and help to regional economic development, and to meet both economic and social needs. With a view to cultivating and enhancing students' ability to practice and innovate, refining and emphasizing the features of each major, as well as developing specialized, application-oriented talents with skill, capability, and virtues, which is the ultimate purpose it pursues, the Institute launched this curricular reform. It is realized that administrators must attach importance to the compatibility of standard education with the development of students' personality, meaning that the plans made for education not only have to comply with the laws of education, appropriate to the requirements prepared, but they should also lay stress on their openness and flexibility, making room for students' personality cultivation and independent study. At the same time, focus has to be placed on the correlation between social demand and these plans. It is the needs of the market that dictates what to teach, how to design the curriculum, and what kind of skills to be trained, and attention should be paid to ensure the curriculum is systematic, reasonable, and optimized. Courses that exist not because of its practical value should be eliminated, while courses that are missing only because of their few attendances should be included. It is in the interests of the students to avoid course overlapping, arbitrary course inclusion, elimination, or ill-considered mixing. Some necessary courses must be maintained in spite of the limits of resources, and the interplay among different

disciplines should be realized and emphasized in order to produce talents that are capable and competent in various areas. Efforts need to be made to design our courses, to gradually reduce our courses in a reasonable manner, to better promote students' individual personality and their awareness and ability of innovation. By doing so, it is hoped that this reform will provide quality education more time and more opportunities to grow and take shape.

2 In Accordance with the Guidelines, the Department of Fine Arts Worked Out a Revolutionary Reform for Art Design, Particularly Aimed at Revising the Training Plan for 2011 Undergraduates of This Major

The specific measures are as follows:

To begin with, as a background information research, interviews were arranged with second-year, third-year, and fourth-year students majoring in art design. As far as second-year students are concerned, we intended to find out to what extent they knew about the major as they were about to choose their specialty to pursue; for third-year students, who had already decided their specialty for a year and had had a basic understanding of their pursuit and interests, their personal inclinations and psychological states were our focus. Emphasis, however, were laid on fourth-year students, who have basically completed their all courses required. This group can most likely provide the most significant insights into this major. Their views on various matters such as the division of specialties, reasonability of the design of curriculum, the distribution of elementary and specialized courses, together with the shift from theoretical to practical cultivation, should be carefully listened. In addition, we should also value their suggestions on what issues need to be attended to so as to improve practical cultivation, on how to fully develop and bring into play their interests, and on their career choice upon graduation, etc.

With a deep understanding of the students from the previous research, interviews with the teachers of the Department will also be held. Advices are sought about the present teaching patterns. It is suggested that no specialty division, that art design be the only major whose courses are compulsory, and courses of other majors such as Environment Art, Visual Communication, and Ceramics Design, are to be optional, that the fifth, sixth and seventh terms will be optional terms in which students are free to choose from different optional courses to take according to their wish and interest. This kind of reform is vividly described by the Institute as a great change from "a nutritional meal package" to "a buffet."

By means of communication and contact with related industries, the administrators should be clearly aware of what the society and market need. Listen to what opinions these industries can offer in regard to curriculum design, course reform, and collect enough information from them about graduates' job performance, and their competence evaluation.

Visits will be made to other colleges, and enquiries will be undertaken to find out what teaching patterns and curriculum design they are employing. Analysing the shortcoming of our own, draw on their merits so that the way that guides our teaching can be adjusted and improved.

3 BASED on Our Research and Reform, a Number of Problems Were Found in Our Current Curriculum Design and Student Instruction

The following is an analysis of these problems:

3.1 Students Have a Blind Understanding of Their Specialty

Form the interviews with students of different years, we find that most art students at local colleges have little or no idea as to what they are going to learn, much less what the specific directions of Environment Art and Visual Communication are. And the reason for this problem lies in the fact that, in recent years, the National Matriculation Examinations has seen an excessively increasing number of art students. Most of them, under the pressure of enrollment, are forced to learn art because their grades in liberal arts or science are not good enough to ensure a college admission, thus affecting the overall quality of art students. As a consequence, students do not care about what their major will be so long as they can get admitted into a college. Besides, under the present system of the National Matriculation Examinations, students pay their attention only to such basic courses as charcoal drawing and water colour, totally ignoring other related majors. As a matter of fact, this issue is nothing new, and over admission, great pressure on enrollment and high schools' narrow-mindedness in seeking high rates of enrollment are all factors that contribute to this serious problem. In reaction to tackling it, many comprehensive colleges in Shandong Province are taking on a program for first-year fine arts students to better understand some elementary knowledge in this area, and for second-year students, based on their different specialties, a specified education program is adopted in the hope of filling the gap. It follows that first-year students have to continue their elementary courses, with the foundation they have already laid in high school, more extensive studies will be focused on charcoal drawing, water colour and computer skills, thus creating a more smooth transition to their chosen specialty, and that second-year students, according to their performance and personal will, can choose the specialty they are interested in. Unfortunately, despite all these changes and adjustments, most of second-year students still don't have a clear picture of what their specialty entails and what they are supposed to focus on! As administrators and teachers, we cannot but take this issue more seriously. For one thing, the causes behind rest upon ill-defined teaching instructions on the part of the schools; for another, students' own learning initiatives are far less than satisfactory. Because of their inability to identify their interests, plus their lack of understanding of specialties, they tend to blindly choose a specialty that most people choose, but not one they really like. There exists an imbalance in the development of the specialties, with few students choosing Environment Art and too many students choosing Visual Communication, and as a result, there is a shortage of teachers and equipment for this specialty. Such a sharp imbalance will certainly result in a negative effect on the quality of students.

3.2 Students Have a Blind Understanding of Future Employment

As the investigation shows, the majority of undergraduates and graduates are unable to realize the connection between their majors and careers when they enter the society. Apart from the difficulty of landing a job nowadays, what is more crucial is that the major design itself does not help in this respect at all. The research directions of these majors are not clearly specified, and more often than not, they cannot meet the needs of the actual jobs. Take for instance the major of Environment Art Design, which, as most colleges do, combines fine arts with interior design, and, after many years' development, get recognized as such. Its required courses also largely centre on interior design, with exterior design courses as its complement. However, some renowned art colleges (such as Central Academy of Fine Arts, Shandong University of Fine Arts), have renamed it as architecture and landscape design under which there are Interior Design and Landscape Design, and the courses to cover have also changed greatly. The author attended the national environmental art seminar held in Shanghai Donghua University last year. In the seminar, Professor Cai Qiang from Shenzhen University brought up a proposition that the name issue regarding Environmental Art should be taken into account. Although the proposition was well-meaning, it also made me sad on second thought. When we talk about Environmental Design, what does it really cover? Why not directly call it Interior Design? What is now included in Environmental Design has some specialties that other majors intend to spend four whole years researching, such as Landscape Design, and we need to differentiate our research priorities from theirs. Since many colleges follow suit as the Central Academy of Fines Arts changed the name, but, as it turns out, they find it very hard to put it into practice and shortage of teachers is the biggest problem. Copycat is no use, and when there is not even a clear understanding of the name, how could we expect to proceed with our education in a right direction. From my point of view, the ill-definedness between our research priorities and theirs is the principal problem that prevents a scientific development in this area, and we cannot help but ask, doesn't such a problem exist in other majors? Isn't it the same with the majors such as Visual Communication and Art design? It is safe to say that, when our priorities are not clearly defined, the arrangement of these majors is bound to be unreasonable, and our students, who dabble in everything yet possess expertise in nothing, most likely find them confused in the job market. And that accounts for their blindness in choosing their career path. Moreover, as far as employment is concerned, most schools lean towards the idea that they only take charge of education, employment is outside of their responsibility, which further contributes to this blindness.

3.3 Modifications Are Needed in Basic Courses

Widespread conflicts in this regard in the major of Art design can be found across art colleges. By basic courses, they are generally made of rudimentary knowledge of model, constitution, and computer, as well as design theories, which primarily focus on training students' painting skills and ability of thinking, and usually take one year. So here inevitably comes the problem: what should we do if there is a clash between basic courses and specialized courses? Which courses are more important? For now, each side can offer reasons and explanations in its own favour, and it is hard to draw

an absolute conclusion. Furthermore, in terms of basic courses, there is more to this issue than the problem just mentioned. In general, in some local colleges, fine arts teachers are in charge of basic courses, who neither have a deep understanding of this major nor are fully aware of the role played by basic courses in specialized courses, only emphasizing training painting skills and techniques, thus severing the connection between these two kinds of courses, offering no help in improving students' ability of thinking. That is to say, these basic courses do not lay a solid foundation for the transition to future specialized courses. From students' perspective, what they learned from their first-year courses is practically useless and a waste of time. In addition, it is students' common suggestion that computer courses are given more attention, and theory courses be reduced or switched as optional, which reflects that they care more about practical applications than theories. Another situation is also worth mentioning: we are in urgent need of teachers who can teach art design theories. Most of art theory teachers (art design theory teachers in particular) are now doubled by skill teachers, who often do not have much research experience and cannot provide effective teaching, hence their dislike to studying.

3.4 Advantage and Disadvantage of the Existing Teaching Patterns

This section describes problems that will emerge after the reform, as well as the pros and cons of the reform.

The existing teaching patterns in Art design are formed and developed over many years' discussions and practice. There is a relatively mature arrangement both in discipline design and in teaching systems. The Department of Fine Arts, Weifang Institute, for example, merged in 2001, a combination of three departments of Fine Arts from the former Weifang Technical College and Weifang Normal College as well as Bohai University. This Department includes two directions: Fine Arts and Art design. And for Art design, there are two majors: Environment Art Design and Visual Communication Design. For first-year art design students, basic courses, which cover rudimentary knowledge of modelling, constitution, computer, and photography, etc., are to be taught. As for second-year art design students, they can choose their specialty freely till graduation, according to their academic performance and personal inclinations. This kind of teaching system has been at work for over ten years during which only small adjustments were made to lesson schedules of some courses. And the existing teaching patterns have maintained a perfectly smooth relationship with teachers, administrators and teaching conditions after these years' concerted operation. Every teacher knows by heart his or her class schedules and styles, which has already become a routine. Under the institute's teaching conditions, the advantages of the existing patterns are reflected on the organized teaching order, and each discipline can be reasonably arranged; for students, they can learn and acquire a comparatively all-round understanding of related knowledge. On the other hand, the patterns also have disadvantages. They tend to stagnate when there are no innovations to be made for a long period of time, which might prevent disciplines from keeping up with new progress. And as for students, their learning initiatives are unexplored, and it is hard to make the most of their character strength. Some students, after a semester's study, might find there is another specialty more suited to them. When it comes to teachers, they are likely to get into a rut without a competition environment,

with the result that there is no incentive for teachers to make progress, contented with the status quo and making no effort to do any research. Needless to say, all of this is to the detriment of discipline development which in true will affect teaching quality.

In reaction, large-scale adjustments were made in the existing teaching patterns this semester. We attached great importance to the compatibility of standard training with personality development; moreover, we also laid stress on the openness of flexibility of our plans so as to make room for their personality development and autonomous learning. Meanwhile, having taken into consideration the correlation between training plans and the needs of the economic society, our original idea was to cancel major division in the second year after completing basic courses in the first year. Instead, the former specialized courses for their according majors would all be switched to be optional for students to choose from. But, in view of the feasibility of the plan, we made a few changes. In the first years, students still have to complete all the basic courses, but in the second, we included some elementary specialized courses which are compulsory, such as graphic design, typeface design, format design, ergonomics, and decoration design, and all courses are optional in the third year. Graduation design and thesis writing are scheduled in the first semester of the fourth year, with the second semester for practice courses. The new teaching patterns not only fully consider the reasonability of different disciplines, but also put students' interests and learning initiatives in the first place, thus transforming the situation where students study in a passive manner, and now they are able to choose the field they are really interested and take the initiative to participate. With the help of credit system, it is hoped that teaching is truly at the service of students.

Whether this reform on teaching patterns will prove useful and reasonably remains to be tested by practice. Based on the analysis of the current circumstances, we predict the following scenarios: Since students choose courses according to their interests, they inevitably tend to take too many courses, which would lead to their knowledge acquired being unbalanced and unsystematic. They might lack expertise, and what they learn might turn out too general yet not proficient. Some courses might be too popular while others go unattended, which might cause problems to teaching management and order. Some uncertainties are bound to occur given students' different interests, teachers' availability, the degrees of difficulty of obtaining credits and so on. This reform on teaching patterns might result in a series of changes, such as the teaching management system, the student management system, teaching content and equipment. This reform will definitely contribute to more thorough research in various fields as well as to promoting competition among teachers. The modifications of courses will also help form teaching teams, which is conducive to the development of quality programs. But we also have to realize that, because of the limit of courses, a lot of specialized course must merge and combine; tasks that needed two or more courses to finish before now have to be finished with only one comprehensive course that calls for specific research. Between less courses and heavier tasks, can we really achieve the desired teaching effect in the end?

For an integrated college that is gradually developing, reform is necessary and inevitable. Any teaching patterns have its advantages on the one hand, and disadvantages on the other. What is most important rests on whether they are truly in line with the laws of higher education, whether they are truly relevant to the related teaching spirits of the discipline, whether they are truly in the interests of the

development of the discipline and the students' future. As long as the reform is for a right cause, we shall persevere with it, no matter how many failures or frustrations we might meet with. So much for my views, research and practice in regard to teaching patterns and curriculum for Art design. It is my greatest hope that this article will shed some light in this field.

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Several Thoughts on Professional Hand Drawing Teaching in Environmental Design

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Abstract. The problems in hand drawing expression skill are analyzed in three aspects by some teaching experience and thoughts on hand drawing teaching in environmental design. Discuss new ideas in expression skill curriculums, and actively instruct students' initiatives and creative ideologies. Propel innovation on expression skill curriculum in overall new ideological methods, provide firm learning bases for other professional curriculums to make students more adaptable to professional curriculum.

Keywords: design essence, hand drawing, diversity.

1 Introduction

With China's decoration design industry increasingly mature and normal in recent years, CAD convinces more and more professional staffs with surprising truthfulness, high efficiency, precision and convenient operations, also supported by many design companies. Most students in environmental art spend too much time on software learning, but ignore the hand drawing. But hand drawing, as a basic designer's language, is an indispensable skill in expressing creation and design thinking, which has the incomparable advantages of fastness, flexibility and summarization. However, hand drawing in the past has never adapted to today's market. Therefore the teaching method has to be continuously innovated and improved to adapt to the fast developing decoration industry.

As a front-line teacher, author proposes some ideas on problems in original curriculums according to his experiences and teaching practice.

2 Solve the Phenomenon That Hand Drawing Skills Away from Design Teaching Process from the Essence

Sir Wang Shouzhi proposed: "design refers to a project, plan, imagination counter-measures expressed by visual ways." So design firstly, is a project, a preliminary conceiving, a creative ideology. Secondly, the performance of design is finally indicated in visual ways, which is an artistic work. As a designer, the most essential thing is the art of design ideology and design. Therefore, from the perspective of cultivating designers, the training on design methods and design thinking has to be

stressed. Environmental art design in reality is the design on space, a deepening of architecture design, a design conducted for expected life, work and other ideal spaces. But hand drawing sketch is a applied drawing coming from the exchange between designers and customers and expressing designing purposes, with certain professional characteristics. The teaching methods paying attention to pure technology but ignoring designing practice, which make students not be able to freely express their design purpose by learnt skills, once they conduct formal designs. The author considers such teaching should pay attention to the cultivation of students' design purposes and creative thinking except arrange some reasonable trainings and focuses on instructing students in holding regulations and methods of expressing skills. If want to achieve the best teaching effect as "law derived from art", "art found from law" and "express thing by law" "express meaning by law", you have to combine skill trainings ordered and planned with design expression, supported by teaching and technology training, to make it a organic part of design teaching.

3 The Teaching Methods Are Boring and Monotonous

The skills in hand drawing teaching are monotonous, whose expressive methods basically relies on tracing. After tens of class time, it is difficult to improve the students' learning effect sharply, only to succeed in tracing some hand drawing sketches, with no real improvement and progressing. The teaching content should be improved in following aspects according to the thinking from hand drawing skill curriculum teaching.

3.1 Clear the Curriculum Teaching Purpose

Improve the students' correct recognition in design express skills. The main task is to solve the comprehensiveness, intuition and rapidity of the express methods, and to express different hand drawing effects in different tools.

3.2 The Content Must Be Conveyed

Design express skill curriculum is a practical curriculum with strong operation, the essential knowledge has to be held, so foundation courses have to be considered in arranging curriculums. One of such is human engineering, which can solve the problems of ratio and size, so as to correctly express spatial structural relations. Secondly, perspective science, one point perspective(parallel perspective), two points perspective(angular perspective), three perspective(oblique perspective), which has to be functioned correctly, so as to better express the perspective effect, which is a key. Then the sketch drawing skills are essential, as the base of hand drawing skills, which is also the requirement for other curriculum in our major. To learn hand drawing sketch well, you can start from:

First is to learn perspective skill. Only correct perspective relation can convey correct author's design information. So the correct image is important, which is the key to the expressing effect. Incorrect perspective relation can't give objective and uniform spatial sense and cubic sense, easy to result in physical distortion. Therefore perspective relation is the key to learn hand drawing sketch well. At the beginning, it

should obeys perspective principles rigidly, explores the perspective distortion of objects by grid method on track. It is boring, and don't seek quick result. They can leave drawing tools to draw in hand after large quantities of gracing trainings, until draw perspective frames in different angles and different physicals skillfully. It is essential training stage. Enhanced training can provide firm base for rapidly and correctly drawing physicals, which directly influence the understanding in overall structural relationship in expression drawing.

Second is the line's training. Line is indispensable. Line is the basic express element in express of expression drawing. As a professional skill, to designers, hand drawing is very essential. But line is the base. If perspective relation is the frame structure, line is the soul of expression drawing, which can help author to express its expressive characteristics, by fine, rampant drawing methods. Skilled line can record fine architecture in short time. Besides, the biggest advantage is it easy to arouse designers' inspiration, so as to timely capture the creative thinking. It can be started from simple segments including horizon segment, vertical segment, wave and curve, etc. Trace good performance's drawing in beginning period, or find own drawing methods according his own drawing characteristics. The objects can also be simple geometric cubic, furniture or material objects, or notice line's training in spatial drawing. While bare-handed practice, it should be noticed the combination of eye, brain, hand and line, stepwise hold the basic tips of line expression. Although different personal's drawing methods, but lines basically need to achieve precision, summarized, flexible, both flexible and stop and dash, avoiding trivialness and repeated modifications.

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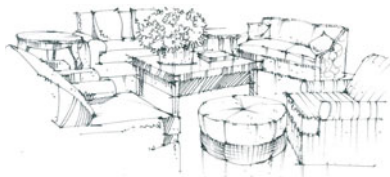


Fig. 1. Indoor furniture practice

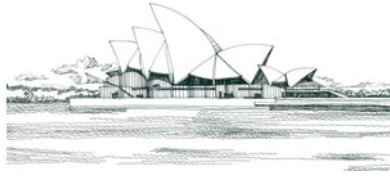


Fig. 2. Outdoor architecture sketch practice



Fig. 3. Villa design



Fig. 4. Villa design

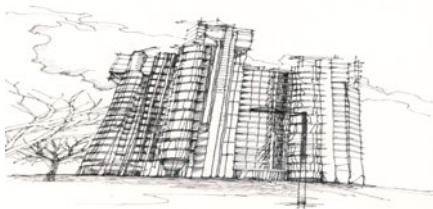


Fig. 5. Architecture sketch practice

Finally is processing the relations between integral shape and structure and color expression. In hand drawing expression, the drawing shortcut of complex shapes is to simplify and abstract the complex objects. To understand such shapes' structures, they should be restored to basic geometric elements. Abstract complex shapes' shapes to geometric shapes, then function assisted lines, by perspective and ratio relations, compose the geometric profiles, to find their principles and characteristics to respond flexibility. A good hand drawing sketch, by comprehensive expression in lines, color and texture, etc conveys designers' intention. Color is the last procedure for drawing. Current popular skills mainly are Expression Techniques of Effect Drawing with

Mark pen, color pen techniques, mixed skills. Take Mark pen skills as example. Due to abundant colors, rapid drawing, convenient use, strong expression, adaptable to various paper, time-saving and strength-saving, Mark pen becomes baby of designers. The basic order is to draw basic light and dark tones in cold grey pens or warm grey pens, the times for using pens should not be too many in the process of using pens, then color next times, correctly and rapidly. Or the color may spill and be turbid, without the Mark pen's clean and transparency. Once using Mark pens, most of strokes are hatching. So arrange the direction and density of lines orderly is helpful for generating integral images. It can use patching, dot pen and white, etc. The coverage of Mark pen is bad, light colors can't cover deep colors. So in the process of coloring sketches, it should color light colors before deep colors, and notice the mutual harmony among colors, not use colors too vivid but with medium colors. The drawing should be short. The author usually use pencil or pen to draw line sketch to pursue precise shape, on the basis of accomplishing line drawing, to express the basic shape of design content. Simply color in color pencil, Mark pen, watercolor, etc, to make it more visual, more realistic to express design effect. "real, fast, beautiful and illustrative" is the precise summary of hand drawing sketch.

3.3 Teachers' Demonstrating Capacity

As a practical curriculum, it can't simply rely on students' tracing hand drawing sketch, the teachers must have great hand drawing capability, to make students really feel the charm of hand drawing skills by instruct them in various operation skills. Then students may be aroused the learning expectation, meanwhile the teachers' personal elegance has been showed.

4 Solve the Problems in Uniqueness of Skills and Diversity of Need

Three basic stages are included in the work programs, that is conceive, plan design stage--- expansive design stage--- construction design stage, different demands for its sketches are needed in different design stages, which proposes the task of diverse trainings. Such sketch have to function a fast and flexible drawing methods, fast, conveniently and precisely indicates the designs. But the sketches in plan design, on the basis of the former, are deepened and truly and vividly show their design intentions. It is helpful for modifying plans by comparing, analyzing, exchanging and threshing. Once the design plan is finished, to better introductions, the sketches have to be true as possible as it could, to satisfy the expected effect. Therefore, it is essential to reflect environmental space, structure, perspective, color, shadow, texture, spatial atmosphere, etc truly and artistically, to make it more visual. Therefore, the skill training methods needed in the sketches are two kinds, one is the essential basic skill training (skill application training), the other is the training matching with design. No one can lack. In the conceive stage, to express the images, such fast expressive capability is needed. There are many fast and convenient drawing forms, which generally are pen light colors, Mark pen, etc. because it is difficult for students to master various fast drawing forms in a short time, more short-term homework is

needed in teaching. Limit drawing time rigidly according to its own situation, so as to cultivate fast expressive habit and improve fast expressive ability. Meanwhile, students must be kept a clear mind that all serve for design plan, to know about what to express and how to express. It is still necessary to let students choose some valuable sketches to trace except some long-term and medium-term work according to different design subjects and different ways, to freely serve for expression. To make students understand neither keep away from design content and intention, nor passive imitation, but to develop initiatives in the passive, activity in the limitation, to express scientifically and artistically.

All in all, the characteristics of hand drawing are visual, rapid, so it should be stressed to master gouache paint, watercolor paint, pen wash drawing, color pencils, Mark pens, etc in the teaching contents. Meanwhile emphasize training on fast skills, truly developing characteristics of hand drawing skills and making it truly become the essential basic skills, to adapt to other curriculums, to create firm basis for entering design market. As a practical curriculum, the learning methods require timely summarization for experiences, long-term perspiration. Develop own characteristics, master own favorite express skills, skillfully master own learning tools, truly master hand drawing with great proficiency and improve its professional express levels.

Design express skill is a practical curriculum with great operation, a basic skill for students majoring in environmental art design, with the focus on students' fast expressive ability. But fast, correct and efficient hand performance is quite important for designers to develop design intentions, expanse imaginary space and exchange and discussion among relevant staffs. On the basis of students' fast expression, make them to know about and understand different expressive skills and their suitable objects, and develop personal characters according to own capabilities. Continuously accumulate and summarize in the learning process persistently. As a front-line teacher, he should find disadvantages in teachings timely, continuously optimize and improve the curriculum teaching contents, to improve the teaching effect of design express skills.

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Experimental Studies of Physical Exercises to Improve Students Sleep Quality and Mental Health

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Abstract. The problem of sleep disorders about college students is becoming more and serious. Most students' sleep disorders are caused by social and psychological factors, but there are few scientific recovering methods. Physical exercise can not only improve people's physical health, but promote their psychological health as well. This paper, depending on exercise as intervention means, conducted an experimental research on 68 college students with poor sleep quality, with the result showing that the subjects all exhibited remarkable improvement in their sleep quality and mental health.

Keywords: College students, Physical exercise, sleep quality, psychology health.

1 Preface

Sleep is a necessary physiological and psychological phenomenon each person needs every day. Many people spend a third of their life time sleeping, which indicates the huge share sleep takes in a person's life. Although sleep is of great importance to our life, not every one of us sleeps soundly. For a long time, sleep disorder have always been troubling people's life and even reducing people's quality of life.

In recent years, college students' sleep disorders have become an increasingly important issue. According to the report, more than 16% of the college students in our country suffer from sleep disorders [1, 2], and the situation is becoming serious. [3, 4, 5, 6]

The major factors of sleep disorders are biological pathological and social psychological. Biological pathological factors such as arthritis, migraine headaches, heart failure, or sleep apnea syndrome and so on mainly appear in the elderly population, while most of the college students' sleep disorders are caused by social and psychological factors such as anxiety, depression and stress, individual personality characteristics, etc.. According to the survey, most college students lack attention to their own existing symptoms of sleep disorders, let alone understanding scientific and effective methods of rehabilitation. Once their symptoms become serious, they have to turn to sleeping pills. As is known to all, long-term use of sleeping pills will make the patient produce tolerance and dependence. The drug hangover phenomenon will affect the patients' work performance of the next day, increase the daytime sleep on the

second day, so that night sleep may be disturbed and the symptoms may become more complicated. At present, the rehabilitation of college students' sleep disorders has become a challenge that medical workers, college teachers and students cannot avoid.

It is well known that physical exercise helps to increase physical constitution and promotes physical health. Along with the development of exercise psychology, the function of "exercising the mind" of physical exercises has also been increasingly recognized [7]. The purpose of this study is to analyze the psychological effect of exercise's function in improving university students' sleep quality, to explore the recovery measures of sleep disorders and to enrich psychological theories in health.

2 Research Methods

2.1 Testees

By stratified random sampling, 1321 undergraduate students from Sichuan University are selected to be tested with Pittsburgh Sleep Quality Index (PSQI), the brief form of Essence Personality Questionnaire (EPQ), exercise-RSC rating scale, state-trait anxiety questionnaire (STAI- Form Y), self rating depression scale (SDS) and other survey tools, a total of 1060 valid samples are obtained from testers to research the relationship between sleep quality, exercises and mental health. According to the survey results, the students with poor quality of sleep are determined ($PSQI \geq 8$ points), among whom 68 voluntary students (39 males and 29 females) are selected to be studied. The selected subjects are ruled out of biological pathogenic factors and history of using sleeping pills.

2.2 Research Tools

(1) Pittsburgh Sleep Quality Index (PSQI). The total scores of Pittsburgh sleep quality index (PSQI) range from 0 to 21 points, and the higher the score, the poorer sleep quality is. This study will determine those with PSQI scores higher than 4 points as the group with good sleep quality, 4-7 as the medium group and those higher than 8 points(including eight points) as the poor group. The retest reliability of the scale is 0.85, and coefficient A is 0.83 [8].

(2) Essence Personality Questionnaire (EPQ). The scale of EPQ RSC includes the factors of extroversion and introversion, nervous disposition, stubbornness and social disguise. It contains 48 true-false questions and is suitable for the normal testers over the age of 16. The high score of the dimension of extroversion and introversion indicates the personality traits of extroversion, while the high score of that of nervous disposition shows poor emotional stability. This scale has good faith and validity.

(3) Adolescent Self-rating Life Events Check List (ASLEC). Liu Xianchen etc. compile ASLEC and it is composed of 27 negative life events that may bring psychological reactions to teenagers. It is applicable to young people, particularly middle school and college students to evaluate their frequency of life events and the intensity of stress. The retest reliability of this scale is 0.69, and coefficient A is 0.85.

(4) Exercise Rating Scale. This scale is revised by Liang Deqing, etc. from Wuhan Sport University. It inspects the exercise quantity from the intensity of exercise, exercise time and frequency, and measures exercise involvement level according to

exercise quantity. The score of exercise quantity = intensity × (time-1) × frequency. Each item is divided into 5 levels, scoring from 1 ~ 5 points. The highest score for exercise quantity is 100 points while the lowest is 0 point. The formulation standards for exercise quantity are: minor exercise ≤19 points, moderate exercise quantity=20 ~ 42 points, vigorous exercise quantity ≥43 points. The retest reliability of this scale is 0.82 [9].

(5) State-trait Anxiety Inventory (STAI-Y). It is a self-rating scale and composed of two subscales containing 40 descriptions, each having a 1-4 class rating. All items of positive mood are calculated in inverted sequence and the accumulative points of STAI-Y are separately calculated, with the minimum being 20 points, and maximum, 80 points.

(6) Self rating Depression Scale (SDS). This scale was compiled by W.K.Z dung in 1965 and is composed of 20 statements and the corresponding question entries, and each item is equivalent to a symptom, all having 1-4 class rating. This scale has good reliability and validity.

2.3 Experiment Procedure

2.3.1 Experiment Content and Requirement

The subjects exercise 3 times every week, on Tuesday, Thursday, Saturday afternoons respectively for 60 minutes each time. The exercise contents include boys exercising on the running machine and jogging and girls doing aerobics exercise and jogging. The teacher controls the exercise intensity at the moderate level. The monitoring method is to measure the 10-second instant heart rate of the subjects every 10 minutes in the process of exercise and to control the heart rate of the subjects in the whole process of exercise below 50% ~ 80% of the maximum heart rate, about 130- 150 beats per minute.

2.3.2 Experiment Time and Test

The experiment lasted 16 weeks from early September, 2009 to the end of December 2009. The testers were tested before and after the experiment by being directed to fail in the questionnaires when they were quiet in class.

68 questionnaires were distributed before the experiment, with 68 valid questionnaires recycled. Another 68 questionnaires were distributed in the follow-up test, with 68 valid questionnaires recycled and the recycling rate reaching 100%.

All data were processed on computers by using the software package Spas 10.0 of the social science statistical analysis.

3 The Results

3.1 The Influence of Exercise on College Students' Quality of Sleep

According to the total scores of college students' sleep quality and the seven dimensions of dependent variables, T test of independent samples was conducted by using exercise as independent variables before and after the experiment, with the result showing that there was a significant difference in college students' overall sleep quality

Table 1. Independent Sample T-test of the Influence of Exercise on College Students' Sleep t Quality

| dependent variables | before | experiment | after experiment | | |
|---------------------------|--------|------------|------------------|------|-------|
| | | M±SD | M±SD | T | P |
| | | (N=68) | (N=68) | | |
| total sleep | | 9.49±2.14 | 8.87±3.10 | 3.01 | 0.004 |
| consciously sleep quality | | 1.34±0.29 | 1.33±0.38 | 0.14 | 0.89 |
| bedtime | | 1.89±0.54 | 1.62±0.56 | 2.05 | 0.04 |
| sleep time | | 1.03±0.43 | 0.95±0.33 | 1.65 | 0.11 |
| sleep efficiency | | 1.08±0.21 | 1.01±0.32 | 1.44 | 0.16 |
| somnipathy | | 1.25±0.28 | 1.19±0.25 | 0.89 | 0.37 |
| hypnotics | | 0.13±0.34 | 0.11±0.42 | 1.24 | 0.98 |
| reactive obstacles | | 2.12±0.33 | 2.05±0.36 | 0.89 | 0.21 |

before and after the experiment. The other significant difference existed in the factors of sleep time (table 1).

3.2 The Influence of Exercise on College Students' Personality

Using the three dimensions of college students after the experiment as dependent variables, T test of independent samples was conducted depending on exercise as the independent variables, with result showing that all the factors did not show significant changes while changes in E were close to significant level after the experiment. (Table 2).

3.3 The Influence of Exercise on College Students' Negative Life Events

Test of independent samples was conducted depending on college students' life events after the experiment as dependent variables and exercise as independent variables, with

Table 2. Test on Exercise's Influence on College Students' Personality

| dependent variable | before | experiment | after experiment | | |
|--------------------|--------|------------|------------------|-------|------|
| | | M±SD | M±SD | T | P |
| | | (N=68) | (N=68) | | |
| P | | 3.12±1.17 | 3.07±0.97 | 1.73 | 0.09 |
| E | | 7.13±1.07 | 7.16±1.04 | -2.38 | 0.06 |
| N | | 6.09±1.11 | 6.07±1.02 | 0.95 | 0.35 |
| L | | 5.12±2.32 | 5.68±2.37 | -0.98 | 0.33 |

Table 3. Test of Independent Samples on the Influence of Exercise on College Students' Life Events

| dependent variable | before experiment | | after experiment | |
|----------------------------|-------------------|------------|------------------|------|
| | M±SD | M±SD | T | P |
| | (N=68) | (N=68) | | |
| Interpersonal relationship | 6.42±3.75 | 6.33±3.15 | 0.98 | 0.05 |
| Study stress | 7.09±2.14 | 5.14±2.47 | 1.31 | 0.18 |
| punishment | 4.18±1.67 | 4.05±1.72 | 0.13 | 0.89 |
| loss | 2.50±0.78 | 2.65±0.72 | - 0.22 | 0.87 |
| health adaption | 4.35±1.48 | 4.74±1.52 | - 0.59 | 0.56 |
| others | 2.59±1.46 | 2.53±1.67 | 0.13 | 0.90 |
| three totals | 27.13±3.73 | 26.29±3.83 | 0.48 | 0.03 |

the result showing great changes of the students in both the overall scores in life events and interpersonal relationships. (Table 3)

3.4 The Influence of Exercise on College Students' Anxiety and Depression

T test of independent samples was conducted depending on college students', trait anxiety, anxiety scores and depression scores as dependent variables and exercise as independent variables, with the result showing significant differences before and after the experiment in state anxiety, anxiety scores and depression scores. (Table 4).

Table 4. Test of Independent Samples on the Influence of Exercise on College Students' Anxiety and Depression

| dependent variables | before experiment | | after experiment | |
|---------------------|-------------------|------------|------------------|------|
| | M±SD | M±SD | T | P |
| | (N=68) | (N=68) | | |
| State anxiety | 42.17±0.69 | 41.81±0.67 | 2.38 | 0.04 |
| Trait anxiety | 45.03±2.91 | 44.39±2.94 | 1.83 | 0.17 |
| Anxiety scores | 87.20±5.31 | 86.21±5.76 | 2.14 | 0.03 |
| Depression | 39.91±2.77 | 38.51±3.75 | 2.19 | 0.04 |

4 Analyses and Discussions

4.1 The Influence of Exercise on College Students Quality of Sleep

The experimental results show that a period of physical exercise in the form of exercise prescription for mental health can effectively improve the university students' sleep

quality. The possible reasons for the results are: (1) Physical exercise can improve college students' physical condition and produce moderate exercise fatigue. The enhancement of constitution can improve human's ability to resist disease, particularly the ability to resist the diseases that can cause complications of sleep disorders, thus improving the quality of sleep. (2) Exercise can effectively promote the healthy development of the psychological factors that may affect sleep quality. According to the former research: anxiety, depression, life events stress are all reliable indexes to forecast sleep quality [1, 2, 4, 6]. Exercise makes these indicators develop in the healthy direction, thus improving sleep quality. The results were consistent with the related theory in exercise psychology.

4.2 The Influence of Exercise on College Students' Personality

Personality health is the core content of mental health. Personality is characterized by its relative stability, so it will not change easily. There exists a lot of controversy over the research result that exercise will influence a person's personality. Most researches hold that exercise can not change people's personality, but there are also studies that hold that there are certain relations between the two.[10, 11].

The results of this study support the past research results, but also expose a certain trend that after a certain period of physical exercise, people will become more extroverted with a better mood. The reasons may be: Exercise provides students with an open, communicative and curious recreational place, which is helpful for students to be in high spirits and provides the material base for them to develop their extroverted personality. The result also meets another view that extroversion is sensitive to positive sentiment and extroverted people are always more active and happier.

4.3 The Influence of Exercise on College Students' Negative Life Events

The experimental results show that exercise has significant benefits to improve life events stress and exercise reduces life events stress mainly by reducing pressures of social relationships. The result is consistent with the previous research report and also with the theory that exercise possesses the function of promoting communications and improving interpersonal relationship. [4, 9]

4.4 The Influence of Exercise on College Students' Anxiety and Depression

The experimental results show that exercise can effectively reduce anxiety and depression--reducing more state anxiety than trait anxiety.

Exercise reduces more state anxiety than trait anxiety. The possible reasons for such results may be as follows. State anxiety is generally referred to as transient emotional experience, while trait anxiety is relatively stable personality traits, which exhibits individual differences of anxiety tendency. Exercise, as a special kind of intervention of transient situation here, has more apparent effect on emotional experience. The influence of four months of physical exercise on trait anxiety is not as remarkable as on state anxiety.

Exercise can improve depression significantly with the following possible reasons: depression is an emotional state of lacking of interest in things, having no motives and being in low mood, while exercise is a kind of special situation that can easily make

the people happy, so exercise in any context can effectively reduce the level of depression [12].

5 Conclusions and Suggestions

The relationship between college students' psychological health and sleep quality has been confirmed by many researches. The fact that exercise can effectively improve mental health has also been approved by the researchers. This article, through experimental research, confirmed that exercise can improve college students' sleep quality by improving the related psychological quality.

College students are the future of society and sleep health is an important content of physical and mental health. In recent years, there has been one fact that can not be ignored that their health has deteriorated. There have been more and more harmful deeds conducted by college students because of their psychological problems. In modern society, the material conditions have been able to satisfy most students' nutrition requirements, but unhealthy life styles and overloaded study pressure serve as an important factor to lead the poor physical and mental health of students. College students are in a qualitative period of development of physical and psychological quality, so it is critical to take advantage of this key period to shape college students' health, which will pave the way for their present study, life and their future adaption to society.

Suggestions are given here to those students with poor sleep quality to do three times of aerobic exercises of moderate or low intensity for 40-60 minutes every week. In addition, colleges and universities should improve mental health counseling and psychological health education to improve the students' ability to deal with all kinds of psychological stress and to promote a healthy way of life.

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ICTs in Education for the Mountainous Area Development: An Application Based Study of Gilgit (Pakistan)

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Abstract. The provincial Government of Gilgit-Baltistan, under the federal administration Government of Pakistan views information and communication technology as an emerging tool for development of mountainous areas, the education is a key consideration of this plan. Since 1999 there are many important plans to introduce education for all. The implementation of emerging technologies in educational Institutions in mountainous, remote, rural and backward areas such as Gilgit-Baltistan is delayed due to lack of experts. With this research, authors draw special attentions for technology based education system and develop an ICT model for education and its reference implementation for quality of education.

Keywords: e-learning, ICT, infrastructure, communication technology, E-content, e-materials.

1 Introduction

Information and Communication Technology is the combination of two terms, first is information technology and the second is communication technology, which includes computers, the Internet, telephony, Television, and radio, etc. [3].

The Gilgit Baltistan is a remote and mountainous rural part of Pakistan, where the education ratio is increasing day by day, but still cannot get the target of eight millennium goals, this because of the lack of availability and utilization of emerging technologies in this area. Due to remote and backward area human resources are also key issues, because most people move towards urban areas for employment, there are some other reasons for lack of human resources is the lack of industries such as Gemstones, dry fruit, marble industry, wood carving, etc, and higher education, e.g. Medical, Engineering, law, political Sciences, sociology, tourism development, behavioural science, mountainous languages and mountainous area development, etc. A research has been conducted cooperation with the ministry of education for

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Gilgit-Baltistan, Karakoram International University Gilgit, and the directorate of education for Gilgit-Baltistan to devise tactics to develop an ICT model and its implementation in the Directorate of education for Gilgit Baltistan. The research aims to implement ICT in education to improve the quality, which provides the basic education for all students by the introduction of emerging teaching, learning tactics with new methodologies with emerging technologies [13]. This focuses on developing the skills and higher order thinking ability and creates graduates for computer literacy [15], they will contribute for rapid development of the mountainous area in proper way and compete with the global marketplace in 21st century for sake of quality and opportunity. In this research, authors propose an educational model by utilization of ICT emerging technologies [1].

In the initial stage of the research, the authors select District Gilgit. The capital of Gilgit-Baltistan province as a case study area and from this District, the authors select only 26 educational Institutions. The directorate of education will be the central control system; Karakoram International University will provide experts for implementation of ICT and content development collaboration with other experts from different Institutions.

The rest of paper is as following, section two includes methodology, section three consists on ICT model for educational development, section four includes challenges and discussions, and last section is conclusion.

2 Methodology

The research method used in this study is a field survey, interview ministry of education, principals of schools and administrator of education departments and IT experts from different Institutions; we also studied schools' policies for ICT and visited the schools for examining their ICT resources such as computer lab, computer hardware and software, Internet, etc, and their proper utilization in schools [7].

Analysis of Data

After visiting to different schools and interviewing experts from ministry of education, administrators of educational Institution, Teachers, students and IT persons, the authors finally conclude that the utilization of ICT in schools are very negligible, few teachers use computer with their own expertise and use computer at home for preparing lectures, notes and for research[5], some of them are still unaware and some schools use computer only for typing letters, memos, and applications, etc, in some schools the Internet is only available in the administration and principal office, but teachers are still deprived from this emerging and important facility. Utilization of ICT is very important for quality of education in these areas, initially, authors selected 26 educational institutions from District Gilgit, which is the capital of Gilgit-Baltistan Province. The Institutions are included Public, Semi Government and private sectors as listed table 1.

Besides schools, authors also selected three vocational training Institutions and six teachers training Institution from different sectors, where experts provide trainings to drop out students, these trainings are included computer hardware, software, wood

carving, gemstone cutting and polishing, beauty pallor, handicraft etc, and training for teachers in teachers training centres, such as microteaching, computer teacher training, etc.

3 ICT Model for Educational Development

The utilization issues of ICT in education have much interest with many questions, educational Institutions must have internet and computer labs for initiating the emerging technology in education[11], so that it will start to improve the quality of students, teachers and learners in the learning process, in this context, authors are going to propose a model know as “ICT- Model for Educational Development in Mountainous Areas” (MEDMA), in this study the Gilgit District has been selected for case study area, the model will be implemented in Public, semi Government and private educational Institutions to provide quality of education and learning opportunity for all knowledge seekers. The cost of developing and maintaining a school’s ICT infrastructure is significant, maintenance cost will be hundreds of thousands rupees[14], so it is important for every educational Institute to adapts an effective approach to budgeting, and there must be some flexibility for future upgrade.

3.1 MEDMA Model

The model is divided into four parts; first part is trainer, second part is teacher, third is students and fourth and the most important part is central storage system.

The interaction among these parts will be held through central system, which is called E-material storage system. Where all types of materials design and submit by experts will be stored for future access [16].

A. Trainers

Trainers can submit training e-materials for teachers and timely for ICT professionals and administration trainings, the E-materials includes Audio/video, lectures, notes and teaching materials, and also answer the questions ask by teachers and trainees[12].

B. Teachers

Teachers can submit course materials such as notes, lectures, any Audio/video lectures, PPT slides, for students and answer student’s question, even can ask questions from trainers and also submit any special assignment assigned by trainers[4].

C. Students

The part of student has very few privileges, which is included getting relevant course materials submitted by course teachers and can submit assignments ask questions and submit if there is any relevant and useful materials related to the courses[9].

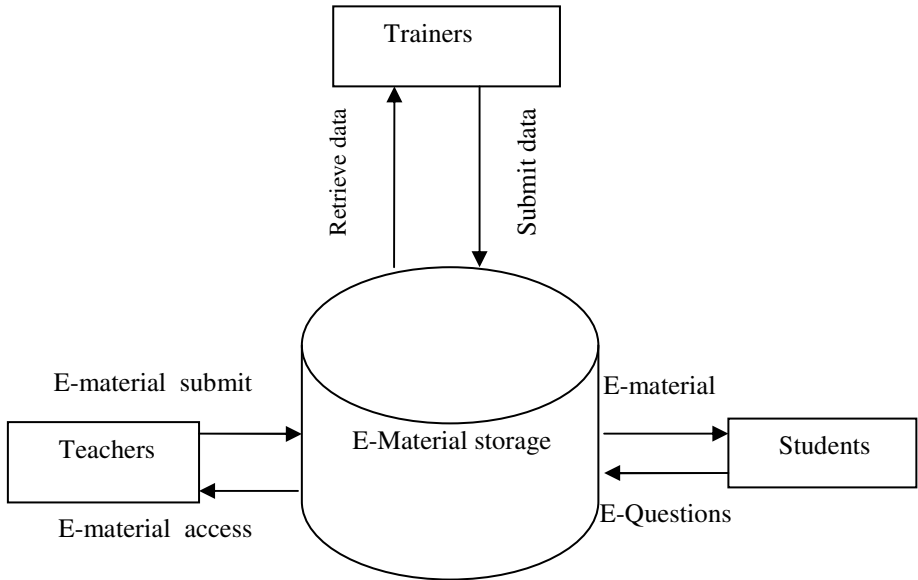


Fig. 1. MEDMA model for education system

D. E-Material Storage System

In this part all types of materials will be stored and retrieved, the trainer, teachers and students will submit E-materials and system administrator will management data for all types of users [17]. The experts will also arrange the E-materials for students, Teachers and general public, most E-materials experts will from Karakoram International University, which is only University in Gilgit-Baltistan, besides this other training Institution such as Ministry of education, Intel education and training Institute etc.

3.2 E-Content Development Strategies

There are four main persons involved in e-content development [6] for directorate of education with collaboration of Karakoram International University Gilgit, the hierarchical of the model is mentioned in fig. 2.

The e-content has three different types and different users have different privileges to access e-materials[10], Karakoram International University will be the first University in Gilgit-Baltistan Province to provide free e-materials for people of Gilgit-Baltistan, and also provide and develop e-content for ministry of education Gilgit-Baltistan User Interface for Authentication and Content Access.

The part shows that how user can login and access e-materials from servers [8]. It also assigns user privileges for logon and content access rights.

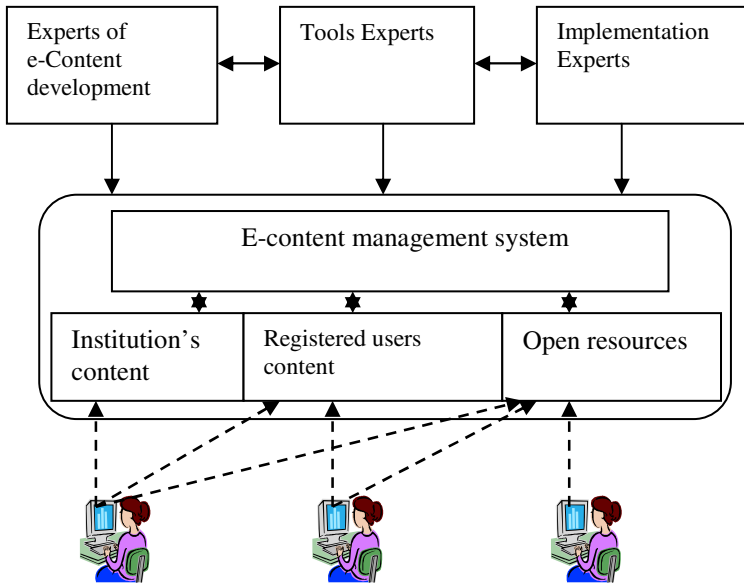


Fig. 2. e-content development and access strategies model

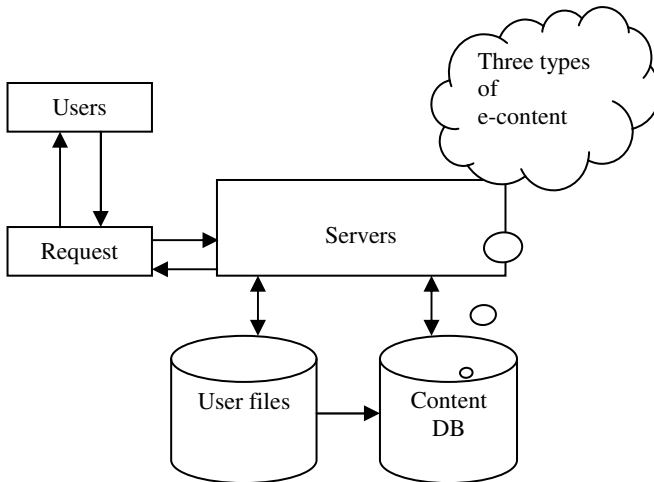


Fig. 3. Interface and Authentication system for e-content access

As we mentioned early that there are three types of E-material available for end users, the first types is only available for Institutional access, second type is both Institutions and a person who are registered user and third one is open resources for all. There are some differences in these contents, for example in Institutional access E-material, there are more E-materials available for Teachers, trainers, students and administration staff who will access and provide in their schools.

A. Challenges and Discussion

In very backward and remote areas have many problems besides education, as I have mentioned early that due to employments and lack of industries people migrate towards urban areas, which increases expert's deficiency in this area [2]. The second and most important factor is infrastructure of telecommunication, there is monopoly of Special communication organization (SCO), third is the lack of internet facility, which has cut of the Gilgit-Baltistan from the rest of the world, the fourth is financial constraints due to mountainous and disaster effected area some people invest here and Government also neglect this part, fifth one is ICT awareness very few have awareness about educational technology, sixth is learning resources, seventh is proper educational Policy, and last one is negative support from staff who are untrained.

B. Conclusion

The provincial Government for Gilgit-Baltistan is knee interest to implement ICT in education; the work is delay because of lack of researchers, professionals, experts and financial constraints; in this research, we have studied Gilgit city as a case study area and proposed a model named "ICT-Model for educational development in Mountainous Area" (MEDMA). The research has been conducted with collaboration of ministry of education for Gilgit-Baltistan, Directorate of education and Karakoram International University Gilgit. Some researchers, experts and professional views have been also included in this research.

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English Teaching Reform and Practice at Vocational College

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Abstract. EOP teaching is the tendency of ELT at vocational college and is the focus of the English teaching reform. The reform is guided by the principles of learner-centeredness, occupation-orientation, variety, openness, and practicality. It involves a systematic reform in the aspects of curriculum design, course content, teaching models, practice, evaluation and teacher training. It is challenging but worthwhile for both teachers and students. EOP teaching is an everlasting process of exploration, innovation and development.

Keywords: teaching reform, vocational college, ELT, EOP.

1 Introduction

Vocational college education plays a very important role in the economic and social development of the nation. This is shown in the National Mid-/ Long-term Plan for Education Reform and Development (2010-2020)[1], which offers some guidelines for the development of vocational education. English language teaching (ELT), as a basic part of vocational college education, should keep up with the trend to serve the educational goal. It is necessary to reform English teaching to make it up to date and to meet the society's needs. One approach is to carry out ESP (English for Specific/ Special Purposes) teaching. Recently ESP studies have developed very fast in China, but there exist many problems [2]. As an application of ESP studies, this paper focuses on the theory and practice of EOP (English for Occupational Purposes) teaching at vocational college. It first analyzes the problems in current ELT at vocational college, then introduces some guiding principles for the English teaching reform, illustrates specific aspects of the reform practice, and summarizes the feedback from both teachers and students.

2 Problems in Present ELT at Vocational College

ELT at vocational college has improved greatly compared with the past. However, its effectiveness and efficiency have not been to people's satisfaction. On the part of teachers, many still hold on to the traditional, teacher-centered methods such as grammar-translation and isolated vocabulary teaching. In the teaching process, more

emphasis is put on grammar while less on understanding, more on language testing while less on language use, more on imparting knowledge while less on training skills. Teachers have not made good use of modern technology and methodology in ELT and failed to motivate students to work hard at English learning. On the part of students, they are generally poor at English, especially at listening and speaking. Therefore, they don't have deep interest in learning English. Their learning time is also very limited according to the teaching plan. But meanwhile, they are aware of the importance of English in people's life and work, and have a desire to learn it well. They drive themselves to a dilemma—trying to learn English well or giving it up. It's a difficult choice to make. To help students out of the dilemma and to improve the effectiveness of ELT, our college launched a reform—EOP teaching to satisfy students' English use in the workplace. EOP is a branch of ESP, and is different from EAP (English for Academic Purposes), which is to meet learners' academic requirements [3]. EOP best suits the needs and English level of vocational college students.

3 Overall Arrangement of the Teaching Reform

English teaching lasts four semesters at our college. It can be divided into three stages: basic career English (1st semester), relevant occupational English (2nd and 3rd semester) and professional English (4th semester). ELT in the first three semesters is undertaken by English teachers while in the fourth by content teachers. Here we mainly dwell upon the first three semesters. In the first semester, ELT is about basic career English, which refers to English skills and use in different occupational settings, such as making a company introduction, arranging a meeting or business trip, visiting a factory and describing products. In the second and third semester, ELT concentrates on relevant occupational English, which refers to basic English skills and use related to specific disciplines, such as computer English, mechanical and electrical English, business English and medical English. The content of the two semesters is arranged according to its difficulty to ensure its acceptability to students and to keep students' interest and confidence as well. Take refrigeration English for example. In the second semester, ELT focuses on the application of refrigeration in daily life and its fundamental knowledge, such as introduction of refrigerators and air-conditioners, their structures and components, their production process, their marketing and after-sale service. Such content helps students develop further interest in English and their chosen field of specialization. They understand what they are learning now will be useful to their future career. In the third semester, the content is more difficult. It is related to basic concepts of refrigeration, for example, refrigerants, refrigeration process, refrigeration forms, compressor and refrigeration equipment. This helps students understand the grammatical features, discourse features and stylistic features of refrigeration English and build up their repertoire of vocabulary related to refrigeration. English learning in the second and third semester can enhance students' communicative skills in the future occupational environment, and also lay a good foundation for their further study of professional English in the fourth semester.

4 Guiding Principles of the Teaching Reform

The English teaching reform is guided by the following principles: learner-centeredness, occupation-orientation, variety, openness, and practicality.

4.1 The Learner-Centered Principle

The learner-centered principle indicates that ELT should be based on the learners' needs [4]. It should contribute to learners' improvement of language knowledge, language skills and language use. Investigation and needs analysis are essential to ensure effective language teaching. With the learners' needs in mind, teachers can play a better role in designing curriculum, selecting materials and methods, organizing activities, facilitating learning process and assessing learning outcomes. They should also encourage learners to take on more responsibility for their successful learning. Hence, teachers are responsible for ensuring that learners have effective strategies for planning, performing, and monitoring their independent learning. On the other hand, learners should take an active part in the overall design of course content and the selection of learning procedures. They are allowed to have greater control over the learning process and they have to learn how to make good use of it [5]. Application of this principle is a great challenge for both teachers and learners in China since they are accustomed to traditional, teacher-centered instruction.

4.2 The Occupation-Oriented Principle

Occupation-oriented curriculum design is a feature of vocational college education. It's also a guideline for the English teaching reform. As a communicative tool, English can give a full play to its value in the occupational environment. Mastering English to meet occupational requirements is an important learning motive of students. Therefore, ELT at vocational college is supposed to be specific and occupationalized. It involves the overall occupationalization of course objectives, proficiency standards, course content, teaching models and evaluation. It should cater for the market demands and aim at application. The course development is based on the analysis of the job requirements so as to improve students' occupational capabilities and overall quality. Establishment of course objectives is in accordance with job requirements and occupational settings. Development of course content focuses on fundamental occupational knowledge and skills. Evaluation is made according to students' abilities to fulfill some specific tasks in the workplace. In one word, ELT at vocational college should be linked to the occupational environment and contribute to the improvement of English proficiency to meet the job requirements.

4.3 The Principle of Variety

The feature of variety in ELT is shown by the variety of teachers, students, teaching materials, teaching methods and evaluation. Though the teaching task is mainly undertaken by English teachers, they need help and support from content teachers, technicians and experts in related fields. Only by cooperation of the people concerned can ELT achieve its final goals. Variety of students is due to their different majors,

various language proficiency, and different personal factors, such as motive, interest, strategy and character. Teaching materials come from a wide variety of sources, and include both the basic knowledge and the latest development of a certain field. Teaching methods change with the content, tasks, settings, and students to serve the learning objectives. Variety of evaluation matches the variety of learning objectives, activities, tasks and individual student to show its fairness and flexibility.

4.4 The Open Principle

Open course development is a manifestation of the link between ELT and occupational requirements. With different occupations changes the content of ELT. If occupational requirements for practitioners change, content of ELT will go with the change to suit the new requirements. Therefore, building up an open, dynamic and occupation-based course system is the core of the English teaching reform. ELT at vocational college is expected to follow the development of the industries. Both teachers and students should update their thoughts and concepts and have open minds for changes.

4.5 The Practical Principle

Practicality is an important feature of the employment-oriented vocational college education. It is also a principle and goal of the English teaching reform. Occupationalization and openness of ELT are prerequisite to realizing its practicality. ELT should emphasize work-based learning and strive for application of knowledge and skills. Practical and effective ELT can be achieved through combination or integration of in-class and out-of-class learning, English and occupations, and learning and life.

5 Practice of the English Teaching Reform

English teaching reform at vocational college is a systematic project and involves reform in the following aspects: curriculum design, course content, teaching models, practice, evaluation and teacher training.

5.1 Curriculum Design

Curriculum design of EOP is based on specific needs analysis of different professions [3,6]. Guided by the principles of occupation orientation and work-based learning, the course objectives and competence standards are established, course content and teaching methods are selected, evaluations are made, and the teachers are trained. The curriculum design meets students' needs for seeking employment and career development. With a good command of EOP, students are able to go further in their professional studies and career development by studying abroad, by access to the latest development of technology in the world, and by cooperation with technicians from other countries [7].

5.2 Course Content

Course content is a key part of curriculum design and the teaching reform. The selection of content follows the principle of “one body, two wings and deep integration”. “One body” refers to the goal of improving students’ English proficiency and language use in the real workplace. “Two wings” refer to English language and professional knowledge. “Deep integration” refers to the integration of English language and professional knowledge and a balanced relationship between the two. Content and language integrated learning has two advantages: On the one hand, learning content-based English materials helps improve students’ language knowledge, skills and use in the future career; on the other hand, students can get basic knowledge and latest information in their fields of specialization in the process of learning English.

To facilitate teaching and learning, the course content is divided into several modules according to the typical occupational settings. The modules are relatively fixed but flexible inside. They are arranged from easy to difficult, from simple to complex. Each module includes language points and professional knowledge, which are chosen and processed through cooperation of language teachers, content teachers, technicians and experts in relevant fields. It combines knowledge learning with practice, but emphasizes the latter. Within each module, teachers can adjust the proportion of language and content to suit students’ needs and language proficiency.

5.3 Teaching Models

Various teaching methods can be employed to achieve the teaching objectives. We have established two teaching models. One is the in-class teaching model of “Setting—Task—Action—Assessment”. Setting refers to the typical occupational situations. Tasks are designed on the basis of job requirements in a given situation. After making some preparations, students will act out their way of dealing with the problems. Then the teacher and other students will assess their performance and give them suggestions. In this model, pair work, group work, role play, simulation, and case analysis are frequently used. The other is out-of-class teaching model of “From the Work and to the Work”. “From the Work” means students get some idea of the importance and function of English in their future jobs through visiting the enterprises, attending lectures given by technicians and experts from the enterprises, taking up part-time jobs during winter or summer vacations, and so on. These activities can arouse students’ desire to learn English and help them to establish clear learning objectives, participate in challenging learning tasks, and find out effective learning methods. “To the Work” refers to practice in the enterprises, by which students can put into use what they have learnt in class and test their language skills and language use in the real workplace. Their performance in the enterprises is co-evaluated by English teachers and technicians in the enterprises. The two English teaching models fully display the features of the action-oriented teaching model, such as task-driven, project-oriented, and work-based learning principles.

5.4 Practice as a Feature

Practice is of great significance in the language learning process. It goes hand in hand with knowledge learning. As to teaching and learning EOP, practice involves not only

language practice but also occupational practice. On-campus language practice is content-based and simulates language use in the occupational environment, while occupational practice is using language skills to fulfill job requirements and tasks in the enterprises. The seamless connection between language learning at college and language use in the real workplace can improve students' initiative and enthusiasm to learn English. It can also solve the current problem of English learning out of line with students' professional requirements.

5.5 Evaluation System

The evaluation system is built upon the course objectives and the learning process. It is mainly composed of two types of evaluation: formative and summative evaluation. But different methods can be used in evaluation. As to formative evaluation, multi-evaluation, differentiation evaluation, development evaluation, self evaluation and peer evaluation can be employed. Multi-evaluation refers to evaluation of different aspects in the learning process, such as assignments, in-class performance, self-directed learning, and extracurricular activities. Thus learning portfolio is used to keep record of students' learning behavior and achievements. Differentiation evaluation means students can choose from tasks at different levels and of different types according to their language proficiency, interest and strength. And then corresponding evaluations are made on their performance. Development evaluation indicates individual development in the English learning process. Self evaluation and peer evaluation refer to evaluation made by oneself or by classmates. Formative evaluation also includes evaluation of students' performance in on-campus and out-of-campus practice. Summative evaluation is based on the final test of students' abilities of listening, speaking, reading, writing and translating related to specific occupational English, which reflects students' language use in their future career. The comprehensive evaluation is based on the two types of evaluation, and each makes up half of the total.

5.6 Teacher Training

EOP teaching requires teachers to have some professional knowledge in addition to a good command of English. It's a great challenge for English teachers since they only possess one-sided knowledge. Therefore, qualified EOP teachers are not readily available. English teachers have to learn relevant professional knowledge and practical skills to make up their deficiency of content knowledge. Teacher training is essential to make qualified EOP teachers. It can be done through a wide variety of ways, such as lectures, seminars, academic salon, class observation and evaluation, field study and part-time work in the enterprises. By cooperation with content teachers, professionals and experts from relevant enterprises and industries, English teachers can carry out in-depth teaching experiment and research to get satisfactory teaching outcome. By practical and content-based learning and training, English teachers are equipped to solve the teaching problem of integration of English language knowledge and professional knowledge. Hence they are able to improve the quality and effect of EOP teaching.

6 Feedback from Students and Teachers

According to the interview made at the beginning of the English teaching reform, students had quite different reactions and attitudes. Some welcomed it enthusiastically and thought what they would learn was practical and beneficial for their future career. Some held a wait-and-see attitude because they were not sure whether they could improve their English proficiency and got valuable certificates to prove their English level. A few showed no interest in the reform because they thought their English was too poor to get improved and the content was too difficult for them. But at the end of the three-semester teaching reform, 87.8% students think positively of the reform and believe they have got a lot from it besides improving their English capacities. They are happy that they can use English to accomplish tasks in the workplace. The negative comments are mainly that the vocabulary is too difficult to remember and the content is dull and hard to understand, which are problems to be tackled later.

As for the English teachers, they think the reform is challenging but worthwhile. They have got deep insight into the significance of EOP teaching and realized that only mastering English is far from being a qualified EOP teacher. It is necessary for them to learn some professional knowledge, work process, and information of the development of the related industries. They have also learnt to cooperate with content teachers and professionals. They have tried collaborative teaching to guarantee the effectiveness of English teaching [8]. They are aware that they are no longer confined to the college, which is harmful to their growth as EOP teachers, but need to go to the enterprises to study, investigate and even work. Although they have sustained great pressure and encountered many difficulties in the process of the teaching reform, they have obtained the opportunity to become distinguished and double-qualified teachers. They have made great achievements, but they are not satisfied because they have found new problems in the teaching process. They are clear that they need to go on with the exploration and strive for further improvement.

7 Conclusion

EOP teaching is the tendency of ELT at vocational college. Guided by the principles of learner-centeredness, occupation-orientation, variety, openness, and practicality, our English teaching reform has made some achievements. However, quite a number of new problems and difficulties arise. There is great room for exploration, experiment and improvement. In some sense, EOP teaching is an everlasting process of innovation and development. Teachers should update their concepts of education, endeavor to keep up with the changes, and seek effective methods to improve the quality of English teaching.

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Visualization of Robert Frost's Poetry in the EFL Classroom

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Abstract. It is hard to get learners to enjoy reading and discussing poetry in the EFL classroom. Multimodal visual poetry on the Internet video is a helper. It is an effective tool to energize the reading and appreciation of poems in the language classroom. This paper provides with an approach to Robert Frost's poetry teaching, and suggestions for hands-on learning tasks.

Keywords: Robert Frost, poetry, visualization.

1 Introduction

Attitude has cognitive, affective and conative components; it involves beliefs, emotional reactions and behavioral tendencies. It is, in short, the way someone thinks or behaves. Based on a study of attitudes towards studying literary texts in English at school and variables in students' backgrounds among 110 Form Five students at two northern provincial Malaysian high schools, Siti Norliana found that "students express negative attitudes towards reading poems and novels. Almost 70% of the students find poems demanding, followed by novels, with a total of 62%. Poems are considered challenging as 'every word has its underlying meaning', the language is deemed difficult, especially in archaic poems like Sonnet 18. The themes for both genres are seen as 'dull.'" She notes that: "A total of 85.5% respondents would like to have audio-visual support in learning literature. [...] Students suggest using drama, watching videos [...] using computers and the Internet to make lessons more interesting" [1].

Many of us are far better at retaining words plus images in long-term memory. And students often rely on the pictures associated with text, especially the ones whose mother tongue is not English but have to learn English literature. The emergence and growth of poetry in motion, which combines audio, music, motion graphics, video, photography, paintings –together, is the prime focus of Poetry Visualized: <http://www.poetryvisualized.com>, a new multimodal arts initiative. On YouTube, Poetry Everywhere of the Poetry Foundation (www.poetryfoundation.org) and Poetry Visualized, more and more video'd interpretations of poems are being uploaded. Many such videos are highly imaginative, combining image, music, the text of the poem, its reading as performance, and aspects of a text's 'visual' interpretation. This also contributes to enhancing skills in 'visual literacy,' a core element in the impact of comics and graphic novels on learners. According to Schwartz, "graphic novels offer

value, variety, and a new medium for literacy that acknowledges the impact of visuals”. [2] And in his other essays such as “Expanding literacies through graphic novels” (English Journal 2006, July. NCTE. www1.ncte.org) and “Media literacy, graphic novels and social issues” (Studies in Media & Information Literacy Education, 7(4): 1–11. www.okstate.edu). Visualized poems incorporate many of these dimensions, and can motivate reluctant learners, learning to better read reality through the prism of fantasy .[3]

As an American poet, Robert Frost is highly regarded for his realistic depictions of rural life. Settings from rural life in New England were frequently employed in his poetry to examine complex social and philosophical themes. Compare to other poets, Frost’s poetry is more likely to be used in the EFL classroom for its images that are easier for students to imagine. This paper focuses on Robert Frost’s poems in motion in the EFL classroom, and put forward some helpful teaching methods.

2 Pedagogy

Almost all of Robert Frost's poetry involves nature and the outdoors. He uses a lot of imagery and symbolism in his writings. He often uses metaphors to make connections between everyday things. That is why several short visual poems I have used with very positive response for starters are Robert Frost. Frost’s simple winter poem about a man and crow in the woods is transformed here into a statement on a young schoolboy, winter hardship and social class in America: www.youtube.com/watch?v=-lqOkq2chY. And his “The Road Not Taken” is one of the most popular poems in the American canon. My Chinese students are all familiar with this poem, but never saw it in a visualized form: www.youtube.com/watch?v=spXtePd4Whk&feature=related, another interpretation, www.poetryvisualized.com; here with Frost himself reading: www.youtube.com/watch?v=xXKuqyvsw8&feature=related. The songwriter Dan Samples has a musical version of Frost’s “Stopping by Woods on a Snowy Evening,” a classic poem about nature and death: www.youtube.com/watch?v=1v-hS86FR-o&feature=related. There are many other visualizations of this poem online, including this memorable reading by Frost himself: www.poetryfoundation.org/journal/.

When teaching Frost’s poetry, I first ask students to watch a flash made by myself about Frost’s life and poetic creation. It is a brief summary of Frost combining the sound and the pictures. In doing so, I provide the students an overall idea about Frost’s poetry. Then, the visualized poems by Frost will be presented to the students. After watching visuals of Frost’s “The Road Not Taken,” students are asked to imagine a journey they go on, with an imagined landscape passing by around them. Later they come to a fork in the road, and look down what becomes “a road not taken”: “You think about this turning but decide against taking it”. [4] After finishing their journey through an imagined landscape, students are asked to draw a picture and write a page about that road not taken, and the landscapes they saw, heard and felt. By doing this kind of activities, the students would realize that the choice of life is so important.

In order to help the students to visualize the poem we are learning, some activities should be done. The most effective are comparison and analysis. Students can compare different visualized versions of a given poem they like, and also discuss the kind of video they would make if they could, as suggested in Campbell, [5] with ideas for setting, animation, costuming and music. Some students may wish to try their hand at doing such a video. When teaching Robert Frost's "The Road Not Taken," I provide students with five versions of the interpretations from the YouTube, and ask them to choose their favorite. In doing so, I intend on the one hand to cultivate their literary taste, on the other to help them more fully understand the poem, for the most vivid presentation of the poem connote the core meaning of the poem, and also provide a vast space for imagination. Students who are interest in the poem and the vide making would have a try to create their own understanding of the poem.

In addition, I would ask students to draw responses from the comics. Students can respond to poetry by drawing what the poems evoke in their imagination, a special form of "graphic reader response." Drawing their own comics to tell the basic narrative of a text or to invent a comic of their own [6] is a form of active multimodal production by students that is worth far more hands-on experimentation. Such visual responses often entail a small drawing to reflect some mood, metaphor or emotion in a tale. According to Dennis-Shaw, "strategic reading allows students to monitor their own thinking and make connections between texts and their own experiences". [7]In teaching Frost's poetry, I introduce some photographs to the students. Selected by Edward Connery Lathem, dean of libraries and librarian emeritus at Dartmouth College in Hanover, N.H., King's photographs evoke the spirit of Frost, and that's why I choose them. They are not illustrations in the classic sense. They are separate from the poems in the book. "The idea was to put pictures in the book that were in sympathy with the spirit of the poems," King said. "But they're very carefully not related directly. Except, I hope, a little bit in spirit." [8]In preparation for his assignment, King had a friend read Frost's poems to him many times. The friend made tapes of the readings, which King listened to over and over. And King read Frost's poems to himself aloud, "so that I had within myself a feeling for the work," he said.(ibid.) In presenting these illustrations of Frost's poems, students will grasp the spirit of his poems, which would of course enhance the teaching process.

In both these activities, they are also activating what Gardner has termed "naturalist intelligence" [9], which develops a powerful sensibility for the natural world. In teaching Frost's "Dust of Snow", I ask students to think why this poem that is only eight lines long and contains no adjectives, similes or metaphors, yet succeeds in creating a picture in the reader's mind, and how? How can a poet create pictures in the minds of his readers through words alone? Then I allow student to have a discussion in groups about this topic. All of them are very active, wondering why a poem like this piece without using the traditional techniques such as adjectives can evoke the vast imagination of the minds. Then I let them watch the video, and they show their great interest to it, and the speaker's regretful mood affects the students deeply. After that I read the poem to them, and give them a thorough interpretation. By doing this, I frequently ask the students to recall what they had watched. The detailed images from the video will help my teaching and the students' comprehension.

In teaching Frost's "Acquainted with the Night", I ask the students to imagine what is happening to the speaker and try to feel what he feels by listening to the audio. There is no new word for them, and they can acquire the basic meaning of the words as quick as they can. Therefore, at the end of the reading, I ask some of them to explain what he or she feels. What is the specific feeling by acquainting with the night? Although the answers vary, the mood of the poem the poet created is well received by the students. By drawing visual pictures, students can have their own thinking about poetry. Compare with another group of students that I did not use this method; these students show more signs of involving into the classroom.

Another imaging activity requires students to listen eyes closed to a video poem, with spoken text and music, and then write a paragraph about the pictures they saw "as they listened, the smells they experienced, the feelings they had, the daydream they went into"[10], or their thoughts and wonderings. Then students in small groups can share what they have written. They can also act out a mini-drama based on the poem. All this engages them more deeply with the text, and with modes for its visualization and enactment, honing "emotional intelligence" and empathy. [11]

Videos that make the poem into a song are also very powerful to the students. The version by Dan Samples of Frost's poem "Stopping by Woods on a Snowy Evening" is a superb example of poetry into song. Such chants engage the body as well as the mind and voice. As all teachers know, the easiest way to teach something new is to base it on knowledge your students have interest. Compare with the obscure poetry they have to learn, songs are more attractive. The rhythm is beautiful and also the picture. While by reading a piece of poem, the EFL students find the rhythm the most difficult part. Most students tell me that they are always confused by such things as iambic pentameter. When reading a poem, they just couldn't notice its beauty, let alone its deep meaning under the surface. With the help of songs, students will easily grasp the rhythm, and their confidence of being capable of reading poem will be built step by step.

3 Conclusion

The dynamic fusion of word and sound is effective to attract students' interest and help to shape and enrich multiple literacies and engage multiple intelligences, schooling emotional intelligence and emotional literacy in the EFL classroom. Teachers are encouraged to use more such video materials from the internet for future explorations in these still largely uncharted waters of poetry pedagogy.

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Teaching Exploration and Study in Polymers for Pharmaceuticals

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Abstract. “Polymers for Pharmaceuticals” is a selective course in many universities, so increasing selecting ratio is a crucial problem. For this purpose, efforts were taken from four aspects including the enlargement of teaching contents, enhancement of student-teacher interaction, liveliness of teaching language style, and reform of evaluation method. The results showed that new teaching exploration was effective and students’ interests in the course had been improved greatly.

Keywords: polymers for pharmaceuticals, teaching reforms, student-teacher interaction.

1 Introduction

As a new developing field in Chinese university, pharmacy, relates to many traditional courses, such as medical, biology, chemistry and physics. A small tablet incorporates many fruits of development in modern medicinal chemistry, organic synthesis, polymer chemistry, supramolecular chemistry, biochemistry and material science. With the progress of science and technology, modern medicine is developing towards small amount, slow release, fewer side effects and green processing. Under the guidance of this trends, each unit was implanted knowledge of material science and its processing technology in the drug R&D and produce. It is necessary for the person who is working in pharmaceutical field to have some knowledge of polymer science, since more and more polymers had been used into drug ingredients with the progress of pharmacy, and their contribution had been recognized in sustained-release and control-release formulations day by day. For this purpose, many universities offered the course “Polymer for Pharmaceuticals” as a selective course[1], however, the right whether choose or not is in the hand of students. In order to attracting students to select this course, we put in a lot of hard work in and after class. To improve the teaching effects, exploration was made and the traditional teaching mode “talking-listening” was modified as below:

2 With Previous Courses as Starting Points, Enhance the Students' Understanding

Although necessary courses had been taken before the semester in which polymer for pharmaceuticals was offered, the concept of polymer were still blank in the brains of the students since those chemistry courses were all about small molecules. The found of polymer concept needs the help and support of practical applied experiments, that is a challenging work for the teachers to draw stereoscopic pictures in students' brains. That work greatly depends on the knowledge of "structure-properties relationship", which was imparted in organic chemistry and physics chemistry. Efforts were made in two aspects to help students to set up the mode of polymers in their minds. The one is to review the courses they had already taken, such as organic chemistry and physics chemistry. Refreshing old courses can smooth the way to understand new knowledge. The other is to introduce some content of parallel courses about polymer chemistry, such as Polymer Processing and Fiber Technology. Processing example can help to learn the nature of polymers, such as crystallization, orientation, and crosslink. It was beneficial for students to understand the abstract theories that introduced some model and small scale processing experiments to the class room.

3 Changing Teaching Method, Increase Students' Activity

The materials were normally colorless, odorless and non-poisonous, which could be used in pharmaceutical formulation as supplants. So, it was difficult to differentiate them and grasp their actual usage and effect in medical ingredients. Class pictures and models could also not provide enough help in such a situation. However, if students got the information by themselves, the results of study would be totally different. In order to help the students shaping the perceptions of these materials, we have adopted a strategy to change teachers' indoctrination to students' active learning. Students were divided into groups, each of which was assigned a list of polymer materials. Every group would collect information about the properties, source, usage and anything interesting they like to share with classmates of these polymer materials, from internet[2], library and news paper or any other way they could get to. They can also seek message from the ingredient daily necessities, and try to figure out the role that the polymer play in that formulation. They would find the material's molecule structure, performance and usage in the source they had already gotten, then made a ppt file with them. Then every group member were asked to prepare a report in which picture and animation were encouraged. All this made them fulfill sense of accomplishment and realized that "one can learn from everything, at everywhere". For example, some students found the film "Alien" using PVA(polyvinyl alcohol) to prepare the mucus secreted by monsters. They posted the preparation process of this mucus on their ppt file, and enjoyed it with their classmates. The report was very vivid as if they were doing the experiment by themselves. In fact, the teacher had already discussed with every group to guide them seize the key before the presentation and also improve the quality of report. Through discussion, the pupils grasped the soul of the course and tried to express it by the language of their peers. Though it took more time of teacher to

discussing with students, students got the feeling of being valued by teacher and were also willing to spend more their spare time on this course. Class report brought opportunities for students show themselves before their peers, and also help them to gain self-confidence in document research work[3].

4 Changing Speaking Manner, Increasing Students' Excitability

There are two part content in the course "Polymer for pharmaceuticals", including basic theory of polymer science and products of polymer materials which were used in drug production. The theory of polymer was abstract to understand, however, the usage of polymer material should be more difficult to master by students who contacted this field for the first time. In the triditional class, the teacher was talking continuously, and the students were staring at him confusingly, and also there were someone doing homework of other class. After deeply analysis the content of the course, the teaching language used in the class were also reformed to make easier to accept by students. For example, anthropomorphic language was used to describe the organic structure groups, which were divided into "mean type"---electron withdrawing group and "generous type" ---eletron donating group. While introducing some abstract conception, such as crystallization, orientation and crosslink, some daily examples were chosed so that students could establish acurate models in their minds to facilitate understanding and master, forexample, order state of a pile of plastic basins were easier to be seen and reognized than molecular order and orientation. So plastic basins or other daily products have been always taken as the examples in polymer physics study. Vivid description and language was easier to understand and grasp for students. These measures smooth the way to understand those complicated theories, helping to improve learning effects. Class questioning revealed that students could make more possitive response and showed better learning effect under such atmosphere. Integrating theory with practice not only imparted knowledge to studens, but also stimulated their interest in learning. It is the important thing that teacher must pay most of their effort and energy tirelessly to help the students' learning.

5 Reforming Evaluation Methods, Improving the Comprehensive Ability of Knowledge

Scattered content in the course "Polymers for Pharmaceuticals" have to take students a lot of time to prepare the examination that is not match to a selective course. In order to save time for those compulsory course, quiz in class, homework and presentation in class were taken instead of the last examination. All teaching task would be achieved with the class over for the whole semester. Class report took a great part in the total score of the whole semeater since students had spent a lot of their spare time on it. This form not only investigated the their research ability and comprehensive capacity of knowledge, but also cultivated their expression, which is necessary in a marketing society. Most importantly, it led the students know that their involvement is important and needed[4].

Scattered pressure, initiative participation, closing to everyday life and systematic instruction made our course welcome to all students in pharmaceutical major. Almost 99% students chose this course in the current term. Through above reform, teacher was acquaint with students and builded close relation with them that would be helpful for the period ahead.

Through these effort, many students began to interest in this course, and even were encouraged to take part in the graduate entrance examnation of polymer field.

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On Monitoring and Evaluation of Classroom Teaching Quality in Science and Engineering University

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Abstract. In order to effectively improve the quality of higher education, we are faced with the key task in higher education reform and development in the future. By referring the actual teaching operation in science and engineering university as well as combining empirical research with literature review, this paper analyzes the establishment of teaching quality monitoring and evaluation system within an effective organization in order to ensure the teaching quality, then it proposes organization model of teaching quality monitoring and evaluation system, at last it discusses operational safeguard mechanism of teaching quality monitoring and evaluation system in science and engineering university.

Keywords: Classroom Teaching, Monitoring and Evaluation, Teaching quality Science and Engineering University.

With China higher education developing on the widespread stage recognized by the mass, higher education teaching quality is drawing masses of social concern and comprehensively improving higher education teaching quality is becoming the core task of the future higher education reform and development. Facing up to the new situation and tasks, the Higher Education Bureau of the Ministry of Education clearly stated the main point in 2011 is to focus on "promoting university to establish teaching quality assurance system"^[1], and improve the quality of higher education depending on it. Recent research shows that: The teaching quality assurance system is the guiding and working system to comprehensively guarantee and improve teaching quality.^[2] As the key link teaching quality monitoring and evaluation of teaching quality assurance system is directly related to the formation and improvement of teaching quality. Therefore, the establishment of an effective and scientific quality monitoring and evaluation system based on Chinese conditions is compulsory.^[3] The effective implementation of monitoring and evaluation of classroom teaching quality is not only an important measure to assure and improve the teaching quality, but an important action of university teaching management research.

1 Monitoring and Evaluation of Classroom Teaching

Teaching quality was formed in the entire process of talent training in order to fully strengthen the quality control of all elements.^[4] If the reasonable and teaching quality assurance system is a prerequisite to ensure the quality of teaching, a good job of quality management in teaching process is key to ensure teaching quality.^[5] Therefore, the key to teaching quality control lies in teaching process, particularly monitoring the quality of classroom teaching. Classroom teaching is the main form of teaching in all institutions of higher learning.^[6] Quality monitoring and evaluation of classroom teaching is on the implementation of effective monitoring through a variety of ways to input from the teaching resources, teaching links to the output of the qualified status of the whole process of teaching information, including understanding of health education, prevention and control of teaching quality phenomenon, as well as gaining valuable teaching information and obtaining post hoc analysis and diagnosis, in which the teaching quality will be shaped and timely feedback to teaching quality management departments in order to provide the basis for further guidance on teaching activities.^[7] In sum, Quality monitoring and evaluation function in classroom is realized by three links of teaching quality monitoring, teaching quality information analysis and evaluation, teaching quality feedback .

Class teaching quality monitoring and evaluation must meet internal regularity of teaching activities and quality requirements through the whole teaching operating link. Its basis is all sorts of teaching management, teaching quality standards and evaluation index system. The teaching quality standards mentioned here refers to quality standards formulated by the actual teaching internal situation of universities, which consisted of various curriculum and various teaching link - class teaching, curriculum design, experiment teaching, practice teaching and other teaching quality standard. Evaluation index system is a objective index system which is formulated in accordance with the teaching quality standards to evaluate teaching effect and the quality of teaching. Teaching quality standards and evaluation index system is the indispensable quality criteria to implement supervision and evaluation of teaching quality.

2 Organization Model of Monitoring and Evaluation System of Classroom Teaching

In order to make the teaching quality monitoring effective, firstly we will build hierarchical responsibilities in teaching quality monitoring system.^[8] classroom teaching quality monitoring and evaluation must implement an effective organization form to realize the effective organization, which is based on the internal teaching quality monitoring and evaluation system, that is to say, it is to guarantee and improve the quality of teaching guidance system and working system, thus effectively avoid behavior randomness and subjectivity. Its organization model shall match university type instead of machine-made. Since diverse disciplines of science and engineering universities involve a wide range of teaching areas it is necessary for teaching units to establish quality assurance system and quality assurance responsibility to a certain degree in more complex and comprehensive universities.^[9] Similarly, the teaching quality monitoring and evaluation system of organization model should also be corresponding.

By our university, the department (department), constitutes a three-level monitor organization research, according to the management function and implementation in different levels of quality control.^[10] Such three levels of organization structure is a clear division of work, but in science and engineering university teaching organization and management shows certain disadvantages. This paper from the science and engineering university teaching operation reality, puts forward the teaching quality monitoring and evaluation of the internal organization model including two subsystem and an evaluation index system. Two of these subsystems is meant to establish macro and micro levels of monitoring and evaluation system, the macroscopic level school teaching quality monitoring and that the micro level evaluation system, which is based on each teaching unit in teaching quality monitoring and evaluation system. Macro system can be guidance, inclusive microscopic system while macro system and micro system has also the relative independence.

2.1 Macro teaching quality monitoring and evaluating within the scope of the system is responsible for the implementation of quality monitoring and evaluating of school teaching. On one hand, we can understand and grasp the teaching status and teaching quality information of the whole school through the system, and then compare the main courses and teaching quality between various universities through researching and analyzing the information. On the other hand, through acquiring and collecting the university teaching quality monitoring and assessing information, we can find the advantages and disadvantages of school teaching, and then in turn guide university teaching work.

2.2 Micro teaching quality monitoring and evaluation system is based on university professional curriculum, teaching management and operation of the actual establishment, the university implements teaching activity in basic teaching units, teaching plan management, teaching operation management and teaching quality management and appraisal etc. then undertakes the important responsibility, "It is implementing the teaching quality monitoring and evaluation of the entity, its working status and quality, relates directly to the teaching quality and talent training quality".^[11] And the school teaching quality monitoring and evaluation system of university teaching quality monitoring, compared with the role of evaluation system, is more direct, more concrete, more effective.

2.3 University teaching quality monitoring and evaluation system is a necessary part of the school teaching quality monitoring and evaluation system, which is the extension of school teaching quality monitoring and evaluation system of twenty-first-century. School and university teaching quality monitoring and evaluation system, constitutes the organic combination of the teaching quality of the internal security in long term mechanism.

3 Running Model of Monitoring and Evaluation System of Classroom Teaching

Running Model of Monitoring and Evaluation System of Classroom Teaching in Science and Engineering University is at the macro level by the functional departments of the school organization and implementation of teaching. The micro level is organized and implemented by schools. The class is made of different levels of party

and government leadership, teaching management, supervision of teaching staff, students, teachers, experts and peers and so on. Accordance with the implementation and evaluation of teaching quality the subject of overhead and control channel for information acquisition, the operation to take "direct and indirect ways of combining the parties, the traditional methods and modern means of combining two parallel interactive campus" model, effectively teaching the General Assembly Quality monitoring and evaluation system role.

3.1 Due to the implementation of the teaching quality monitoring and evaluation of different subjects, its operation mode also has certain differences. The same behavior corpus can take one or multiple ways of classroom teaching quality monitoring, obtain the teaching quality information.

3.1.1 Party leaders and teaching management check teaching quality through the teaching quality monitoring and evaluation. Mainly through the opening teaching status inspection, random inspection classes, selective examination student work, check the final exam, analyze usual test scores, and test the direct method. Then teachers and student representatives held a panel discussion, through the teaching information management platform they can get teaching quality information, find and solve problems in teaching work link, control the teaching quality.

3.1.2 Supervisory staff monitoring and evaluating teaching quality by tracking the classroom teaching. Teaching supervisor is an expert team which has abundant teaching experience, strong responsibility and is familiar with the teaching process, teaching content, and supervise the teaching quality operation as main responsibilities, checking experiment teaching, graduation opportunity, through attends a lecture along with the hall, comments the class, experiment teaching links and so on, On-site supervision of all aspects of teaching quality, evaluation of teaching effectiveness of teachers - both positive benefits of their teaching, but also the problems of teaching ,and give their suggestions for improvement, the evaluation results as the quality of teaching based on evaluation and performance appraisal, and is responsible for providing to the teaching management, and to provide further basis for management decisions. Teaching supervisors' checking is an effective measure to check the quality of teaching and is an important way to protect the quality of teaching.

3.1.3 Student evaluation of teaching quality in monitoring and evaluation is an important source of information. Students are the direct beneficiaries of classroom teaching, student's evaluation of classroom teaching effectiveness can more truly reflect the quality of classroom teaching.^[12] The way of evaluating teaching quality include traditional indirect methods ,such as using questionnaire survey, filling the teaching quality information feedback form, holding a forum, immediate interviews and direct way like online assessment of teaching grams or direct feedback to the management of teaching Management.

3.1.4 Teacher self-evaluation of teaching quality monitoring has positive significance. Teachers, both as subject and as the object of evaluation, can reflect through their own teaching behavior, evaluate and analyze their own teaching work according to self-evaluation index system. Through self-evaluation, teachers can value their teaching work merits, analysis and find shortcomings, then achieve the purpose of improving teaching methods, enhancing teaching quality awareness and improving teaching quality.

3.1.5 The evaluation that made by experts and peers is an effective way to monitor and evaluate teaching quality. The assessment which is based on the profound understanding of the content of courses, training stages and the focus on the quality of teaching is closer to the practical work of teaching, which is conducted mainly through the lesson preparation discussions, quizzes and lectures, discussions after school, and so on. Compared with other methods, the results of this evaluation are more accurate, objective and reliable.

3.1.6 Development of real-time information and network with modern methods provides a new way to quality monitoring and evaluation. According to the food and real-time network, monitoring and evaluation of teaching quality has become widely used now. Teaching managers with authorization can monitor teaching status by the videos directly. Students, teachers and teaching managers can make full use of this direct teaching manager to transmit and obtain the information about teaching quality. Teaching managers can analysis, diagnosis and disposal the teaching quality information in time.

3.2 Effective mode of operation will ensure the efficient monitoring and evaluation system of teaching quality running smoothly and effectively, so the establishment of the mode of combination directly and indirectly means, combination of traditional and modern means, parallel interaction of university and university is based on this premise. The so called 'directly means' refers to the implementation of the teaching quality monitoring and evaluation of agents directly go into classroom or observing directly via the video observation teaching status, getting the teaching quality information. Indirectly means getting teaching quality information through inter media, such as meeting of teachers and representatives of students. Directly and indirectly use both traditional and advanced means. Development of information and network technology makes convenient access to different levels of teacher and student feedback on teaching information for modern means of teaching quality monitoring and assessment real-time monitoring of classroom teaching situation). Any single method is limited and with subjective randomness, the organic combination of these methods, and parallel interaction of university made teaching quality controlling better, more comprehensive and made the quality information and evaluation results more objective and accurate.

4 Analyzing and Feed-Backing of Monitoring and Evaluation Information of Classroom Teaching

The result of monitoring and evaluation of teaching quality implemented by various actors is inevitable to be influenced by the main factors of the monitoring and evaluation majority, so the information of teaching quality got through a variety of ways must be united in the teaching quality monitoring and evaluation system. The education department evaluation system, scientifically evaluate the quality of various courses' teaching quality in accordance with the weight of the indicators, in order to evaluate the level of operational quality of whole teaching semester. The result of such evaluation is relatively objective and accurate, and ultimately feedback through various channels by the quality management of teaching.

Monitoring and evaluation of teaching quality and information feedback is aimed to help teaching administrative staff, teachers understand the teaching status and analyze the teaching process, thereby improving the standard of teaching, teaching effectiveness and management levels and to protect the quality of teaching. Teaching feedback form is available through the meeting, written in the form of individual communication and networking platform and a variety of ways. Through information feedback, on the one hand the results of teaching quality will timely feedback to teachers, teaching staff and students, in order to deal with problems in time; on the other hand, the problems found in the monitoring feedback to management decision-making system is essential for decision-making departments to evaluate and amend the teaching objectives and the quality of monitoring and evaluation system timely, so as to achieve the system's self-improvement, and become the reference for other systems.

5 Operating Safeguard Mechanism for Monitoring and Evaluation System of Classroom Teaching

5.1 Establish an efficient teaching quality monitoring and operational agencies of evaluation. In accordance with the organizational model of teaching quality monitoring and evaluation system, respectively, establish schools and universities two-level teaching quality monitoring and rating agencies. Led by the teaching departments at the school level, teaching and training functions the common participation teaching management personnel, school teaching and supervisory staff, composed of experts, has command of Heads of teaching departments Vice President of the university level teaching bridge, Deputy Secretary in charge of student work, teaching and supervisory staff, teaching management staff, counselors, teachers and students on behalf of participants.

5.2 Perfect rules and regulations regulate teaching quality monitoring and evaluation work. Teaching quality monitoring and evaluation system at all levels in accordance with the rules and regulations and the evaluation indicators system, clear job duties, work procedures and work requirements. Division of personnel within the agencies responsible for their respective indices, practice on classroom teaching quality monitoring and evaluation orderly, the teaching quality information should feedback in time, ensuring the monitoring and evaluation of teaching quality system running smoothly.

5.3 To build good cultural atmosphere of teaching quality .The correct quality ideas and quality culture play a premise, central and leading role in the process of building the internal guarantee system in university.^[13] The quality culture's main function aims at the contained members of schools.^[14] It adopts measures of issuing the information of monitoring teaching quality and measuring quality, advertising the reaching quality, transferring the information of teaching quality timely, making the either-award-or-punish teaching quality workable and so on, in order to promote the transition of teaching quality's value, improve all the students and faculty's quality consciousness, set up the sense of quality teaching, forms a good learning style and school spirit, and make the teaching quality into a kind of cultural atmosphere.

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Study on the Strategy and Practice of Teaching Reform in the Computer Network Course

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Abstract. The computer network course is the core course of network major, this article makes an investigation and analysis on the teaching for many years, and then gives the teaching reform strategy, finally experimental teaching reforms have been carried out through the establishment of normal class and experimental class, the result is through the practice to improve learning initiative, use heuristic teaching method and multimedia teaching means, strengthen the several aspects such as experimental teaching practice and reform, and thus, the teaching effects have been improved greatly.

Keywords: Computer network, TCP/IP, Teaching Reform.

The computer network is a course which expounds the network interconnection technology from theory, which involves both the practical and applied nature and as well as a required subject of the postgraduate student entrance examination. Its main content is the TCP/IP architecture and the important agreement explanation, and applies theory to reality through the experiment teaching, this course is so theoretical that that teaching effect was not good for a long time. At present colleges and universities across the country are carrying out reforms on teaching content and teaching course system facing the 21st century's, and its core is improving the quality of teaching, cultivates students' integrative ability, how to improve the quality of teaching increase the students' integrative ability become the current important topic. Therefore some reforms and the practice are carried on successively in this course teaching, and get good result[1].

1 Investigation and Analysis

Before the reform of computer network course, the average class attendance rate of theory teaching was 86% of the three classes, taking 2004-year students as an example, attendance rate of experimental teaching is only 82%, final exam pass rate is 88%, and the employment rate of the three classes was 65%.

From the point of view of computer network course which lead to students of attendance, pass rates, employment rates, analysis are as follows:

1.1 Teaching Objects

Students who are initial contact with the course thought about it as the specific operations directly of network interconnection , when they found that learning content is the networking principles, and network equipment principles etc., their motivation became low, learning objectives became vague. Second, supplementary information in textbooks as part of the information industry, is relatively backward, and it won't attract the students' attention if the relevant information is not replenished in the lesson preparation.

1.2 Teaching Process

Although this course is theories of network of knowledge , and core technologies including network equipment such as hubs, switches, routers, are embodied in practical application , such as the exchanger principle in the third chapter, routers in the fourth chapter, so students will feel useful so as long as they use the network device will use the above theories of knowledge and practical experience in the use of the network, because the laboratory equipment matching with the theory of teaching has not been put in place, so theoretical knowledge is not verified, switches, routers and other networking experiments are nominal, thus, the theory of teaching effectiveness has remained poor.

1.3 Teaching Methods

This course is too theoretical and the CSMA / CD, TCP, IP protocols and other major work as parts of it is complex and difficult to understand, it can't be illustrated clearly the process network protocol only through the methods of blackboard and oral statements, and it is difficult to improve the teaching effect .

2 Reform Strategy of Computer Network Teaching

2.1 Combining Course with Practice

First, in the beginning of the semester, tell students the objectives and content explicitly. It is a direct operation of the computer networking, maintenance in the practical application, the operation of the network has a systematic process of theoretical knowledge as a support. As undergraduate study of computer science, students have to learn the theory of knowledge, so that they can learn to connect, configure skills quickly facing to a variety of network equipment from different vendors as the principle works in the same way.

Second, the textbook pays more attention to theory, not combined with the latest market information network, of course, the author of the book can not predict the information network in future market, which requires teachers should increase more relevant market information to the teaching process to make the course more meaningful, for example, Ethernet adapter address mentioned in Chapter III and other knowledge, 3COM Corporation can be contacted by Metcalfe.

Finally, combine textbook more with reality so as to make the students understand. For example, the first page of the textbook mentioned in the "triple play", teachers can slightly extend to contact our triple play testing now under way, and look at progress of relevant national websites; when the transmission medium of the second chapter, view the book talks about different kinds of brand of transmission media, price, performance parameters through the "Zhongguancun Online", and enhance sensory awareness, which can greatly enhance the enthusiasm of students[2].

2.2 Define the Role in the Course

In the teaching process, when meet related point knowledge of other courses, explain slightly the relationship between courses, this will not only help students learn the course, but also help students on the comprehensive understanding of the discipline system. For example, in the "Open Shortest Path First" algorithm learning fourth chapter, in order not to make the theory of overhead, you can simply explain the support of the theory algorithm, Dijkstra algorithm, and this method has been already studied in the data structure, so that the students can get to understand the knowledge easily with the knowledge has been learnt. When explains transport-level Interface in the fifth chapter, the concept of the process, which have been explained previously, and knowledge of network communication process, students from the academic point of view can easily associate with the knowledge and learn to accept new points.

2.3 Heuristic Teaching Method

Facing the too theoretical teaching computer network courses, the effect is not ideal for direct traditional cramming method of teaching, this is the main problem of the entire process of computer teaching; in the actual process of teaching explorations were made got good results, the method is: before the explanation of a theory, first to explain the origin of the theory of knowledge, content, and most importantly, where to make a concrete use and how to use it in practical applications, and thus, theory will not be overhead. For example, when explains final network architecture in chapter one, in the explanation of the complex concept of the system architecture, examples should be given on a few computers for data transmission network can not be conducted directly, because it is necessary to activate the line, identify the other host online, coordinate file format of both sides, how to solve the transmission anomalies, etc., and the networked communications can be conducted only solve the problems first. This is the source of this issue, as well as the source of architectural theory, and then facing the complex architecture it is necessary to solve them respectively that is, hierarchical thinking, and this architecture in the practical application is the network TCP / IP protocol. Before the networking issues resolved, students can be asked to think on how to solve the problem, then explain the answer in the application, such a heuristic approach has obtained a better teaching effects[3].

2.4 Multimedia Teaching Method

In the course of explaining the operation mechanism of complexity of network protocols such as TCP, IP protocols, the traditional blackboard and oral statements can't illustrate vividly about the protocol operation because the process is a dynamic

process, so the introduction of multi-media teaching methods, and adding animation in the PPT courseware, and made a very good teaching effects by showing working process of agreement vividly through the animation process. For example, in explaining CSMA / CD protocol process, students can grasp the core concept through the animated image, and see "listen before send" "listen while sending"; for example, in explaining the block switch technology, and can see the core concept of the data packet along different paths to the destination through the animation.

2.5 Strengthen Experimental Teaching

The content of undergraduate teaching of computer network is to explain the technical principles of network interconnection, it is the improvements of teachers in teaching methods and means even if the use of the above, to accept the course truly, allow students as the main part of this course to carry out practice to meet practical needs.

The traditional experimental teaching are regarded as complementary of theoretical teaching, and teaching process of computer network experiment is learning process of set-up, configure, maintaining network performance.

Facing the limitation of laboratory equipment, network packet capture software, and network simulation software can be used in practice, such as using a network Sniffer, to capture packets from the protocol, analyze and check the existence form of different levels of data packets from different levels of agreement, enabling students have a more intuitive understanding on network architecture; using network simulation software OPNET, choose the required network equipment and transmission lines to simulate the formation of the network, and as well make students have a deeper understanding of protocol levels of the principle[4]. After we bought CSS&JLU computer network teaching equipment last year, the teaching effectiveness is greatly improved, each six students as a group cooperate to experiment, students are expected to see the final results only the correct operation is done by each person, and this not only stimulates the enthusiasm of the students but also improves the teaching effect.

3 Teaching Reform Practice

According to teaching strategies above, in the experimental class teaching, first, teachers should get to know the usage of students on the computer network, and CNNIC survey report and other content, interact with students, teaching theory combine with practical network applications and thus increased the enthusiasm of the students. Through basic knowledge of other related courses in this course, give students a clear definition of interdisciplinary, so that the computer network course is not isolated, unfamiliar. Make an introduction about preorder lessons with the link of the course so that students are no longer strange to the computer network, and know where to start learning; and put more emphasis on the application of heuristic teaching, and enlighten them for each key and difficult point give examples, to simplify complex issues so that students can really grasp the difficult complexity of network protocols; On the advantages of using multimedia teaching in the courseware to add more vivid animated images to demonstrate the operation of the network

protocol process, making the protocol more intuitive; in the experimental teaching, first of all explain the experimental purpose, principles, procedures, etc., and make presentations, so that students know the purpose of operation and the operation steps to avoid not understanding the experiment content after operating according to the book. This not only verify the theoretical problem of teaching so that students can grasp knowledge better, but also improve students' abilities to build, configure, maintain computer networks.

4 Conclusion

This article has analyses in the computer network teaching, which aims at students inactive in class, lack of theory with practice link, traditional teaching and methods are difficult to adapt. Teaching reform and practice from the five aspects has been carried out. Taking the 05-year students as example, normal class attendance, pass rates, employment rates remained unchanged, while the statistics of class attendance of theory course in experimental class at the end of term was 96%, an increase of 10 percentage points; attendance of experimental teaching classes was 95%, an increase of 13 percentage points; pass rate of final exam was 98%, an increase of 10 percentage points; student employment rate was 73%, an increase of 8 percentage points.

Through the teaching and practice above, remarkable effects have been achieved; Attempts of teaching reform just started and will continue to improve gradually.

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Lesson Plan for the Analysis on Steady-State Error of a Linear Constant-Coefficient SISO Unity Feedback Control System

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Abstract. The steady-state is one of the most important three issues for automatic control system performance evaluation. So, an undergraduate who majors in automation has to thoroughly master and apply it. This document is a paper about how to design a lesson plan for the analysis on steady-state error of a linear constant-coefficient SISO unity feedback control system. A 45minutes lesson plan is designed from the lesson directions of objects, goal, time, courseware, contents and so on. The lesson practice validates this plan's good effects.

Keywords: lesson plan, the analysis on steady-state error, unity feedback control system.

1 Introduction

The automatic control theory[1,2] is one of the most important courses for a undergraduate who majors in automation engineering, electrical engineering or measurement and control engineering. And the steady-state error is one of the three basic elements for evaluating the system performances. The students should understand the basic concept of error ,master the computation methods which they can apply in dirrerent situations. So it is necessary to give a good plan for teaching it. A 45 minutes lesson plan is given below. And the courseware is made by using PPT.

2 Lesson Contents

The definition and mathmatic model for error in time-domain is:

$$e(t) = r(t) - c(t) \quad (1)$$

The definition and mathmatic model for the steady-state error in time-domain is:

$$e_{ss} = \lim_{t \rightarrow \infty} e(t) \quad (2)$$

Computing the steady-state error e_{ssR} in the presence of reference input signals alone:

1) The expression of the steady-state error based on Laplace transform for unity feedback is :

$$E(s) = R(s) - C(s) = \frac{1}{1 + G_o(s)} \cdot R(s) \quad (3)$$

Highlight: $E(s)$ are decided by $G_o(s)$ (which is decided by the system structure) and $R(s)$ (which is decided by the input signal).

2) System structure factors influencing the steady-state error

Because:

$$\begin{cases} G_o(s) = \frac{K_0}{s^v} \cdot G_n(s); \\ \lim_{s \rightarrow 0} G_n(s) = 1 \end{cases} \quad (4)$$

So the factors from the system structure change the steady-state error are open loop gain K_0 ;

system no error degree v which lead to the concept of “system type” ;

3) The general expression of computation equation for steady-state error according to Laplace transform final value theorem is:

$$e_{ssR} = \lim_{t \rightarrow \infty} e(t) = \lim_{s \rightarrow 0} s \cdot E(s) = \lim_{s \rightarrow 0} s \cdot \frac{1}{1 + G_o(s)} \cdot R(s) \quad (5)$$

4) The steady-state computation analysis in the presence of common basic reference inputs, such as step function, ramp function and acceleration function are given respectively. And the position error constant K_p , velocity error constant K_v , and acceleration error constant K_a are defined correspondingly. So the steady-state error can be computed in terms of the type, input signals and the relevant error constant. These can be usefully gathered in a table of errors.

Computing the steady-state error e_{ssN} in the presence of disturbance input signals alone:

Computing the steady-state error in the presence of both reference and disturbance input signals:

$$\begin{aligned} E(s) &= \frac{1}{1 + G_1(s)G_0(s)} \cdot R(s) - \frac{G_o(s)}{1 + G_1(s)G_0(s)} \cdot N(s) \\ &= E_R(s) + E_N(s) = E_R(s) - C_N(s) \end{aligned} \quad (6)$$

The total error can be given by the Laplace transform final value theorem:

$$\begin{aligned} e_{ss} &= \lim_{s \rightarrow 0} s \cdot E(s) = \lim_{s \rightarrow 0} s [E_R(s) + E_N(s)] \\ &= \lim_{s \rightarrow 0} s E_R(s) + \lim_{s \rightarrow 0} s E_N(s) = \lim_{s \rightarrow 0} s E_R(s) - \lim_{s \rightarrow 0} s C_N(s) = e_{ssR} + e_{ssN} \end{aligned} \quad (7)$$

Examples Type:

1) The reference input signals alone are unity step, unity ramp and unity acceleration respectively, and the system type are 0、I、II、III. The steady-state

error is computed in the same input but different type using two methods (the general error computation equation and the table of error respectively).

2) When the unity step, unity ramp and unity acceleration disturbance signals are given respectively, the total steady-state error are computed under the above conditions.

3) Comparing the two above cases.

Simulation Experiments

The simulation experiments of 6 are given by MATLAB. And the results will be given in table.

3 Conclusions

In this paper, a lesson plan for steady-state error of a linear time-invariant SISO unity feedback control system is designed. This plan can help teacher to teach the students not only to understand the concept but also master the methods to compute it. And the practice has proved that it's a good plan.

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Simple Talk about How to Organize the Experiment Lessons for Automatic Control Theory

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Abstract. The experiment lessons are the most important complementary parts of theory learning for automatic control theory course. But many students usually don't take care of them. So it is important how to organize an effective experiment lesson in order to deal with these problems. In this paper, a method to organize an experiment lesson is presented, and it is proved very good through real applications.

Keywords: organize the experiment lessons, automatic control theory, automatic control theory course.

1 Introduction

Theory guides to practice and real knowledge comes from practice. The experiment lessons are the most important complementary parts of theory learning for automatic control theory course. But many students usually don't take care of them. The number of students who are late, absent or chat in the lab is larger than in the classroom according to our teaching experience. So it is important how to organize an effective experiment lesson in order to deal with these problems. We should take appropriate measures to improve our teaching. In this paper, a method to organize an experiment lesson is presented, and it is proved very good through real applications.

The components of the experiment lessons are designed in terms of the theory components of automatic control theory. There are total seventy-two studying hours for this course in our measurement and control, automation and electrical engineering disciplines. There are 45 minutes in each studying hour. 60 studying hours are for theory studying and 12 studying hours are for experiments. The experiments which are chosen are basic link experiment, estimating quality specifications of transient process, stability experiment, steady-state error experiment, linear system cascade compensation experiment and phase plane experiment. All these experiments are based on the automatic control theory experiment box ACT-I.

2 Method to Organize the Experiments

There are different time managements for different teachers. Some teachers have experiment lessons between theory lessons. I have experiment lessons after total theory

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lessons have been given. So the experiment lessons are given one by one. The total theory study can make students understand the whole course thoughtfully. And then a series of experiment lessons which are continuously given can make students master it more deeply. On the other hand, the students can improve the understanding of the lab box more and more as the experiments are done. So the wrong and error which are brought by little familiar with the lab box can be reduced.

There are two main preparing works before experiment lessons. One is printing and distributing experiment guidebooks, the other is preparing the experimental installation. These works are been done when the theory study comes to a close. The students are asked to prepare lessons before class. The second work is done by special experiment teacher.

Though experiment lesson is parts of automatic control theory course, it has own examination. The exam consists of checking attendance, performance in class and laboratory(test) report.

The performance in class is the most important part of the three sections. Because it decides whether the experiment is finished perfectly, whether the data obtained is objective and accurate and whether experiment is finished independently or cooperatively. The marking criterion is created according to the degree of the data's completeness, credibility, accuracy and original. If one student has finished the experiment and present the results, we'll judge whether the data is obtained by himself/herself or not through detecting the show of oscillograph and asking some questions about the experiment and the result. If the data is copied from other students, we will say to the student that the data mark will not be up to grade if he/she don't do it again by himself/herself. In this situation, the student usually independently does it again. If the data is obtained by the student himself/herself, the data mark will be given and told on the spot. The mark is not the final data mark if the student wants to improved the result until the calss is over. In this situation, most of the students choose to correct the data. At the same time, even at the same mark section, the time needed to finish the experiment is recorded for everyone in order to encourage the students. There is different atmosphere in the lab between before and after the small measure is taken. There're 6 experiments totally. the measure is not taken in the first and second experiments. In the two experiments, we don't inspect and log extempore every student's experimental result. Then when the time has passed about 50 minutes and still not the end of the class, most students claim that they have finished the experiment and leave the lab. And the true situation was obscure to we. These brought about the mearsure. All students made seriously their experiments from the third experiment. They continue the experiment untill better result were obtained overlooking the time limit. And we have known all the true situations.

3 Practial Cases

There were there more interesting little incidents. One was a comport of a very good student who is the class represent responsible for daily work of receiving and issuing homework. The student is a boy. His Ordinary work is better, and answering the question is relatively good in class. According to his classmates, he is the best student in class studying. But he considered experimental classes be insignificant. He said that the experiment classes were not meaningful before theoretical knowledge had been

understood. He read up on theory and did exercises in the first two experimental classes because the exam had been arranged on Wednesday in the 15th week on this semester. Sometimes he asked me some questions. Whatever I urged him to experiment, he said yes, but turned himself back and continued his theory studying. But he also began to take experiments seriously after these measures were taken. Then he found out that he couldn't use oscillograph and regulate value k yet. So he began to asked the teacher and students and he had no time to review again. Even then the time he submitted the data was medium at the start of experiments, and the data had been corrected once before submission. Good child is soon taught. The data was submitted not only faster and faster but also better and better during the left time. Some times he even was at the top of his class.

The second was about a good student whose theory study was good and often asked me some questions. His aim is to be a relevant professional master degree candidate for which this course is just one of entrance examination courses. So he has done many extracurricular exercises. But his performance in experiment class was not so good at the beginning of experiments lessons. When others made experiments, he read theory book or played mobile phone or watched others making experiments. He refused to listen to me when I urged him to make the experiment. He answered that he would share the data with others when I emphasized no data no report no mark. He began to made independently experiments, connecting circuits, regulating parameters, recording results and correcting data and so on after these measures were taken.

The third was about a student who usually fell sleep in calss. He couldn't submit the data at the beginning of experiment lessons. After these measures were taken. He could also submitted experimental data just before classes were over. Though the data were not so perfect but were really obtained by himself.

We confirm that this method is very effective according to this series of practicals.

4 Conclusion

The full preparations before calsses are required. At the beginning of each experiment lesson, the experimental purpose, steps, matters needing attention requirements and standard of grading are told by the experimental teacher. And the teaching theory teacher is responsible for keeping track of attendances, performance in classes, experimental results grades.

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Research on IBL in Computer Education

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Abstract. The professional fields of computer science and technology are drivers and enablers of the global economy. University graduates need to develop a range of conceptual and technical capacities to work effectively in the shaping of companies, enterprises which operate in globalised settings. This paper describes the basic idea of Industry Based-Learning (IBL), and explores the computer education teaching system base on IBL.

Keywords: Industry Based Learning, Computer Education, Computer Science and Technology.

1 Introduction

At present, China's computer market is still industry applications market, these industry need to make computer applications technical personnel to the society in the computer industry.

Computer science and technology is a practical specialty. Practice teaching is to cultivate students' innovative thinking and strengthen innovation consciousness, is an important link of computer science and technology professional course a inseparable part. As a teaching plan is important one annulus in implementation of students, is also a key and important skills training. Practical teaching to cultivate students' theory with practice style, rigorous scientific attitude and independent hands-on work ability; To help students understand and grasp and use theoretical knowledge; Benefit students learn to comprehensive investigation, analysis and test, project design, write reports; It is beneficial to the development of students to observe thinking and innovation design ability; Benefit students to enhance the social responsibility and strengthen students' employment competitiveness and social development power.

Computer science development request more practice and application of graduates, and at the same time, social practical abilities demand is higher and higher. Training quality requirements of the comprehensive quality and innovative ability all based on practice. In order to solve the cultivation of university students' practical ability, foreign appeared a kind of the industry needs for training meet arises in computer engineering talents with the new teaching model, namely IBL talents training mode.

2 The IBL Mode

Industry-Based Learning (IBL) is a program for undergraduate students in which they are offered the opportunity to undertake full-time, paid employment in industry, in an area relevant to their studies.

Industry-Based Learning commenced at Swinburne University of Technology in 1963 in the engineering field. It is the longest running Industry-Based Learning program in Australia. Each year Swinburne University of Technology places about 500 students from over 30 degree programs into Industry-Based Learning placements. Usually in excess of 350 businesses participate.

The IBL program provides the university with invaluable feedback to ensure the courses are current and relevant. Managing the IBL placement project gave the student the opportunity to establish his profile and become known within the enterprises, which eventually led to his being invited to apply for the position that he has now. It is a great way for the company to work with students to see if they fit into the culture and assess their capabilities before employing them full time.

3 The IBL Placement Programs

IBL teaching is to develop the applied talents meeting the industrial demand arises new teaching mode. Also university design theory courses and field courses, teaching research and reform important partners.

IBL teaching system is built on university, students, the industry and the trilateral partnership above all. Universities in this principle, construction project with partners to students practice base, provide a longer project practice. The students not only learn interned new professional knowledge, but also cultivate the ability of the actual project. Industry put on education needs, on the other hand, participation in the curriculum development, develop with university actively cooperate with the teaching activities based on the industry. Through the practice, students have already been able to consciously development work according to specification, formed the good work habits.

3.1 Build Campus Comprehensive Training Platform

Campus comprehensive training platform is students' comprehensive training school of platform. It can according to the enterprise need, rapid sales team, and composed in accordance with the enterprise operation mode of the implementation operation management.

First, through the invite enterprise expert to give lectures, can introduce the professional knowledge, to guide the students to understand enterprise characteristics. Preliminary Joint enterprise to hold enterprise frontier BBS, cultivate the students' cognitive ability, understand enterprise industry needs and frontier dynamic.

In addition, through invitation enterprise expert supervision and instructions, teachers will combining with project and curriculum, and combining with the student common discovering, analyzing and solving the problems of the actual project. Enterprise and school form "double teacher" and common guidance student project

practice. Through the comprehensive training, students in a campus can be familiar with the enterprise operation process, strengthening the students' ability of integrating theory with practice, the comprehensive application of professional knowledge, and the ability of team consciousness, cooperation spirit and analysis and problem solving ability.

Campus comprehensive training platform, can realize the teaching and training, meet different stages of interaction of the students' practical teaching requirements, cultivate students' comprehensive practice ability, practice for the reform measures will provide a solid foundation.

3.2 Build Enterprise Practice Teaching Platform

Enterprise practice teaching platform is the comprehensive and practical ability of effective places. The school on the basis of school-enterprise close cooperation with enterprise cooperation, established a stable practical teaching bases outside.

Enterprise practice teaching platform is any enterprise which provides a student with a suitable position within their enterprise to undertake their IBL program. Enterprise practice teaching platform must be an enterprise which operates specifically in an area where a student may learn about their chosen field of study, in a day to day practical sense. Enterprise practice teaching platform must also have employees qualified and practicing in the discipline for which a student is studying, and who are able to undertake supervision (direct or indirect) of a student.

Students will be invited to submit an expression of interest for Industry Based Learning. Subject to results, students will be invited to attend interviews conducted by the industry partners. During the IBL placement, students will have the opportunity to apply technical skills gained from their studies in real world environments and familiarize themselves with the range of technical processes and systems used in industry.

By IBL training, students will develop knowledge, understandings, values and attitudes about enterprise, work and industry and a range of employability related skills valued within and beyond the workplace. Students will gain experiences that can be applied to a range of contexts including work, study and leisure, and which can assist them in making informed career decisions.

3.3 IBL Practice

In school of computer science and engineering, all students will be invited to submit an expression of interest for IBL during their first year of study. Subject to results, students will be invited to attend interviews conducted by the industry partners.

Any Student who has learning core units include computer programming, computer science, algorithms and data structures, software engineering over six semesters can participate in the IBL. The Faculty shortlists students who have expressed interest in undertaking an IBL placement based on their academic performance, career interests and a screening interview.

Enterprises offering IBL placements are encouraged to assign students graduate-level work and present opportunities to work with and learn from professionals in their area. Placements are usually for six months to fit with the student's academic

study calendar. Where placement provider offered a placement for six months, they can be from 3-6 months long, on a full-time, part-time or a hybrid full-time, or part-time basis. Students gain unit credit towards their degree corresponding to the length of the placement.

The IBL program complements our academic curriculum giving students the opportunity to acquire practical IT skills and gain important industry experience. At the conclusion of an IBL placement the enterprises is able to continue to keep the student working on a part-time capacity through direct casual employment or through a cadetship.

4 Conclusion

Industry based learning (IBL), is a form of cooperative education between industry, universities and students undertaking courses leading to professional qualifications. This system of placing Students into enterprises for a substantial period is designed to enhance Students' learning by assimilating their academic studies into a real world, real workplace situation. IBL is a paid placement for the Students, either via scholarship award, as a direct salaried employee or a contract employee.

For the Industry Partner, IBL can bring in a fresh perspective, new skills and innovative approaches to the current environment, direct access to high calibre, work-ready graduates and cost-effective resource with no added on-costs.

For the university, IBL can raising the profile of the Faculty with business and industry, offer students work experience in industry, developing partnerships with graduate employers, Improving graduate outcomes.

For the Students, IBL can develop knowledge and understanding about the nature of enterprise and work, develop knowledge and understanding about the industry and workplace in which they are working and training, develop a range of skills relating to employability.

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Discouraging Results Calls for Reforms in College English Teaching—Enlightened by the Teaching Method of Australian Universities for English Majors

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Abstract. Chinese universities have been teaching English for thirty years, and over that period the teaching has developed dramatically. However, administrators, parents, community and even teachers and students themselves are not satisfied with the levels of English competence shown by the students, even those of the English majors. One might argue that this is due to the lack of English usage in China, where Mandarin is the absolutely dominant language. This paper aims to introduce the teaching methodologies and pedagogic practices in both China and Australia, and concludes that Chinese academics should consider make some reforms --- adopting some current Australian practices. After a description of the teaching methods used by Australian teachers, and an analysis of their merits and achievements, this paper will highlight the reasons why many Chinese teachers may be reluctant to reform current methodologies in English teaching and providing some concrete recommendations. It is hoped to serve as a guidance and reference to those who are conducting research in this area, offering tools for Chinese English major teachers who are endeavoring to reform their current methods of teaching. The goal is to enhance the students' learning experiences by drawing on experience in English native speaking countries such as Australia.

Keywords: reforms, English majors, teaching method.

1 Introduction

Currently there is an international consensus that the richness, quality and performance of a nation's higher education system will be key determinants of its economic and social progress; the teaching of English forms a very important component. This paper will introduce the relevant factors in the teaching of English majors in China and Australia, finding similarities and points of comparison. It will use figures and facts to suggest that China's method of teaching is unscientific and that there are flaws in complying with the appropriate conventions, protocols and practices in English learning. The paper suggests that the root of the problem can be found in China's backward methods of English teaching, and urges that the relevant parties be performing teaching reforms. I hope this paper may assist the educators in China's universities in reforming their English teaching methods, transforming their educational concepts and modernizing their ideas about educational administration.

2 Materials and Methods

My research materials are mainly based on the related documents issued by the Ministry of Education of the People's Republic of China and the Australian Government Department of Education, Employment and Workplace Relations. I also reviewed the relevant documents issued by some universities, comparing the descriptions of any stated objectives underpinning undergraduate English teaching, and noting curriculum design. It concludes that China's university English teaching for English majors can be compared profitably with the teaching of English majors in Australia, even while dramatic differences exist. However, the traditional methods of teaching in China can be considered an obstruction for China's improvement of English teaching. In attempting to diagnose reasons, make suggestions and offer solutions, this study also draws on theories of language learning and my long term observation, together with in-depth discussions and communication with academics from both China and Australia.

3 Relevant Information Concerning English Majors' Teaching in China

3.1 Size of Classes

China's higher education system experienced dramatic change in 1999. In order to improve the overall educational level of the nation and to alleviate the pressures of changing patterns of employment in a globalizing economy, the Central Government initiated a bold educational reform: to enlarge the enrollment of students in higher education. This year can now be seen as a dividing line in China's contemporary higher education system. Before that year, China's higher education was regarded as "elite higher education", meaning only a very small proportion of talented young people were able to attend university. The rate of enrollment before 1999 was less than 20% nationwide. Class sizes were small, usually 15 to 20 students in a typical English major class.

However, after 1999, China's higher education was transformed to "common higher education", with the consequence that many more young secondary graduates were admitted to university; the rate of enrollment in 2009 was promoted to 83%. Accordingly, the size of the class expanded, typically with 20-30 students in each English class.

Scientifically, the enlargement of the size of the class adds the burden of the teachers in maneuvering the class. Yet, it is a fact and status quo. All that teachers can do is to explore a new and workable way in dealing with the present situation.

3.2 Objective of Undergraduate English Teaching in China

In line with the National Syllabus for English Majors issued by the Ministry of Education of the People's Republic of China, the objective of higher education English major teaching is to cultivate the faculties of those individuals who do not

have a good command of English, and to develop their abilities to use the English language in foreign affairs, education, economy and trade, culture, science and technology. Such individuals may also be seeking employment in the armed services, where English is used in translation, teaching, administration, study. The English major graduate with ability and of high quality should thus have solid basic skills, a broad range of knowledge, and a certain degree of relevant expertise. That is, the objective of university study is to lay down good solid basic skills in English language use, and to provide a solid grasp of English to facilitate professional knowledge and to broaden knowledge of the humanities, sciences and technology, in the process of attaining basic knowledge which is relevant to the future profession.

3.3 Curriculum Design

In China, an English undergraduate studies four years at university. The first two years (Grade One and Grade Two) are called the elementary phase and the second two years (Grade Three and Grade Four) are called the advanced phase.

In the elementary phase, the teaching task is to impart basic knowledge of English, training the students in basic language skills, thus laying a solid foundation for the advanced phase of study. In the advanced phase, teaching aims at improving the quality of students' English, extending their ability to communicate in English, enhancing students' knowledge of English culture and literature.

To be more specific, in Grade One, the courses which are usually available to students are Contemporary English, Phonetics, listening, communication, and reading. In Grade Two, add writing, grammar, Survey of UK and USA on the basis of Grade One's courses. In Grade Three, courses available are Advanced English, Writing, Linguistics, British Literature, and Translation. In Grade Four, courses available are Interpreting, American Literature, Academic writing.

In addition to these compulsory courses, there are also some optional courses for the students in each grade, such as Audio-visual, Applied Writing, Selected Readings in the Foreign Press (for Grade One and Two students), English Teaching Methodology, History of British and American Literature, Selected English novels, Selected Readings in English Prose, Rhetoric (for Grade Three and Four students).

Such optional courses are called Major Optional Courses. The other kind is called Public Optional Courses and they are mainly future job oriented. Students may choose according to their own consideration about the future job and their own interest. Among them, the most popular courses are Overview of International Relations, Western Political System, Introduction to Communication Studies, English News Writing, International Trade Practice, International Business Studies, Introduction to International Finance, Introduction of Foreign-related Business Management.

Different universities may also decide what major optional courses and public optional courses to open on the basis of their specific objective and the resources of staff and other hardware conditions.

The above introduction suggests that, in China, English major students' academic curriculum is delicately and scientifically designed. Therefore, English major graduates ought to have ideal academic results after graduation. However, as a matter of fact, the result is far away from everybody's satisfaction.

4 The Detrimental Result of China's Teaching for English Majors

The result of China's teaching for English majors can be evaluated as follows: First, the low proportion who seek further English major study overseas. Every year there are a great number of Chinese students who choose to pursue overseas education. For example, according to the figure released by the Australian Government Department of Education, Employment and Workplace Relations, by the end of June, 2006, 25,947 Chinese students in Australia; by the end of 2008, and the figure had surpassed 30,000 by a large margin. However, almost none of them are continuing to study English in Australia; instead, their choice of courses includes accounting, IT, business, and tourism. This decision may be due to their concern in seeking employment upon graduation, but the same time, it suggests that their undergraduate education in China has not really helped to ignite their interest in English language, English culture, English literature or English linguistics which is emphasized in university curriculum.

Secondly, students' poor performance in "General Knowledge" tests. Every year, the Ministry of Education of the People's Republic of China organizes a uniform English examination for grade three English majors. In this controversial examination paper, a new type of testing called "General Knowledge" has been adopted since 2004. It is designed to test the students' general knowledge concerning English culture, English literature and other English humanity knowledge. Unfortunately, this is an area which students do not perform well, which reflects the deficiency level in their major study.

Thirdly, all the Chinese people who have been abroad may have such a finding, that is, in comparison with other international students from non-English speaking countries; Chinese students' English level is indisputably the lowest in listening, speaking, writing. Hence this reveals strong evidence on the flaws in the education system within China including the teaching of English majors.

5 The Question Is: What Is Wrong with China's Teaching for English Majors

5.1 General Methods of Teaching in China for English Majors

In China, theoretically, the teaching method should have changed from teacher-centered to student-centered. According to the requirements of the National Syllabus for English Majors, teachers should adopt the teaching method of elicitation method, discussion method, discovery method and research method in class. Diverse ways should be utilized; classroom activities such as lectures, debates, group discussions, seminars, computer-assisted teaching and learning, short plays, interviews, all these can be integrated in the learning process.

In reality, few teachers have adopted the above methods. Currently a large majority of the university English teachers are still using the method of "the teacher stands in front of the class and students play a passive role in learning by listening to what is being taught and take notes when necessary just like a "bench warmer".

5.2 Australian Teachers' Methodology of Teaching English Majors

In Australia, very few teachers deliver lessons in quite the same way as Chinese teachers do; instead they use the teaching method of tutorial, workshop, interactive lecture, seminar, class discussion, and so forth. All of these methods are student-centered; students need to prepare their work, formulate their own ideas and interact with other students and develop intelligence exchange through this process.

5.2.1 Tutorial

A tutorial (colloquially called a tute) is one method of transferring knowledge in Australia. It is a small class of only 4 to 6 students before, nowadays 10-30, in which the tutor (a lecturer) gives individual attention to the students. Depending on the context a tutorial can take one of many forms, ranging from a set of instructions to complete a task to an interactive problem-solving session. The methodology of tutorial is more interactive and specific than a book or a lecture; it seeks to teach by example or supply the information to complete the certain task. This requires the tutor to do abundant preparation in advance, which is a self-learning and self-thinking process for the tutor.

The tutorial is a highly recommended way of teaching not only in Australian universities, but also in many of the western universities, such as the profounding ones, Harvard University, Yale University. As Avner Shalev stated "The role of education is not to instruct but tutorial: an approach that allows the visitor to be a consumer."

5.2.2 Workshop

In China, students are learning their studies from a teacher standing in front of a blackboard and copying notes onto it. They are learning their reading skills by reading books and writing skills by reading essays, however, scientifically speaking, and this method does not benefit the students of today's times in the way that they need it to. However, Australian teachers are teaching students' reading and writing skills in a simple yet constructive way---the workshop.

In a workshop, small groups of people meet together over a short period of time to concentrate on a defined area of concern. Purposes for workshops may vary, such as, informing, problem-solving and training. Generally, the workshop model intends for the students to learn reading and writing skills through much participation amongst themselves and their peers. Unlike just taking notes from a blackboard, in a workshop model, much interaction ensues after a mini lesson on a specific reading or writing strategy. Students either interact with the teacher or amid themselves by discussing certain pieces of writing that incorporates the strategy.

5.2.3 Interactive Lecture

Chinese teachers might know a lot about "lecture" or "class report". It is the practice of having the teacher, or lecturer, in the front of the classroom talking to the rest students. This is evidently seen as one-way communication and lack of interaction, and this teaching methodology has gradually been abandoned by the Australian teachers. What they are using more in teaching is interactive lecture.

An interactive lecture is a class in which the teacher breaks the lecture at least once per class to have all of the students participate in an activity that lets them work directly with the material. Such activities are targeting allowing students to apply what they have learned earlier in the lecture or give them a context for upcoming lecture material. One recommended way to transform a traditional lecture or class report into an interactive lecture is to have the students discuss their viewpoints or comments on an idea rather than telling the students what the teacher's arguments are. An interactive lecture is one method for interactive engagement. It is often used when the teacher wants to arouse the students' focus and enthusiasm on the content in class.

5.2.4 Seminar

A seminar is, essentially, a group of students sitting together to talk about a particular topic chosen in advance by the teacher or by the host of the seminar. If interactive lectures tend to emphasize "coverage", seminars tend to emphasize intense reading of books and articles or research into primary sources followed by a group discussion about what everyone is learning and what questions are arising. Moreover, by comparison with interactive lecture classes, where the emphasis is on the absorption of a great deal of information gathered mostly by listening to a professor lecture, seminars place the focus on the talk and the questions of all of the seminar participants. Knowledge in a seminar is gained not by listening to the others but by reading by oneself and talking with others. As to the goal of a seminar, it wants the participants to master the topic they are studying or discussing, exchange ideas and thoughts with others and make even clearer about the typical topic.

Through this reformed instructional technique, both teachers and students will have the opportunity to feed off each other and to understand one another in a relationship that goes beyond notes on paper.

5.2.5 Class Discussion

An Australian professor remarks directly that his primary goal during a class discussion is to "get students talking and keep them talking". He explains he has also struggled to break through the stubborn silence of tired, timid, or unprepared students.

The advantage of class discussion includes: increasing students' comfort with the specialized language; developing critical thinking; developing problem-solving skills.

Two useful tips for guiding the class discussion effectively are: if a few students monopolize the discussion, the teacher can invite others to comment or break the class into smaller discussion groups; if some students turn the class discussion into emotionally charged debates or even personal attack, the teacher should help to cool down and neutral different parties' viewpoints and emphasize that personal attack is not complying with the discussion courtesy.

Above all, it is easily found that the Australian methodology is abiding by the principle of language learning and teaching, which is also the point that numerous Chinese educators advocate for many years. However, why Chinese teachers are sticking to their outdated methodology?

6 Reasons for China's Present Situation

Reasons may vary from teacher to teacher, university to university, region to region, but there are some similarities:

In the first place, long-term teaching habits are influential. China is a country with over 5,000 years' civilization. Over 2,500 years ago, during the time of Confucius, a teaching method was established-----teacher explains, student listens. One concept that is deeply entrenched in the Chinese society is "knowledge is learned from the teacher by way of attentive and careful listening". Therefore, even when the teacher opens door for discussion, students may not be accustomed and hence little interaction will take place. Even when the teacher asks the students to conduct a lecture, students may read their written materials or PPT materials without adding anything of their own.

Secondly, the students have long been trained this way in primary schools and high schools. Students in China are almost all taught in this method ever since the first day they attend primary school. Even if young children who have the ability to think independently will gradually lose this capability after a few years' immersing in this education system. They find their student's role is simplified by sitting back and listening to their teachers and taking notes when the need arises. Fairly speaking, teachers do not have total control over students' learning, even though some people have teachers accept total responsibility.

Thirdly, China's education does not give sufficient priority to critical thinking. The long-standing traditional methodology of teaching attaches no importance to the cultivation of students' ability to perform critical thinking. Due to this, as the teacher gives the floor to students and asks them to express their viewpoints, students may find themselves tongue-tied and are unable to participate in the interaction. The traditional way in China is "the teacher's idea is the standard idea, and in most cases, the teacher's idea is from the teachers' reference book, which all the teachers nationwide who teach the same subject may have one, therefore, all the teachers are transferring the same idea to the students nationwide, both students and teachers call them "standard criteria".

Fourthly, students' language competence is generally poor. Some teachers try to encourage the students to be more vocal in class. However, in many circumstances, students may find themselves trapped in such a dilemma: they finally have their own different viewpoints from others', they want to express, but the poor language skill may obstruct them. Frankly speaking, currently in China, the overall speaking and listening ability of university students is rather low, including the English majors.

Fifthly, teachers are swayed by considerations of gain and loss. All the universities have their own system of assessing teaching. Generally, teachers' job is mainly commented by the students they teach. When some teachers are reforming their teaching methodology and giving more time to students in class, it will definitely result in the complaints of the students, then the reformers immediately change their mind since students are the people who have most saying in commenting on their work. What's even worse, the administrators may also criticize the reformers for giving too much time to students in class. After several rounds of tossing like this, all the reformers may end up coming back to the routine way.

Sixthly, criteria of assessment of study are unreasonable. In China's universities, though the Criteria for the assessment of study have been reformed step by step in recent years, they still have many unreasonable factors, for example, the general criterion for different universities may be: the final exam score takes up 60-70%; daily performance takes up 30-40% of the final. This criterion seems to have given too much priority to the final exam and ignored students' daily performance, thus encourage students to neglect their daily performance and only focus on the final exam.

Here I take the Criteria for the assessment of Professional English from the Flinders University in Australia as the example to show how much they have attach to students' daily and in-class performance.

| | |
|---|-----|
| Criteria for the assessment of Professional English | |
| Summary of an article | 10% |
| Essay | 20% |
| Job application letter and CV | 15% |
| In-class and FLO (Web CT) quiz participation | 5% |
| Team oral presentation | 15% |
| Exam | 35% |

7 Suggestions and Solutions for Reforms

7.1 The Concept of Education and the Present Methodology Should Be Reformed

All the teachers have witnessed the bad consequence of traditional teaching methodology. Frankly speaking, teachers are not only the producers of this problem but also the victims. They suffer a lot in the process of teaching, correcting students' assignments and even in communicating with the students. In my perspective, the most crucial things teachers should do are to change the traditional concept and change the teaching methodology. According to Stephen Kristen's theory, "Language acquisition does not require extensive use of conscious grammatical rules, and does not require tedious drill. It requires meaningful interaction in the target language - natural communication - in which speakers is concerned not with the form of their utterances but with the messages they are conveying and understanding. The best methods are therefore those that supply 'comprehensible input' in low anxiety situations, containing messages that students really want to hear. These methods do not force early production in the second language, but allow students to produce when they are 'ready', recognizing that improvement comes from supplying communicative and comprehensible input, and not from forcing and correcting production." [1] Therefore, the new teaching method in which students are studying with great initiative should be introduced. And the Australian teachers' way of tutorial, class discussion, lecture, workshop, seminars are worth borrowing.

7.2 Independent Study and Critical Thinking Should Be Encouraged

China's traditional method of teaching contributes a lot to the development of China's civilization, but along with the development of the times, it has apparently manifested

its weaknesses, it obstructs the establishment and development of students' capability of independent study and critical thinking, which is erring from China's educational principle of "quality education". Therefore, students should gradually develop the habit of thinking questions on their own, putting forward their own ideas and viewpoints in study. Class does not mean listening to the teacher, but means exchanging one's own ideas with others and learning through the communication or even argument with peers.

According to Prof. George E. Hein from Lesley College, Massachusetts USA's Constructivist Learning Theory, "learning is an active process in which the learner uses sensory input and constructs meaning out of it. The more traditional formulation of this idea involves the terminology of the active learner stressing that the learner needs to do something; that learning is not the passive acceptance of knowledge which exists 'out there' but that learning involves the learners engaging with the world." [2] To be more specific, language is learnt through practice and memorization; hence it must be a behavior which involves in much independent study and critical thinking. Students should intimately associate the study with more practice and communication with teachers, peers as well as casual acquaintances who know English, and use conversation, interaction with others, and the application of language knowledge as an integral aspect of learning.

7.3 The Criteria of Testing Students Should Be Reformed

Influenced by the methodology in teaching and the power of tradition, Chinese teachers give too much emphasis to students' performance in the final-term exam and mid-term exam, not paying due attention to students' daily performance, including class involvement and assignment performance, hence resulting in students' inactiveness in class activities and doing their assignments perfunctorily. In line with John Biggs (Biggs, 1999)'s Constructive Alignment theory, "students will inevitably tend to look at the assessment and structure their learning activities, as far as they are able, to optimize their assessment performance. Teachers must therefore make sure that the assessment very obviously does test the learning outcomes you want students to achieve, that, by being strategic optimizers of their assessment performance, students will actually be working to achieve the intended learning outcomes." [3] Therefore, if Chinese teachers want the students to be more motivated in and out of class, the criterion of testing should be upgraded.

7.4 Educational Administrators Should Reform Their Way of Teaching Assessment

The criterion of assessing teaching varies from university to university in China, but there are many similarities. All the criteria attach much importance to if students are satisfied with the teacher's preparation of the class, performance in class and the quality of correcting students' assignments, ignoring if the teacher is modernizing the teaching method, upgrading the teaching concept and giving more chances to students to practice. This criterion does not encourage the teachers to abandon the present model and explore the more advanced one.

As early as 1980s, American universities gradually began to evaluate teachers' work in light with the system and criteria they created, and this was soon adopted by more and more universities in the world and now by nearly all universities. According to their system, students have the biggest word in commenting their teachers' work, which sounds reasonable and rational. However, this, to some extent, holds up teachers' enthusiasm and bravery to reform in their teaching methodology. Chinese students have been too accustomed to passive study in class which is easy and energy-saving. If the teachers who compel the students to accept a new kind of student-oriented methodology in which students need to do more, contribute more, they will be very risky by being graded very low in students' assessment toward their work. Therefore, educational administrators should figure out a more scientific system of teaching assessment by which teacher's reform of methodology is encouraged.

8 Conclusion

Though English teaching in China has experienced decades of development, China's level of English teaching is still lagged behind. The result is that students fail to master English or the ability to appreciate English culture and literature. Students do not have good capability in securing future employment. Many reasons account for this, but mainly, teachers' outdated educational concepts and teaching methods, students' inertia and lack of the ability of independent study count for much.

In order to completely transform the present status quo, teachers, students and educational administrators should jointly contribute. Teachers should change the concept of education and reform the present method of teaching; Students should adapt to independent study and build the ability of critical thinking; Educational administrators should reform their way of teaching assessments. Only by this, can China's education of university English majors meet the demands of the new emerging global economies and at the same time cultivate students to develop a strong grasp in English and develop the capability of communication that will deliver a high standard of English.

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College English Teaching in Large Class^{*}

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Abstract. At present, because of continuously enlarging admission of higher education of universities and colleges in China, insufficiency of teaching resources and college construction resulted in existence of a new pattern of teaching in large class of colleges and universities, which has been bringing college public English language teaching great challenges. Based on teaching practices, the paper shows methods available for how to manage and organize English language teaching in large class so as to successfully carry out teaching objectives and achieve its scheduled task.

Keywords: College English Teaching, Large Class, Class Management.

1 Status quo of College English Teaching

Class teaching management acts as a process in which the teacher effectively carries out teaching objectives and scheduled tasks through harmonizing all kinds of class factors and class interpersonal relations, psychologically influencing student individuals and the whole class, activating and guiding students' study in the classroom. During the process, the student is the subject, while the teacher is manager and guider. Nevertheless, recent years the increasingly larger enrollment to higher education of universities and colleges in China has given birth to teaching in large class which has failed the conventional class management. Facing this change, teachers of English language for non-English majors in universities and colleges in China are required to seek some ideas available for management of teaching in large class.

Teaching in large class means that the number of students in one class today goes beyond 30-40 in a conventional class as usual, and even there are 50-60 or more than 100 students in a class of universities and colleges. But in terms of English language teaching, the amount of more than 100 students brings the job of teaching English language in class a greater challenge and difficulties in the process of implementation of teaching objectives. Teaching English language especially for non-English majors in universities and colleges is of its own specialties that classroom works as the dominant place for teaching English language, that teaching syllabus, teaching guiding line and teaching requirements are finished mainly in classroom, that the classroom is the place where the teacher and students communicate each other, that

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the teacher regulates student's feelings and emotions, coordinate students' behaviors according to teaching schedule, and that the teacher must guarantee the quality of language input and output. Just for this reason, the existing English language teaching in large class has greatly challenged teachers of English language in universities and colleges. They will have to make a good preparation for new investigation and innovation in both English language teaching and class management. The paper mainly discovers how teachers of English language in universities and colleges in China successfully practice management of English language teaching in large class so as to achieve the scheduled teaching objectives and tasks.

At present, English language teaching for non-English majors in large class in universities and colleges has been confronted with a number of new difficulties requiring the immediate solutions. First, how could teachers of English language make sure that teacher and students co-work together for the teaching objective of one class? Next, how could teachers guarantee that the majority of students finish their study in class? And then, how could teachers correct one hundred or more homework and assignments with the purpose of required quantity and quality? And still, how could teachers check out students' attendance rate and degree of learning? And so on. For such questions, relevant principles and methods have been proposed on the based general pedagogics and psychology of teaching. Seaton (1982) makes a list of concerns as follows: [1] A set of ways for checking out students' attendance rate, for example, class monitor can do the job for the teacher. [2] Students' name list can be arranged alphabetically or by their strokes, or students are required to write their own name card placing on their desks so that teachers can easily identify each one and raise questions for themselves. [3] Teachers should try their utter most to keep in mind student's name, address, age of learning English language and so on. [4] Some files should be prepared about students and teachers concerned. [5] Teachers are supposed to know students' study plan, career plan and the materials that students learn in other classes so that teachers can do language practices according to students' real conditions. [6] Teachers should know about study advancement made by students. [7] Notes should be kept about students' homework, assignments and their specific needs. No doubt, the above mentioned provides teachers of English language some good ideas concerning English language teaching class, but one thing is that these methods cannot solve all the problems existing in today's English language teaching in large class in China's universities and colleges once and for all. As a result, new methods should be explored to tackle difficulties in English language teaching for non-English majors in large class of universities and colleges.

2 English Teaching in Large Class

Having been engaged in English language teaching for more than ten years, the writer of the paper has witnessed and experienced the huge shift from teaching 30-40 students in conventional English language teaching class to that of more than 100 students in one class today. Strongly impressed by difficulties in English language teaching in the large class the writer of the paper realizes that conventional class teaching methods are unavailable for how to manage the large English language teaching class. Accordingly, the writer of the paper has made an attempt of modern

pedagogic methodology and new management principles both home and broad in order to explore some methods available for English language teaching in large class. In other words, to meet requirement of imparting knowledge and educating students English language teaching validity will be made regard of how to successfully organize and manage English language teaching in large class under the current material conditions. The author of *The Effective Executive* P.E. Drucker, the American management scientist, believes that manager's duty lies in obtaining the effectiveness of work. Therefore, in the practical teaching, the degree of class management effectiveness will decide the development of the whole class and the quality of class teaching as well, a set of highly feasible methods of class management should be established to guarantee implementation of teaching objective and tasks.

From the point of management, English language teaching in large class can be viewed as an organization. In enterprises and companies Human resource should be kept in line with raw materials and equipment to undertake entirely good management for the purpose of much emphasis laid on economic interests. But in contrast, class teaching focus much on human and human resource management. Namely, students in class teaching are the subject. On the other hand, though employees in enterprises and companies look like one group, there are actually sub-divided groups responsible for specific assignments and operation procedures, assemble line is the way of production to which employees must conform. However, students in class teaching are confined to one classroom under the same teaching instruction of the teacher, students have a common interest of learning from what the teacher is speaking and explaining, there is no job division. As for their assignments and homework, they are unanimously made under teaching objective. So the teacher should have a clear understanding of this point, and learn to adjust measures to the specific condition and to flexibility when teaching in large class. It is not advisable that in attempting to walk like a swan the crow loses its own gait. On the other hand, English language teaching for non-English majors in large class is a kind of language teaching which is of essential linguistic features of interpersonal communication. Most people learn English out of not curriculum knowledge or a science as their research aim but a linguistic knowledge as their practical use in their lives. Even though it is necessary to learn some required linguistic knowledge this is just for transforming such knowledge to language competence. Hence, language teaching aims at helping students both with their linguistic knowledge and most important their ultimate aim of applying what they learnt from class and books to the community where they live, which is the core tenet of language teaching. Based on the above mentioned, several factors concerning management of English language teaching for non-English majors in large class should be taken into consideration.

2.1 To Check Up Students' Attendance Rate

The teacher could easily check out every student's study and attendance in the conventional small class of 30-40 students. But unlike the conventional small class, large class would take the teacher quite longer time to check out the name list of the whole class, let alone knowing every student's study. Moreover, some students would develop an idea of playing truant just because of many students in the large class. To ensure that every student must attend the class, it is necessary for the teacher to check

out the name list. With regard to this situation, examples can be taken from management such as supervision layering, examination layering. The teacher can divide the whole class into groups with not more than 12 students in each group, then one student representative responsible for checking out each group's attendance rate can be elected by the teacher or by students themselves, from the student representatives the teacher could know the whole class's attendance rate, by doing so, much time can be saved, and students' attendance rate can also be checked out. On the other hand, this way also facilitates class activities and homework correction. But one important factor can't be neglected that each group could be proportionally composed of male students and female students psychologically so as to manage the group effectively.

2.2 To Correct Students' Homework and Assignments

It would be a very heavy job for teacher to correct homework and assignment just because of the large class. The writer of the paper once collected all the homework from the two large class totaling 150 students, and in fact, each homework takes teacher about ten minutes to correct it. This homework correcting is very effective, but it dose not work very well in reality. Because it will take teacher longer time to correct all the homework once, this means that students will have less exercises for required homework especially writing in English. The writer correct the homework of one or two groups to correct at random, or one class was used to require students in each group correct their homework mutually, then the student representative collected and handed in their problems existing in homework of their group, and finally the writer explained all the problems before the whole class. Nowadays with Internet increasingly popular, teachers of English language can also ask some of the students at random to hand in their homework or assignments on line, doing so could keep students from copying and making mistakes in spelling and grammar. The students who are not asked to do so will be required to do next time, and they must hand in all the assignments left by teacher, otherwise, they will be published by subtracting their peacetime score.

2.3 To Activate Students' Learning Initiative in Class

Without students' participating positively in class teaching, English language teaching in large class will make no difference in terms of integrated development of listening, speaking, reading writing and translating skills, therefore the key is to what degree which teachers of English language would motivate students' initiatives, interests and participation. But in fact, teachers would often find it so difficult to do this due to large number of students in a large class. It is feasible that the teacher could group the whole class into ten groups, which turns out much workable. Then the teacher could design couples of exercises or problems based on teaching materials for students to practice in class. If the teacher designs some quizzes for the whole class, one of student in a group could be a representative standing up to give the answers, or the teacher could walk to every group for students' opinions, then the teacher could explain these answers to the whole class, only by doing this way can most students take active part in class teaching. On the other hand, there are still a few students who

are less active in class, for such students the teacher should learn to be tolerant of them for their mistakes and even improper doings. What the teacher should do for them is to care more about and treat them positively. Occasionally dullness of the teaching materials will pose a strong impact on English language teaching in large class, the teacher would therefore do something different from usual teaching patterns. For example, the teacher can use the perspective-taking style in management that students are encouraged to go to the rostrum before the class doing explanations of the teaching material required, which proved more effective in the class of the writer of the paper.

2.4 Students' Attitudes towards Learning

In fact, what really counts for students' initiative and enthusiasm is their attitudes towards learning. Nonetheless, their initiative and enthusiasm are just a flash in the pan, requiring teachers' good care. As a result, top priority should be given to how to make students remain positive and enthusiastic about learning. B. F. Skinner, a psychologist professor of Harvard University, holds that some behavior could be strengthened or weakened or even eliminated through changing constantly external incitants. According to Skinner, there are four methods in management for doing so. First, it is positive enhancement meaning affirmations or awards are pretty indispensable to keeping some behavior going on. Second, it is negative enhancement meaning that possible consequences caused by improper or unqualified behaviors will be warned in advance so as to require people to continue or avoid such behaviors in line with the requirement. And next, it is to uncontrolled disappearance meaning no attention would be paid to some behaviors so as to let this behavior disappear or fade by itself. And finally, it is punishment that some coercive and threatening measures like criticism, demotion, fine are used to build a setting that makes people feel unpleased or painful, or to cancel the existing unsatisfactory conditions so as to deny some improper behaviors so that these behaviors won't take place once more. According to English language teaching practices, the last two measures will easily result in negative effect on students' learning English language, which is inappropriate to use comparatively.

2.5 Relation between Teachers and Students

In large class English language teaching, teachers would usually pay more attention to top students and few trouble makers, and at the same time would overlook the most students of the middle level, and in turn, they will passively lose their interest in teachers and English language learning just because of lack of sufficient attention paid by teachers to them, which will lead to the quality and effect of English language teaching. Equidistance care in modern management could provide teachers of English language with a reliable way to keep and develop the relation between teachers and students. The theory believes that management or employers should pay the same attention to staff or employees, like the core of the circle has the same distance to each dot on the circle. When handling the relation with students, teachers should take into consideration the whole class especially those trouble makers, whether the teacher neglects them consciously or unconsciously will cause them to think that they

are not the part of the class, which would make teachers fall into a passive position, let alone educate them. Better communication with students through various channels will largely facilitate teachers' class teaching and implementation of teaching objective.

3 Conclusion

English language teaching in large class differs according to local conditions. Teachers would make some changes based on the quality and quantity of students in English language class and find out more suitable management measures to the specific class. However, the writer of the paper would hope that large class will finally vanish with teacher resources, supporting policies and construction development in higher education.

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Analysis on Deficiencies and Countermeasures of Using Computer Multimedia in English Teaching

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Abstract. Nowadays, the high development of modern science and technology makes using computer multimedia in English teaching possible. Besides, English teaching assisted by computer multimedia becomes an inevitable trend and most urgently demand of the 21st century. It is so effective that it breaks through the limits of traditional English teaching methodology and helps students get benefits from its wide using. However, during using it, there are still some deficiencies. This paper tries to briefly analyze the deficiencies and the advantages of using computer multimedia in English teaching and put forward some corresponding countermeasures to solve problems.

Keywords: Computer multimedia, English teaching, Teaching strategies.

1 Introduction

Today, modern science and technology are highly developed. In order to adapt to rapid development of information age and social needs of high-level talents, cultivating comprehensive English competence of modern college students has become a primary objective of college English teaching. Widely using computer multimedia in English teaching is undoubtedly regarded as an effective method so that English teaching does not just stand upon simply teaching words and syntax to the students and requires students to obtain English knowledge and use skills through a series of activities like system learning, induction and analogy, communication and interaction etc. to cultivate their innovative thinking ability. However, there are some deficiencies during using computer multimedia. For example, the courseware is easy to be routinized without innovation; the amount of information is easy to be too much so that the students are difficult to master all knowledge in time. Therefore, in this paper, a brief analysis is made for advantages and deficiencies of using computer multimedia in English teaching and teaching strategies of solving problems.

2 Advantages of Using Computer Multimedia in English Teaching

2.1 Activate Learning Enthusiasm of Students

Computer multimedia can increase teaching performance and completely activate enthusiasm of students learning English. In classroom, the teachers can make full use

of features that computer multimedia possesses strong sense of image, intuitive sense, three-dimensional sense and dynamic sense to blend some obscure syntaxes and lexical semantics theories into beautiful images, hot music and funny video animation and create an easygoing and enjoyable teaching situation to activate learning interest of students farthest. For example, one complicated long word comprising more than twenties words is difficult for students to read and memorize it. However, on multimedia devices, the teachers can use many methods to explain visually its meanings to the students by means of picture, paint even animation. At the same time, the students can also like this course from vivid answer so as to improve greatly learning enthusiasm.

2.2 Optimize Traditional Teaching Model

For traditional blackboard teaching, when the teachers teach some language knowledge, if necessary, essential writing on blackboard is required. Both can only be done in limited time and space. Frequently, after one class, teachers' writing on blackboard is equivalent to the content of a few blackboards. It seems to be rather stiff and difficult to express intrinsic link between knowledge points. However, by using computer multimedia to assist teaching, the teachers can make full use of its dynamic expressive force to vividly reproduce syntax and grammar that have been obscure on projection screen so that teaching content becomes vivid and traditional teaching model is optimized and teaching methods are more diverse.

2.3 Promote Students to Cultivate Innovative Thinking

“English is Waltz of language thinking.” English teaching is not only a process of propagating language knowledge, more importantly, but also a process of cultivating English quality of students. In teaching, by using the features that computer multimedia can change static state into dynamic state, abstract state into visual state, on the one hand, vividly reproduce creation, development and formation of knowledge to promote development of imaginable thinking capabilities of students; on the other hand, break through the limitations of traditional teaching, realistically simulate thinking world of human, guide the students to listen carefully and seriously think the problem in English, multiply characterize the objects to be expressed, boldly make an attempt and boldly make a guess, promote development of multi-directional thinking and divergent thinking of students, expand imagination and cultivate creativity.

2.4 Increase Information Capacity in Classroom Teaching

Firstly, large amount of information covered by multimedia courseware solves the problem that the students have not more free time to read relevant extra-curricular books so as to go over classroom teaching due to little out-of-school time. So classroom teaching content is extended and consolidated. At the same time, classroom teaching content of teachers looks high density and large capacity. Secondly, English teaching as one of the most basic and important classroom teachings, after finishing the content of classroom teaching, requires teachers to make certain time to present and deal with after-school exercises so as to extend and consolidate new knowledge.

Using computer multimedia in English classroom teaching successfully solves this problem. Because computer multimedia possesses strong dynamics and interaction, large and fast transmission of information, the time when the teachers explain the content, write on the blackboard and wipe the blackboard is saved so that teachers have more time and energy to organize classroom activities, which optimizes not only ‘teaching’ of teachers but also ‘learning’ of students. Let the students efficiently and quickly acquire knowledge, easily and pleasantly learn knowledge so as to bring double effects.

3 Deficiencies of Using Computer Multimedia in English Teaching

Although using computer multimedia in modern English teaching brings vitality to the whole class and fills new vital force into traditional teaching model, some problems still become very conspicuous during application.

3.1 Ignore Acceptance and Understanding of the Students

Although using computer multimedia in English teaching can save the time when the teachers explain the content and write on the blackboard, accelerate teaching rhythm and increase the density of propagating classroom information, sometimes, the condition that haste makes waste also occurs. In classroom, the teachers use screen presentation instead of writing on the blackboard, click the mouse, along with explanation, keeping lively rhythm. Presentation one page by one page cannot ensure enough visual residence time for the students. Frequently, the students look the latter pages and forget the front pages so that they do not have time to sublime seen substantive knowledge to rational knowledge. In addition, one slide has very limited capacity so as not to completely show entire course of analyzing longer sentence and explaining its meaning so that thinking of students is interrupted logically. Either while the students are thinking about the issues on this page, the next page or even the next few pages have been shown on the screen; or while students are absorbed in thinking process of analysis, standard answers are shown on the screen---- analysis methodology, steps and results. So the students could give up their thinking, which is adverse to independent thinking of students.

3.2 Modeling and Routinizing of Teachers’ Teaching Methods

Because a large number of applications involving computer multimedia are introduced into English teaching, teachers’ attention is diverted. They do not just pay attention to explaining thoroughly knowledge in textbooks but inadvertently only care about the screen. Past relationship between teachers and students becomes that of human and machine. The teachers gradually think a lot of quality of courseware. Sporty and colorful courseware is born. However, each class is finished in reading and showing slides without deep analysis and explanation. The teaching becomes one kind of procedural recitation. Teaching methods lack of creative point and modeling teaching methods gradually appear. The teachers cannot give play to their level and characteristics during teaching and mode of teaching thinking is gradually simplified.

3.3 It Is Adverse to Improve Comprehensive English Level of Students

Most of English courseware is designed according to teaching links of “review old knowledge”, “introduce new class”, “teaching process”, “consolidation and exercise”, “summary”, and “homework”. So it is only required that the teachers show and explain it step by step according to established procedures. In so doing, for text analysis, sentence explanation, paragraph summary and grammar interpenetration, the students can only see screen presentation and cannot see orderly detailed analysis process. In particular, spoken exercise of students is reduced remarkably. The teachers maybe let the students make use of multimedia to exercise listening. However, because the attention of teachers is diverted, oral communication with the students is seriously deficient. During the whole class, you can see teachers and cannot hear their sound. The students cannot answer the question and do “open mouth” exercise. As a result, a large number of “dumb English” appear. Also, for example, it is very difficult to explain and analyze long sentences and complex sentences. If the students do not see that the teachers finish detailed demonstration and analysis step by step on the blackboard, they are difficult to master successfully them. Proverbially, “see once better than listen once, do once better than see once”[1]. The teachers write on the blackboard and the students really learn it with hands on experience, which can achieve better results. If the students do not see entire operation of teachers, such courseware only focuses on presentation and ignores formation and development of knowledge and process of analyzing and solving problem. At long last, finally result in that the students do not master completely knowledge and their level of comprehensive ability is difficult to be improved.

3.4 Uneven Level of Multimedia Production

With modern network being highly developed, network resources are shared and information exchange is frequent. Many multimedia courseware come from internet so that some courseware focuses on too sporty content rather than quality of courseware; some courseware is so rigid that the students are easy to feel sleepy; some courseware is unrealistic because too much amount of information is difficult for the students to digest them. All that shows that the content of courseware, the level of production and quality are uneven. Even making copies by writing is prevailing among some courseware. During teaching, the process of analysis layer by layer from phenomenon to nature in traditional English teaching is gradually ignored and learning effect of the students is ambiguous. It is very adverse to carry on teaching in depth.

4 Improve and Enhance Teaching Strategies of Using Computer Multimedia in English Teaching

For above-analyzed deficiencies of using multimedia in English teaching, how efficiency of multimedia is showed more effectively in English teaching, how to learn from others' strong points to offset one's weakness, how to take the essence and discard the dregs, how to better serve for teaching and students, the author believes it should start with the following aspects:

4.1 Increase Communication with the Students and Do Good Research

Firstly, computer multimedia shall be produced strictly according to the requirements of syllabus and cultivating program of the students. New “English Curriculum Standard” shows: English curriculum is required to not only develop language knowledge and skills of students but also cultivate positive emotional attitude of students. English curriculum shall play special role in developing emotional attitude of students. Therefore, the quality of one class does not lie in the level of producing teaching courseware but lies in if the students understand it and master 45-minute narrative including rational understanding and perceptual awareness. Final objective is to apply their knowledge. Therefore, without doubt, the students are in principal status and multimedia is only auxiliary means. It shall correctly deal with the relationship between multimedia is applied and the students understand and master knowledge.

Secondly, listen to more feedback of the students. Each teacher shall have certain contact with his student to explore different characteristics of the students. It is very important for the students to understand teaching content. The feedback of the students is the most real and actual. Only if the teachers learn thinking of the students, they can know what is taught. What’s more, main purpose of applying multimedia in English teaching is to let the students learn English better and improve their comprehensive level of English. Therefore, in spare time, it is very necessary to communicate with the students, exchange learning opinions and feedback difficulty level of teaching so that it can make good use of multimedia to serve for teaching English.

4.2 Correctly Deal with the Relationship between Using Multimedia in English Teaching and Traditional English Teaching

Teaching process is actually a process of emotional communication and to eye with the soul. Using multimedia in English teaching changes the concept that a piece of teaching plan, a piece of chalk, a piece of blackboard and a mouth can finish teaching task to offer one new method for teaching. However, while computer multimedia teaching is advocated, to recognize: it is just teaching aid and the purpose is just to make up for the shortage “one book, a piece of chalk, a piece of blackboard”[2] of teachers during teaching rather than to deny and replace traditional teaching methods, hence, say good-bye to book, blackboard and chalk so that it is only required for teaching to knock the keyboard and click the mouse. Language, facial expression, gesture and writing on the blackboard of teachers are always the most active factors to connect with instructional media. Necessary writing on the blackboard and language are critical to emphasize key points and solve difficulties and cannot be replaced. A variety of English teaching methods have their own characteristics and unique features. In teaching, these methods are complementary to learn from others' strong points to offset one's weakness. Only if computer multimedia is combined with other English methods organically, better teaching effect can be obtained. For example, analysis and explanation of key points and difficulties in texts, main texts, sentences, grammars and common difficulties reflected in homework must be finished by writing on the blackboard. Therefore, since traditional teaching methods can obtain good

effect, it is unnecessary to use computer multimedia deliberately. For example, using computer multimedia can easily solve introduction of background knowledge of the author, text import, history overview and teaching plan etc. The effect is dynamic and intuitive, which can help the students understand it more deeply and traditional teaching cannot achieve it.

4.3 Good at Summing Up, Promote Good Experience of Using Multimedia, Create High-Quality Courses

With technological level and economy being highly developed, an increasing number of national funds are put into education field and the rate of increasing is also rising. What is most important in the 21 century? Without doubt, the talents are the most important. All colleges and universities “strengthen internal work, promote development” strive to cultivate all-round and compound talents. In order to build universities into first-class universities, strength construction of software and hardware at the same time, in particular, take pains to strength construction of hardware.

By means of such vernal breeze, computer multimedia is popular in each classroom. English classroom focusing on teaching and exercising is closely linked with multimedia applications. Many lively and splendid English classes against the background of exquisite courseware aggregating intelligence of teachers show extraordinary splendor and become classics[3]. Therefore, the teachers shall be good at accumulating such excellent examples that are prepared elaborately and realistic and learn from their strong points to offset own weakness according to own characteristics to build them into excellent class and exemplary class. Through large class and small class, interaction and complementary of independent learning and classroom teaching, English teaching is developed into independent and individual mode without the restrictions of time and location so as to obtain optimal teaching effect and improve comprehensive English competence of the students. Finally, promote them among colleges and universities, carry on wide communication, mutually beneficial from what has learned and share resources.

4.4 Establish a Scientific and Reasonable Evaluation System for Using Multimedia in English Teaching

At present, evaluation system of computer multimedia-assisted English teaching in colleges and universities is still incomplete. Inappropriate evaluation system often leads to utilitarian behavior. Especially, in “English public course” appraise through comparison, using computer multimedia as teaching method is often regarded as main basis of evaluation. In order to win the awards, for some teaching contents applicable to traditional methods, the teachers also strain a point to use computer multimedia. As a result, mechanically simulate and obtain adverse effect[4]. As is well known, evaluating if one class of computer multimedia is successful is weighted mainly from educational, scientific, technical, artistic and practical aspects. The standard of one high-quality class of computer multimedia is: firstly, key points and difficulties are conspicuous, which is favorable for the students to understand knowledge, activate their learning enthusiasm and initiative, innovate their thinking and train their skills; secondly, correct content, strict logics, clear hierarchy, image simulation, courseware

presentation in accordance with modern educational philosophy; thirdly, diverse media, appropriate select material, proper setting, novel creative idea, ingenious conception, reasonable rhythm and brief interface; fourthly, interactive teaching, tacit interaction between teachers and students and good response of students. Only such evaluation system established according to above standards can truly effectively promote application of computer multimedia in English teaching to develop forwards.

5 Conclusion

In a word, at present, modern educational methods are continually popularized and applied. Using computer multimedia in English teaching is regarded as a modern educational method and its status is gradually rising. This method becomes increasingly sophisticated. However, at the same time, some unprecedented new problems will be encountered in specific application process. As English teachers, we shall be rational to face with them. It requires English teachers continually make attempts, summarize experience, exploit to the fully one's favorable conditions and avoid unfavorable ones, find a more comprehensive and scientific teaching model to more effectively finish English teaching task. What's more, the author believes, in network environment, with continuous development, using computer multimedia in English teaching as a part of information engineering will become more perfect and show its unique charm so that the students can obtain higher learning efficiency.

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The Analysis of Examination Grade for Mechanics of Materials under Credit System

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Abstract. The method of “oral+written” model has been taken in the reform of mechanics of materials examination both in the contents and form in order to meet the development of school’s credit system reform, combining with the actual situation of the students, which will guide the students to study actively, exercise their ability of analyzing and solving practical problems, cultivate their innovative spirit and improve their comprehensive quality.

Keywords: Qualification Examination, Proficiency Test, Normal Distribution, Credit System.

1 Introduction

These two years, to meet the development of school’s credit system reform requirements, according to the actual situation of the students ,the method of “oral+written” model has been carried out during mechanics of materials examination in several classes with more class hours in the major of mechanics. The specific methodology is as follows: Take oral test a week after the course as qualification examination and the results divided into “pass” and “fail”. Ask five exercises of homework randomly, 60% correct passed, or else failed. Only those who pass the qualification examination could participate the following proficiency test.

Take the final examination as proficiency test to assess the application ability of the basic concept, theory and the method of the course. The exam takes the form of closed-book proposition test and accounted for 40% of total score.The paper discusses a new type of examination model as well as teaching comprehension to accumulate experience for better improving teaching quality.

2 Oral Test Is a Good Way to Evaluate the Fundamental Knowledge

As a important basic specialized course, mechanics of materials plays an essential role and directly affect the study of following specialized courses. The huge information, various disturbing formulas, requirement of good abstract thinking ability and the

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continuous reduction of the total class hours make it more and more difficult to teach the course well. Thus, on the one hand we reform the teaching contents and methods to ensure most students master the outline specified knowledge; on the other hand, we actively explore relevant examination method so as to guide students to study actively and cultivate their innovative spirit.

Oral test is a good way to evaluate the fundamental knowledge. Firstly, it can efficiently prevent copying phenomenon. During the previous exams, ordinary evaluation depended on the situation of homework, so it is hard to differentiate the original writers from plagiarists. Sometimes, there are few homework versions. It is unfair to those original writers and teachers can do nothing about this. During the oral test of 76 students, we found 21 of them can answer nothing, or even said “the teacher said so”, however, their homework were well done. It is obvious that they copied. Some students even copied the clearly wrong symbols, which shocked us most.

Secondly, through the conversation and communication between teachers and students, not only teachers could know the actual situation of the students, teaching and the existing problem, but students could better realize themselves, find the distance from the requirement and strengthen the weakness while preparing the exam. This can also fulfill one of the purposes of the exam – feedback of teaching.

As the first trial, the first failed students were allowed to take another qualification exam after completing all the exercises. It is accepted by the majority of students and they can realize the importance of usual accumulation. The biggest benefit of the qualification examination is that it can ensure the teaching quality required by the basic teaching, thus, it was commonly accepted in the department. And the method was generally used in some other schools, playing a good role in preventing copying and reducing the rate of fail.

3 Proficiency Test Is the Embodiment of the Students' Innovation Ability

Qualification exam makes students pay more attention on classroom teaching and homework. Once he has passed it, he can get the credit score, which dispel the accidental factors such as nervous and anxious in proficiency test, so it can more objectively and truly reflects the actual level of the students. This also reflected another purpose of exam-the essential method of developing intelligence.

Because of different levels, those whose basic knowledge are poor are still hard to pass the previous exam though they study hard. But qualification exam can efficiently avoid this situation. It guides these students to focus on the book and exercises, and to master the basic knowledge well. For those who have better background, the exam inspires them to be better, encourages them to think deeper and cultivates their innovative spirit. Therefore, it is really helpful to carry out “one classroom, multi-level teaching”. The proficiency test evaluates the students’ practical application ability of theoretical knowledge, requires fully understand the knowledge and well summarize the points of each chapter. It helps students to absorb the knowledge from the book so that they could connect the theoretical knowledge with practice, which is another vital teaching purpose.

3.1 Analysis of the Examination Results

The examination results of two class are chosen as illustrative example, the value of the grade statistics was shown in Tab.1. They both obey normal distribution approximately as shown in Fig.1, which is the column diagram of the students' grade, the horizontal ordinate is the grade segment divided five segment: 50-60, 60-70, 70-80, 80-90, 90-100 , and vertical ordinate is the number of students in this grade segment. The total students are 76.

Table 1. The Statistic of grade

| Class | class 1: | Class 2: | Toal |
|----------|----------|----------|--------|
| μ | 69.447 | 71.842 | 70.645 |
| σ | 10.524 | 8.7368 | 12.32 |

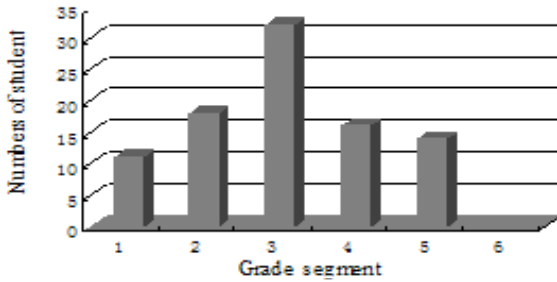


Fig. 1. Column Diagram of Students' Grade

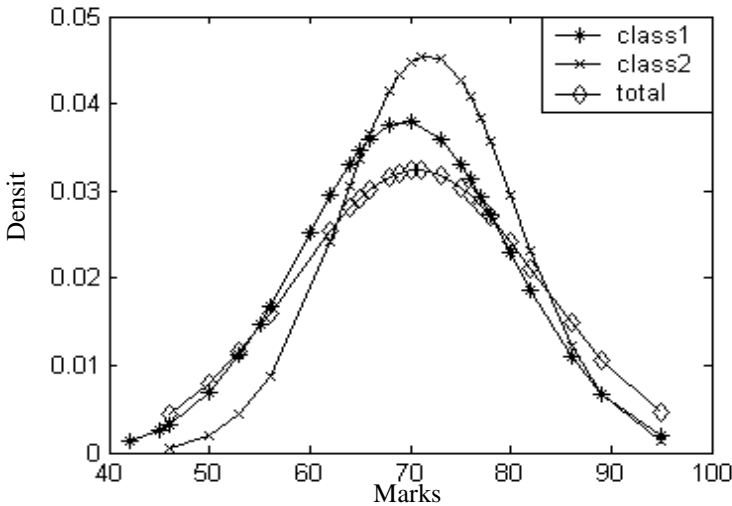


Fig. 2. Diagram of Normal Distribution

The relationship of DSTDEV and the Density of distribution was shown in Fig. 2. These curves show that students' results distribute normally and the test paper is proper. That also indicates the rationality of this evaluation method. As for class 1, the mathematical expectation $\mu = 69.744$, and the DSTDEV $\sigma = 10.524$, as shown in, compare the two classes, the class 2 is better than class 1.

3.2 Feelings and Response of Students

Most of students think the evaluation method is reasonable and could be popularized in many courses, while a few think the method lack of fairness because different teacher choose different question and the results also has differences. But this is just superficial phenomenon; different questions investigate the same knowledge from different aspects. If you master the essential contents, every question is the same, for teachers have decided uniform knowledge points and test standard. The following are feedbacks from anonymous students:

Student A: "students are accustomed to the previous exam form, usually not serious, the homework are copied, cram for the exam and rely on various cheating ways. But oral test can better overcome truancy and copying because most test contents are the points explained by teachers or exercised in homework. It is hard to pass if you do not go to class, do not take notes or copy homework; On the other hand, it improves our expression ability and change-handling ability, it should be advocated. Shortage: The difficulty is not the same and the fairness is hard to control."

Student B: "I think the new assessment method is good overall Written exam can only reflect whether students have master the points, but could not indicate how well. Written exercises may be solved just by remembering the formulas or substituting into an example, but finally still does not know how to analyze. Oral test can recover the shortage well and essentially emphasizes the importance of understanding, which inspires students' interest of review. So I think it is necessary to promote the examination method."

Student C: " 'Oral+written' assessment method is so flexible that it can evaluate the depth and breadth of knowledge you learnt as well as psychological quality. Some students' psychological quality is poor, and they forget the knowledge they knew when facing the teacher. The new exam model forces us to improve psychological quality, which is essential for us to move towards the society. I think this method can fully arouse students' enthusiasm, lay solid foundation, then consolidate and deepen the basis, make themselves comprehensively master knowledge."

In a word, we have deep experience on the reform of this assessment mode. On one hand, guide students to understand instead of memorizing formulas and studying mechanically via change the assessment mode, which in favor of cultivating students' ability; on the other hand, it also requests teachers to prepare carefully, be faire and just, and take an uniform standard so as to evaluate actual level of the students. We agreed that this assessment method is more reasonable and suitable for the modern teaching.

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Discuss on the Teaching Reform of Photogrammetry Course Based on Data Processing Flow

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Abstract. This paper first analyzes the teaching status of photogrammetry course of surveying and mapping major in Jiangxi University of Science and Technology, and then proposes a new teaching method based on the processing flow of photogrammetry. At last obtain a very good effect in teaching practice of 2008 grade students by optimizing the teaching content.

Keywords: Photogrammetry, Processing Flow, Teaching Reform.

1 Introduction

With the development of photography technology, most surveying and mapping major and correlative majors have opened photogrammetry course in China, bring up a large number of researchers and teachers, and boosted the development of photogrammetry and remote sensing science. And many researching or teaching organizations develop or purchase digital photogrammetric system, such as: Virtuozo3.5, JX4 etc. But during teaching practice, the students cannot understand the realizing principle of different functional software modules, so it has become a very important and rush settle problem for teachers that making the students not only understand and master the principle of photogrammetry, but also can expertly use digital photogrammetry system. On the basis of many years teaching practice and Virtuozo3.5 photogrammetry system software, we reform the teaching method and content according as processing flow of photogrammetry in 2008 grade students of surveying and mapping major, and get a very good teaching effect.

2 The Teaching Status of Photogrammetry Course

In our university, we decompose the photogrammetry course into three parts: theory teaching (4 teaching hours in a week, and summed 44 teaching hours), experiment teaching (summed 12 teaching hours) and a week data processing practice using Virtuozo3.5 digital photogrammetry system software to produce 4D products. The

emphases of theory teaching includes: single photo analytical principle, two photos analytical principle, aerial triangulation principle and digital photogrammetry. Experiment teaching includes: coding space resection program, using block adjustment software and Virtuozo3.5 digital photogrammetry system. Many years teaching practice indicates the traditional teaching method have some disadvantages.

2.1 The Content of Theory Teaching Too Abstract

The main content of theory teaching part is illuminating the formulas of imaging geometry transform, and corresponding teaching tools are power point, blackboard and some simple prop. But these tools cannot fully express the geometry transform between 2D image space and 3D object space, so students cannot thorough understand the imaging geometry relationship and lack a sensibility understand of aerial photos processing flow.

2.2 The Relationship between Theory and Practice Too Relax

The main content of practice teaching is training students expertly operate and use Virtuozo3.5 digital photogrammetry system software. Due to this software has good user interface, most processing task can be completed by loading menu, only require users remember some operate steps. So the students cannot thorough understand the basic principle of photogrammetry, even some students think that: practice teaching is enough and theory teaching is useless.

2.3 The Students' Programming Ability Needs Strengthening

Considering surveying and mapping major's main work is processing different kind data, we open some computer science and technology courses, such as "Database technology and Application", "Computer Height Level Programming Language C#" etc. which provides a very wide development space for graduates. But because lack of special training during these courses, students' ability solves practice problems by programming is weak.

3 The Reform of Photogrammetry Course

3.1 The Prepare before Teaching

To make sure actualize course reform all rightly and improve the study efficiency, we do sufficient preparative before teaching course. We group these 72 students into 9 teams, and select an excellent student as monitor to take charge of organizing study, discussing the teaching content and encoding experiment program. Through common endeavor, the students not only expertly master the principle of photogrammetry, but also improve ability of solve real problem by programming and team up working ability.

3.2 Adjust the Teaching Content and Sequence

To integrate closely the theory teaching and practice teaching, we adjust the teaching content and sequence according to the processing flow of Virtuozo3.5 digital

photogrammetry software, make sure the students have a system understand to the processing flow of photogrammetry system software and provide a good basis of programming. Table 1 is the new teaching arrange after course adjusting.

Table 1. Table of teaching content and arrange

| Chapter | Main content of theory teaching | Teaching hours arrange | Practice content and time |
|---|---|------------------------|---|
| Chapter 1 : Introduction | Introduction the definition, task, class and development of photogrammetry | 2 Hours | —— |
| Chapter2: The prepare work of photogrammetry | Aero photogrammetric field operation, and basic concept | 4 Hours | Reading different format image files (2 Hours) |
| Chapter 3 : Interior Orientation, Relative Orientation and Absolute Orientation of Photogrammetry | Rotate transform of coordinate system; Collinear equation; Interior orientation of aerial photo; Space resection of single image; Stereo images principle | 12 Hours | Forward intersection and space resection (2 Hours) |
| Chapter 4: Feature extraction and stereo matching theory and algorithm | Digital image feature extraction; Image correlation principle and stereo matching algorithm | 6 Hours | Line feature extraction (2 Hours); Correlation matching (2 Hours) |
| Chapter 5: DEM, DOM and contour line produce | The concept and method of digital differential rectification; DEM interpolation method; TIN and DEM Application | 6 Hours | Indirect method digital differential rectification (2 Hours); DEM interpolation (2 Hours) |
| Chapter 6: Digital plotting | The collect, edit method of vector data and field investigation | 8 Hours | —— |
| Chapter 7: Marriage of DEM models and output of production | The theory and methods of images mosaic and fusion | 6 hours | —— |

3.3 The Actualizing of Reformed Teaching

The teaching mode became discussing integrate listening, we select a topic before teaching, give students enough time to search literatures and prepare speaking. In the

lecture, each team select a delegate to give speaking, then quiz and discuss random, at last do a summary about this topic. This teaching mode not only brings up students' self-study ability and innovation ability, but also team-working ability. And the teaching practice result show that students are very favor of this teaching mode.

4 Summary

Photogrammetry is a theory and practice integrated closely course. Through course reform, we adjust teaching content, sequence and method; pay more attention to program experiment about important concept and method. And the teaching result indicate that course reforming is very successful, improves the students' theory and practice ability, enhances their programming ability, boosts up their predominance in obtaining employment.

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Suggestion on Automotive Specialized English Teaching

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Abstract. Specialized English is a course that gaining specialized information by reading Specialized English documents. With the development of auto industry, more emphasis should be put on automotive specialized English teaching. This paper investigated the current status for this course. Based on characteristics analysis, reform strategy was proposed to improve the development of both this course and students ability. Strategy showed that course emphasis should be put on learning ability development, text book development and teaching method improvement.

Keywords: Automotive, Specialized English, Teaching, Suggestion.

1 Introduction

Specialized English is a course that gaining specialized information by reading Specialized English documents. It mainly adopts English to carry out the knowledge teaching, and the related documents are mostly the knowledge that the students have already known and grasped. This kind of course aim at training the students' ability of utilizing Specialized English and combining specialized knowledge and the language English. Therefore, Specialized English is neither like the basic English teaching nor like normal specialized courses[1].

Nowadays, social productive forces has developed highly, economy integration has been to be the general trend, which has brought forward higher requirement to new century talented people. Specialized English teaching is one kind of means adopted by China education to adapt to times needs. Ministry of Education in September,2001 has been promulgated "some ideas about reinforcing the teaching job of colleges and universities and enhancing the quality of education", requiring clearly that colleges and universities should "to create condition in education, using English carries out common class and specialized course teaching ". Form that, English teaching in specialized courses has become very popular in China College education reform, and universities and colleges all over the country participated in this education reform practice[2].

The automotive industry is expanding very fast to meet the ever increasing demand at home and abroad, and playing an important role in the Chinese economy. Up to 2009, China was becoming the largest auto consumption country in the world[3]. All the big Chinese motor companies have joint-venture programs with American, German and Japanese motor companies. The company language used is usually English (For example, the Japanese motor company NISSAN, an international

company, has French and Brazilian high level officials and employees, and English is the company language). There is a great potential for the English majors to gain employment in the motor joint ventures. Additionally, a great quantity of technical documentation of the field, such as motor service manuals or instructions, needs translating from English to Chinese or from Chinese to English.

Automotive components are very heterogeneous and a clear cut classification of products is impossible. Electronic and plastic components are involved, apart from the metal components. Modern motor vehicles are equipped with more and more electronic devices in such systems as ignition, transmission, braking, display or climate control, resulting in more subject knowledge and more lexicons.

The purpose of Specialized English course is to teach the students the basic knowledge of the automobile and necessary vocabulary, so that they can work for the industry, and have more employment opportunities. This paper focused on the teaching method to improve the learning result of this course.

2 Current Status of Specialized English Teaching

Mostly, this course is open to the junior and senior students, usually after passing the national CET-4. This course is accompanied by a lot of specialized courses in auto technology. As the emphasis of study both mentally and physically are weakened, students usually put less effort on this course, which results in lower output. The reason can come from the following reasons.

2.1 Unclear Teaching Purpose

For most of the time, less focus was put on the course of Specialized English, especially the teaching purpose, which weakened the status of this course in the whole course system. Without clear teaching purpose, the teachers can not guide students to realize the importance and aim of the course. The course was thought as translation task, which should be used as a tool to proceed further exploration on auto industry.

2.2 Lack of Good Teachers and Proper Textbook

Specialized English is usually assigned to specialized teacher in auto industry, few of which have adequate training on English teaching. The teaching level of the course cannot meet the requirement. Most of the time, teachers can only teach following the textbook with few creativity. However, the textbook is out of time. Many 1990's book was used, not the update version. Some just imported book from abroad. And some used self-edited book. All of these book are lower in lingual, educational and psychological guidance, which are hardly to arouse the interest of students.

2.3 Rigid Teaching Method

Traditional teaching method, characterized in dominated speaking and teaching by teachers. Main contents were always the same, including vocabulary, grammar and translation. Students were passive receiver, not active participants in class, resulting in lower learning initiative, less thinking and feedback. Classroom teaching is made

up of teaching and learning. It is a bilateral activity that teachers and students must join in together. Its form isn't monologue but dialogue.

Furthermore, class teaching emphasis were put on reading and translation, but not speaking and writing. The application ability of Specialized English is low for most students, which affect the future development of students after graduation[4].

3 Characteristics of Specialized English

3.1 Purpose

The purpose for this course is lingual teaching, based on different majors. For automotive industry students, the purpose is to gain the ability of reading English academic literature to obtain update information and technology in auto industry, and improve the ability for academic communication.

3.2 Industry Based Learning

Specialized English teaching should be determined by industry demand. The course content, textbook, arrangement of teaching activity should be industry oriented on auto industry. Therefore, course content should include both the basic theory and latest technology development in auto industry, thus to provide update information for students.

3.3 Low Teaching Hours

Usually, teaching hours for auto Specialized English is 32 hours, which is far less adequate to maintain ideal teaching effect. Thus, teachers are not only the spreader for text information, but also instructor for learning method. Focus should be put on developing the ability of effective study and rational learning management. However, most of the teachers spend a lot of time on vocabulary, grammar and translation, but not ability development. Consequently, students' initiative and interest for the course reduced, which deteriorates the status of Specialized English.

3.4 Unique Vocabulary, Expression and Text

Compared to public English, Specialized English has unique vocabulary, expression and text. The language feature for this course is abundant vocabulary, long sentence and complex structure. Thus, this course seems boring and difficult to students. The using of Edutainment Technology is quite essential to improve students' initiative and interest[5].

4 Teaching Method Reform of Specialized English

4.1 Teaching Should Be Closely Connected to Technology Development

The purpose for this course is to develop the ability of Specialized English learning and communication for future career. Therefore, teaching should be closely connected to technology development. Beside the basic theory and structure, efforts should be

put on latest technology development, especially new terminologies. As the rapid development in auto industry, new terminologies are more and more imported to Specialized English, which are not shown in text book or dictionary. These information should be added to teaching content.

4.2 Heuristic Education Method

The common method for Specialized English teaching is expository method, which can give students a lot of information in limited time, with lower teaching effect. This method is one-way information transfer, which significantly reduces initiative of learning from students. Furthermore, a great quantity of vocabulary, complex sentence and longtime translation can gradually drive students out of the door of learning.

Heuristic education method is an useful solution. Heuristic education emphasizes not only on information transfer, but also ability development of learning and communication. Students are thoughts as active participants in teaching and learning, which makes the two-way teaching and learning. The key for this method is to create problem situation. Problem situation is a learning situation, with established difficulty suitable for the ability of student to solve. The using of this method can obviously improve the ability of students on problem solving, thus to enhance learning initiative and effect[6].

The key point for this method is to create proper situation, without opposite effects. If it is too hard, students will get frustrated, resulting in initiative reduce. Students will lose interest when it is too simple. Only medium problem situation is proper for students.

4.3 Develop Proper Textbook

Suitable textbook is the another important factor. Teaching should not be just the selected textbook. Teachers should include more different Specialized English books in automotive, to give a comprehensive understanding of English teaching. Both domestic and abroad book should be taken into consideration. Good command of knowledge both past and recent is essential to teachers, in order to apply to teaching. Based on different material, a suitable textbook for auto major students should be developed, based on students' and teachers' level and latest technology development.

4.4 Grasp Key Teaching Points, Evolutionary to Form a Positive Teaching Cycle

Auto Specialized English is not only auto content oriented, but also a lingual course, with similarity and unique feature compared to basic English. Basic vocabulary, expression and grammar form the foundation of Specialized English. Some of this information should be added to students. The main focus on this course is auto technology oriented, auto based vocabulary, expression and special sentences, thus to improve ability on reading, speaking, writing and translation.

Auto Specialized English teaching includes three stages, induction, fitting and improving. Based on teaching schedule and students' ability, proper arrangement of teaching should be done. For the induction stage, some easy material can be included.

Teaching content should be arranged from shallower to deeper, with emphasis on vocabulary. For the fitting stage, literature from English journal should be added, with emphasis on article reading and comprehension. For improving stage, text book is main concern, with emphasis on update to include latest technology development on auto industry. This stage should improve the ability for specialized knowledge acquisition.

Conclusion

As an useful course, emphasis should be put on auto Specialized English, to catch up with fast developing auto industry. On the limited teaching hours, teachers should not only have good command of both English and academic knowledge, but also should guide students to improve learning ability, use proper teaching method, and emphasized teaching management, thus to improve teaching result of auto Specialized English.

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Teaching Reform and Practice of “Navigation Technology Development Conspectus”

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Abstract. In order to understand and master the basic knowledge of navigation, the elective course “Navigation Technology Development Conspectus” was offered for the undergraduate in the university of aeronautics and astronautics. The course was less time occupation, large information quantity, and wide field coverage. On purpose to guarantee teaching task and effect, four approaches were completed in practical teaching. The practical teaching shows that the elective course improves classroom teaching effect within current class hours.

Keywords: Course teaching, Navigation technology development, Reformation and practice.

1 Introduction

It gives rise to an increasing amount of demand of high quality education, since the development of information technology. The most important method of improving the teaching quality is to learn the principal law of the course teaching and improving the teaching skills. Based on the course characteristic and the student personalities, a lot of teachers have introduced some novel teaching approaches, and the effect is satisfied[1-4].

“Navigation Technology Development Conspectus” is a University-level public elective class for all undergraduates. This curriculum mainly introduces the origination, development and application of navigation technology, which establishes foundations of senior courses.

This curriculum covers extensive field, including ancient navigation technology which uses simply tools and comprehensive astronomy geography knowledge, inertial navigation technology which features military affairs, widely used radio navigation technology, fast-developing satellite navigation and positioning technology, graph and image matching technology based on physical geography and digital navigation technology based on multiple-sensor information fusion, etc. Besides, this curriculum has totally 16 class hours and has no fixed textbook. The main audience of curriculum is freshmen and sophomore (as shown in figure 1). They are from different disciplines and majors, and they do not come into contact with their professional knowledge yet. Hence, how to get students into an overall mastery and total understanding of the origination and development of navigation technology is the difficult point during the process of teaching.

In order to make undergraduates who hardly have professional related knowledge get a better understanding of the origination and development of navigation technology, a novel teaching method is adopted for the “Navigation Technology development Conspectus”.

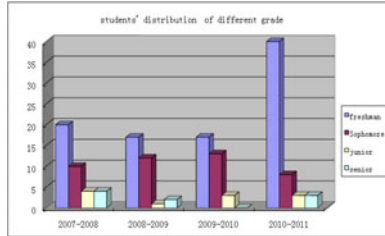


Fig.1. Grades allocation graph of students who take this course for different academic year

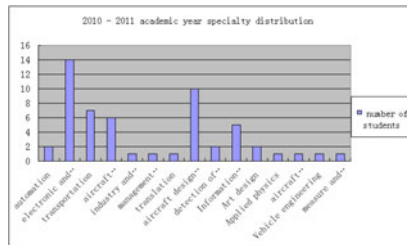


Fig.2. Professions allocation graph of students who take this course for 2010-2011 academic year

2 Intensifying Students’ Understanding of Navigation Technology Development by Taking the Navigation Technology Development as Teaching Masterstroke

This curriculum mainly introduces the origination, development and application of navigation technology. It involves many contents, including the ancient geonavigation, the ancient astronavigation, the ground-based radio navigation, satellite navigation, inertial navigation, terrain aided navigation, vision navigation, integrated navigation and digital navigation, etc. If the organization of contents is improper, it will give students a disorder feeling and they would not know how to grasp the key points. Therefore, the curriculum has to be planned as a whole, taking the development as teaching masterstroke and getting the irrelevant contents into organic connections, so as to help students establish a whole concept of the development of navigation technology. For instance, when telling about the origination and development of navigation technology, I teach the content as follows, with the development of productivity, people needs to go further to explore, in order to ensure the long journey of mankind, transportation is developed, and the development of transportation also boost mankind to go further voyage. During this process, in order to guarantee the carrier safely and reliably arrive to the destination, the development of navigation

technology transfers from confirming carrier’s course to confirming carrier’s position and course. Its development motive forces are shown as fig.3.

Under the effect of internal causes and external causes of navigation technology development, teaching plates of navigation technology is established by taking the development of navigation technology as masterstroke and taking different basic theories as the core. And finally it is unified to the navigation technology based on multiple-sensor information fusion and 3D visualization technology. The logical relation graph is shown as fig.4.

3 The Elaboration of Navigation Technology Operating Principle in Graph-Description and Living Example

The basic principle and process of specialized navigation is generalized and extended, which is illustrated through the way of combining the example of real life. The general navigation principle is established. For instance, the principle and working process

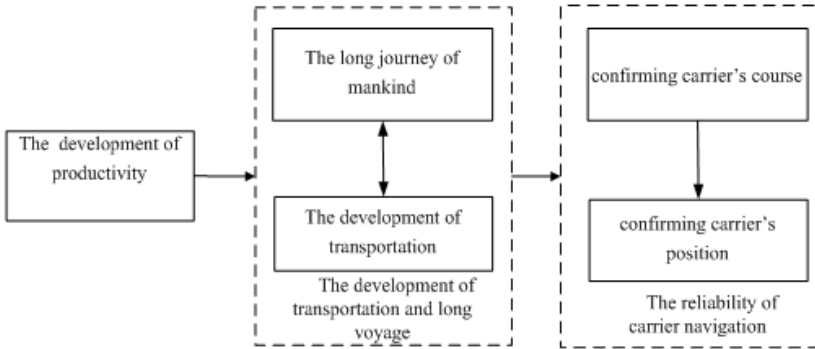


Fig. 3. Internal and external causes of navigation technology development

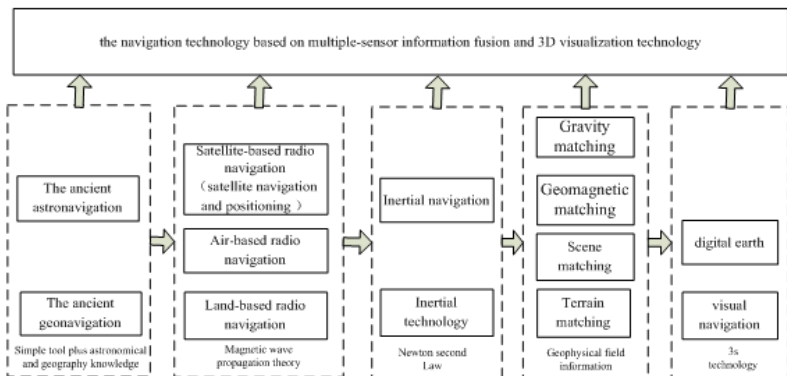


Fig. 4. Navigation technology blocks and Logical relation graph of navigation technology development

of scene-matching technique is explained by an example of real life, and then the general navigation principle is established and explained. Imagine that, in real life, there is a postman delivering express to the Beihang Training Center Cafeteria, but he has never come to Beihang before. The postman makes a phone call to the recipient in the Beihang Southeast Gate, and the recipient tells him that the left side is New Main Building when he gets into Beihang university, go straight ahead, the right side is Aviation Pavilion, YiFu Building and Training Center, the left side is Gymnasium, and then a crossroad, turn right and go ahead 20 meters or so, there is Training Center just across the road, the buildings' relative location is shown in fig.5. Hang off the phone, the postman get into the Beihang southeast gate and move ahead. He sees the New Main Building, the YiFu Building, the Training Center, the Gymnasium and some other buildings, and then he computes and analyzes the information and the information which got from the phone and stored in his brain, which guides the postman go along the pre-set route to get to the accurate destination. From which, the definition of scene-matching navigation and positioning technology is extended, i.e., scene-matching navigation and positioning technology is the technology of acquiring accurate positioning information which is derived by doing real-time matching calculation with the Real-time images acquired by using airborne picture sensors during the flying process and pre-made reference images, its functional block diagram is shown as fig.6.



Fig. 5. Beihang campus map and navigation benchmark information. (a) Part of Beihang campus 2.5D map. (b) Part of Beihang campus planimetric map.

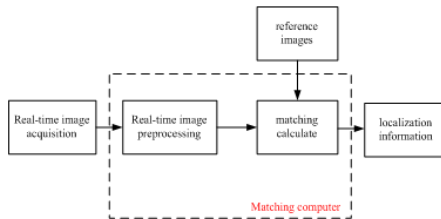


Fig. 6. Scene-matching functional block diagram

4 Inspiring Students to Think Actively by Taking the Navigation Principle as Content Masterstroke

With the development of human political, economic and military activities, one produced a variety of Navigation systems, and each kind of navigation system has its own theory basis. Therefore, a principle realization masterstroke can be set for each kind of navigation system, which can put all the knowledge together. The content of a category of navigation system can be included by a basic principle (theoretical basis), and along with this masterstroke, new problems will constantly emerging and be solved. With all main problems solved, the masterstroke is ended and the content of the course is finished, and the main points are also imparted effectively through the heuristic teaching method, and really become students' own things of their knowledge base. For example, radio navigation system based on radio communication principle can be divided into the following types, radio communication principle is shown in fig.7. It calls land-based radio navigation system whose base station is on ground, such as VOR, TACAN, DME and LORAN-C, etc; It calls air-based radio navigation system whose base station is on air platforms, such as unmanned aerial vehicle, airborne warning aircraft and man-machine; It calls satellite-based radio navigation system whose base station is on spacecraft, specially, it calls satellite navigation and positioning system whose base station is on satellite, such as GPS, GLONASS, Compass satellite navigation system and Galileo satellite navigation system.

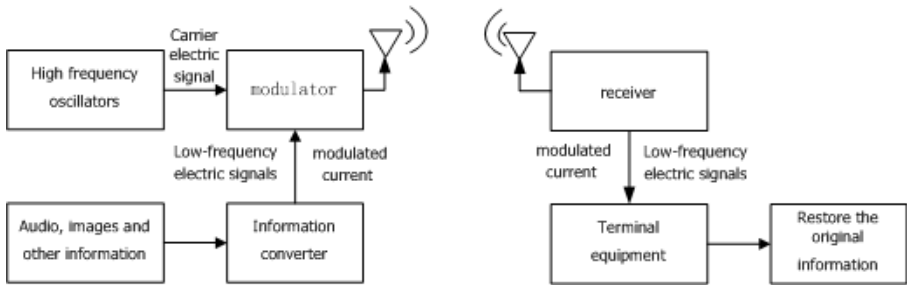


Fig. 7. Radio communication principle

5 Highlighting Course Informationization Features and Offering a Variety of Ways of Learning Navigation Knowledge

From Figs. 1 and 2, It can be seen that the students of taking “Navigation Technology Development Conspectus” as their elective class is freshmen and sophomores. In addition, the amount of majors which senior students may involve navigation research in future is five and account for 35.7 percent of majors numbers of taking the course. Because most of the students will rarely use navigation knowledge in their following study process except for the students who are interested in navigation, it is still hard to make students understand and grasp the basic knowledge and the development process of navigation only through teaching in the class. Considering this feature, a lot of

pictures, video and animation is bring in to increase the students' understanding and memory for the basic navigation knowledge during teaching development and application of the navigation basic principle in class, At the same time, we put the relative navigation knowledge on central laboratory website for students to download and view at any time, as shown in Fig.8.



Fig. 8. Multiple methods of learning navigation knowledge. (a) Video of direction-guiding cart. (b)Work principle animation of precision-guided weapons. (c) Website of Digital Navigation Center.

6 Conclusion

The main purpose of setting up University-level public elective class “Navigation Technology Development Conspectus” is to make the students to study and understand the basic knowledge and the development process of navigation. In addition to the four teaching reform practice mentioned above, we can also make some improvements on examination ways. At present, the majority way of elective course examination is open-book examination or submitting paper and assignments, which is understandable. This course is also the same. It is examined by an open-book exam plus navigation essay. But the appropriate improvement can be made on the basis, which means adopting a more flexible way of examining, i.e., Open-book examination and submitting papers can be kept, but the proportions of grade it account for will be declined properly. And according to students' specialty, all students will be divided into different study groups. When the basic principle of each kind of navigation was introduced in the class, we should give them a topic for discussion, and let them check data after class and prepare to discuss in class. This way both examine what the students have learned and exercise their abilities of cooperation and literature searching and summarizing, which is fully staffed.

Acknowledgments. This work is supported by BUAA teaching reforms fund.

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The Teaching Model Design and Creation of Technique and Manufacture of Household Appliance Mold

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Abstract. On the basis of the traditional teaching model, the teaching team makes a redesign and creation in the teaching aim, teaching content, teaching course, teaching staff and evaluation. Therefore, students can combine their learning with their practice and get a better professional ability and quality.

Keywords: Teaching model, Design and creation, Learn in doing, Do in learning.

1 Introduction

The ordering cultivation contract for the major of mould design and manufacture was signed between Henan Mechanical and Electrical Engineering College and Xinfei Group in 2007. In order to cultivate more high-qualified graduates, the two parties concerned developed the curriculum for Technique and Manufacture of Household Appliance Mold. Some creation and reform was conducted on the basis of traditional curriculum.

The design and creation of teaching model was the key for teaching and its quality improvement. [1] The design of the teaching model for Technique and Manufacture of Household Appliance Mold is made according to the practical course of work and is directed by the work task to improve students' professional ability and quality. On this basis, this subject spread and carried out the following Five Integration teaching model and some good results were got.

2 The Integration of Teaching Aim and the Requirements of Companies

The teaching aim for Technique and Manufacture of Household Appliance Mold was made by the researching teachers and the relative experts from domestic electric appliance companies on the basis of marketing investigation. The teaching aim integrated with the requirements of domestic appliance companies, in particular with that of Xinfei Group. As the teaching aim was made and adjusted according to the real production, graduates would have better flexibility and they would learn faster. The teaching aim is shown as figure 1.

Technique and Design of Household Electric Appliance

Subject Aim

Total Aim: Professional ability for household electric appliance

Classified aim: necessary ability and quality as following.

Knowledge Aim: technique program and mould design of household electric appliance.

Ability Aim: 1) grasping the basic design of two plate, three plate and side core-pulling mold design and the design with the selection of standard parts
2) the grasping of the basic design of cutting class, the bending class and the stretching class and the ability to design the three kinds of medium complicated moulds
3) the ability to program the parts manufacture technique and course, and the ability to assembly and adjust the household electric appliance.

Vocational Quality Aim: 1) honesty, devotion, science, seriousness and the sense of law, security, quality, efficiency, guarantee and environment and a good ethnic
2) the cultivation of self-teaching, tool usage, professional writing, expressing ability, cooperation, the ability to follow the advanced knowledge
4) the ability to integrate with the Xinfei Group personnel.

Fig. 1. Teaching aim of household electric appliance mould design and technique

3 The Integration of Teaching Contents and Professional Ability

The teaching contents of Technique and Manufacture of Household Appliance Mold were integrated, ordered and optimized according to the above-determined teaching aim. And the teaching will be more suitable for the industry ability requirements.

This subject takes plastic parts produced by Xinfei Group, such as freezing model and the refrigerator water receiver, and stamping parts such as the first beam, the refrigerator shell and the air conditioner seal seat as medium. And it bears the teaching contents from simple mould such as two plate and three plate to more complicated ones as side core-pulling type, cut classes, bending and stretching classes. By this way, students can get the basic know-how about the process discipline of the technique and manufacture of household appliance mould. And they can develop the ability to program the molding process, to design, to manufacture, to assemble, to adjust, to analyze and solve problems

occurred in the course of die trial. By learning in producing and producing in learning, students will acquire the professional processing ability of the typical household mould parts and the relative processing plan. [2] This is shown in figure 2.

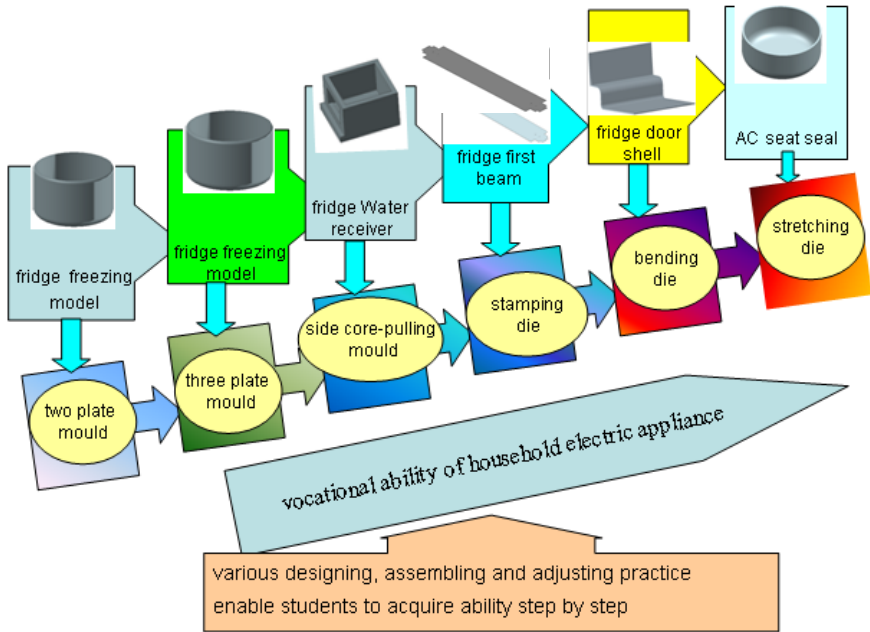


Fig. 2. Teaching contents of household electric appliance mould design and technique

4 The Integration of Teaching Course and the Work Course

This subject takes the typical household mould parts as medium, and each medium is a real production task. Six learning contexts are established in accordance with the real production. And the learning of the learning contexts follows the six teaching procedures, including information, decision, planning, carrying out, checking and evaluating. [3] And the six-step teaching procedure shows the true work process from mould design to manufacture and adjustment. The congruent relationship between the teaching course of Technique and Manufacture of Household Appliance Mold and the true household mould forming process can be seen in figure 3.

In order to integrate teaching course with true work course closely, this subject takes field teaching method generally. Field teaching is generally held in Mould Center, Refrigerator Business Department, Ice Tank Business Department and Air-conditioner Business Department of Xinfei Group. And the teaching contents are the true assembly, manufacture and adjustment of household electric appliance. Students learn in the true working situation and they participate in the whole development process of the household appliance parts. Hence, the real integration of teaching, learning and doing can be made. This is shown as figure 4.

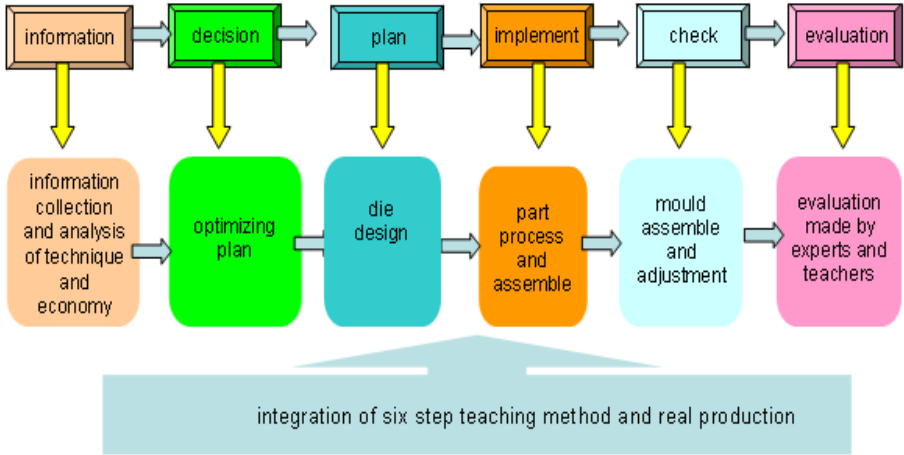


Fig. 3. Integration of teaching course and work course

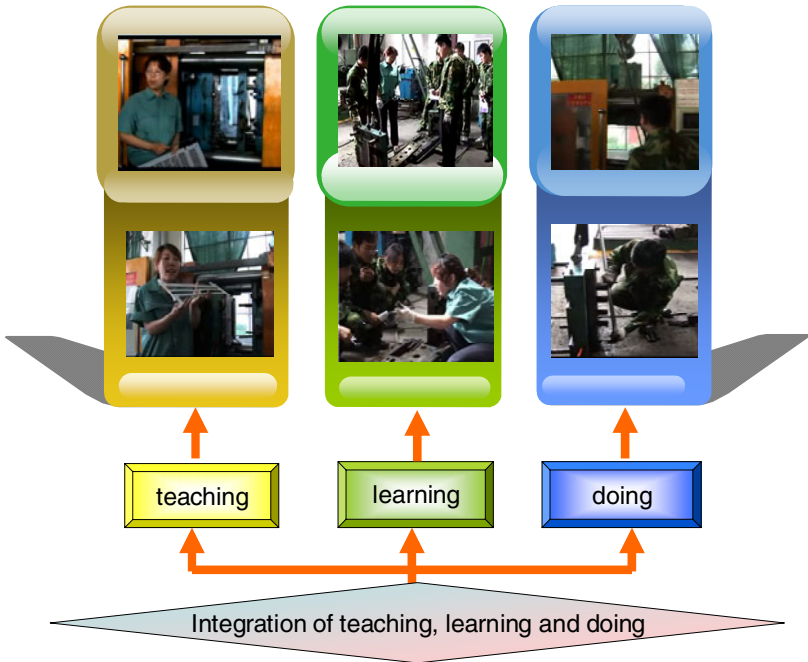


Fig. 4. Integration of teaching, learning and doing

5 The Integration of Teachers and Company Experts

Part of the teachers from the research team owns rich working experience as well as teaching experience. They are teachers and they are experts, too. Besides them, experts from Xinfei Group are employed as our part-time teachers. And some of the teachers from the research team are sent to work in Xinfei Group. So, the true integration of college teachers and the company experts is got. And the teaching schema and contents can better meet the requirements of companies.

6 The Integration of Subject Check System and the Evaluation System of Companies

The students majored in this subject are college students on one hand, and on the other hand, they are the personnel of Xinfei Group. So the integration of college test and company evaluation is conducted in this subject. This evaluation consists of five aspects, as figure 5 shows.

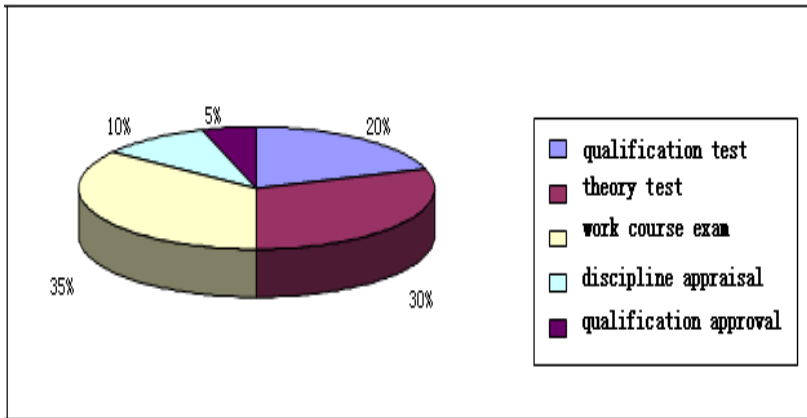


Fig. 5. Evaluating system of household electric appliance mould design and technique

Among these, the evaluation of the work course means the test of the learning situation. There are six learning situations in this subject. And the quality, technique and economy of the trial product of every situation are evaluated by company experts and the research teachers. This evaluation consists of the quality of work completion, cooperation, communication, adjustment and the judgment of 5s. Each learning situation is 100 and there is 600 totally. The average value is got by adding every mark. And a final 35% weighting mark is got and added to the final mark of every student. By this, students can get a push in their learning.

7 Summary

On the basis of traditional teaching model, the research team has made some reform and creation in teaching aims, teaching contents, teaching course, teachers and evaluation. Students learn in producing and produce in learning to develop their professional ability and quality. And by this way, they can acquire the basic training for the household electric appliance industry. This subject was approved as one of the National Level Excellent Subject.

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On Maths Teachers' Non-language Art of Classroom Teaching

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Abstract. This paper expounds that the function of maths teachers' non-language art in classroom teaching, and explains basic requirements that using non-language behaviors should follow as well as species and skills of non-language art.

Keywords: Non-language art, basic requirements, skills, mathematics curriculum standards.

1 Introduction

Maths teaching is the teaching of maths activity, it is a progress of interaction and communication predetermination mutual development between teachers and students or students themselves. Interaction and communication predetermination between teachers and students is carrying out by language or non-language two ways, teachers not only apply vocal oral language, but also using posture non-language method to imparting knowledge, organize teaching and student management.

2 The Function of Non-language Art

“Non-language”, also called body language, is the information conveyed by people's facial expressions, the changes on body and actions, embodied in three aspects in classroom teaching.

2.1 Auxiliary Language Expression, Enhance Language Appeals

Teachers' neatly and dignified appearance, amiable expressions, gracious eyes, these non-language behaviors have extreme appeal, it can make the class discipline stable, class atmosphere lively, students can learn in an easy and pleasant mode. Otherwise, it can make class atmosphere fossilized, and make students feel a sense of repression. Non-language behaviors have mainly three methods to assist language expression.

(1)It make language expression more clearly, readily understandable. (2)It is useful to express the emotion content that should use language to express. For example, when teachers ask students to answer questions, auxiliary by contributory the gesture “please”, students are willing to accept.(3)It can correct the defects on language, or

extend the meaning by language to express. For instance, when answering questions, students make mistakes on language or do something wrong, teachers give students eyes alight with kindness and concern, or a silencing look to sign. These are all effective non-language behaviors.

2.2 Catch Students' Attention, Attract Students' Interests

Physiologists study proves that the attention from a man's visual and auditory are not suitable to focus on a fixed information source for a long time. If do like these, we will get tired easily. So teachers do non-language behaviors constantly in teaching, for example, facial expressions, eyes, body language and so on, making students' visual and auditory continuous change focal point, obtain new stimulation to keep attention concentrated and study exuberant.

2.3 Improve the Manage Level of Organization of Classroom Teaching

In classroom teaching, many organize and manage instruction are not given off directly by language, but by non-language behaviors. For instance, when teachers find the students sit in the back are whispering back and forth, if directly say "Don't talking in the back!" It often sets other students look backward, divert students' attention. If not done, but use alert and mild eye to glance round the students who are talking, the eye is a silent command, it can prevent students from whispering, keep the class quiet. According to a survey conducted about 50% classroom teaching manage commands are sent through a non-language way, however, high standard teachers send 90% of classroom teaching manage commands by non-language ways. From it we see that non-language behaviors play an important role on classroom teaching organization management.

3 The Basic Demands Should Be Follow for Apply Non-language Behaviors

3.1 Aesthetics

If make the gestures, figures, expressions and so on have aesthetic pleasing quality. For instance, every movement and every action-one's behavior of the gesture should be natural, gracious, behaves well, moderately appropriate, show the interior temperament; and such as figure, should stand straight, make people have the sense of beauty like moderate and upstanding. Move softly and efficient, not sloppily, not stiff or in a flurry; another example, wearing a smile on your face, looking around the whole class.

3.2 Principle of Moderation

We should grasp "standard" in applying non-language behaviors, for different cases, not only should choose in species, but also should have control in degree. Generally speaking, we should prevent non-language behaviors from being applied too much at the same time and the species varies too frequently.

3.3 Harmony

We should notice to make teaching content, teaching situation and concrete conditions coordinated and uniformly, forming optimal coordination mode. Requiring teachers to design non-language behaviors according to concrete link of teaching; requiring teachers to design non-language behaviors according to students' individual differences, personalities and so on.

4 The Species and Skill of Non-language Behaviors

4.1 Facial Language

People's face can make rich non-language expressions, sympathy and care, aversion and despising, trust and respect, excuse and comprehension, anger and antipathy, comforting and joy and so on, they are noticeable shown on people's face. Facial language is a rich information source in teaching. American psychologist Albert Mehrabian confirmed through experiments: The overall effect of the information = 7% words + 38% tone + 55% facial expressions and movements.

Generally speaking, facial language can be classified into two classes, one is routine facial language, the requirement are smiling, genial, kind, warm, elastic. Teachers, from daily life to normal classroom teaching, should keep this basic facial expressions. The other is variational facial language, with the change of teaching content and teaching situation.

4.2 Body Language

They are the postures that human torso give out some message, they are common non-language in teaching. There are mainly two in daily teaching: (1) Standing posture, firm tall and straight standing posture of teachers can make students feel reliable and attract students' attentions. (2) Moving postures, it is indispensable for teachers to walk back and forth in class, we should pay attention to three points: Firstly, figure should be straight when walking, shoulders should set level; Secondly, the walking pace should be moderate; Thirdly, walking frequency should be proper. We must avoid using abject body language. For instance, body sway, on tiptoe and shake a leg, tweak one's ears, shake heads, picking one's nose, stroke one's beard, these postures and actions are all not in good manner, we can't serve these as "trifles" and neglect them.

4.3 Eye Language

People's eyebrows and eyes can convey rich information and emotion, they have the functions that other expressions can't instead. It not only can organize teaching, condition atmosphere, create a good teaching situation, but also can enlighten students, inspire students, comfort students, express all kinds of thoughts and feelings. Psychological studies indicate that the students that teachers' eyes often touch are much better than other students in achievements.

4.4 Gesture Language

Gesture language refers to a method of conveying one's ideas or feelings by gestures. It can convey some form of information independently, it also can assist other languages and non-language expressions to convey information. Gestures are widely used in teaching, good gestures can make language vivid, clear and be emphasized. According to its educational function, gestures can be classified in four kinds : (1) Symbolic gestures, it is used to explain some word directly, to represent abstract consciousness, there are corresponding language meaning in general.

(2) Illustrative gestures, used to add the content of language information, and it has the function of interpretation to language. (3) Harmony gestures, it is used to increase language expression. (4) Additional gestures, it is used to make up for the shortage of verbal language or to increase the weight of verbal language. For example, throwing up one's hands when cheering, pointing one's fingers at someone when rebuking. We should pay attention to three points: Firstly, gestures should be natural, natural gestures are the expressions for teachers' emotion; Secondly, gestures should be appropriate. If gestures do too fast, simply speed by, it do not have the function of enlightening and illustrating. If gestures do too slowly, seeming sloppy, it is difficult to melt together with teaching situation. So the velocity of gestures in teaching should be modest. Gestures are requisite, but gestures are not needed in every word. Thirdly, gestures should be graceful, it is students' psychological goal should be fond of beauty, teachers, as students' aesthetic object, graceful gestures are magnetic and can play a great educative role.

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A Demonstration Instrument Using Portable LED Display in College Physics Teaching

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Abstract. A demonstration instrument using LED display is described in this paper. A popular LED display is used as the demonstration device, featuring low cost, durable, programming, and suitable for large application and classroom teaching. The preparation and programming of LED demonstration instrument is described in this paper taking demonstration of standing waves as an example. The method and significance of programming of demonstration instrument via teaching practice is discussed.

Keywords: LED display Demonstration instrument Demonstration program.

1 Introduction

At present, the LED display is used widely as a large-size display media, e.g., large-size outdoor display, rolling advertisement, 25th Olympic Games scene arrangement. The advantage of LED display for large-size application:

1. Bright, colorful.
2. Easy expanding of display matrix.
3. Strong and durable, suitable for various environments, long lifetime.
4. Not expensive, low installation and usage cost.

2 Design of Portable LED Display

Physics is an image subject. In physics teaching in university, image demonstration is necessary for students. Various medium is used for demonstration of physics images, e.g., class demonstration experiment, Flash, wall charts and so on. Benefitting from the advantages, the LED display can also be used for demonstration of physics images. The LED displays are durable and colorful, suitable for large-size application, and the demonstration can be programmed. Although Flash is also convenient for various demonstration, PCs and projectors are necessary. LED displays are portable, suitable for more applications. The classroom demonstration instrument using LED display is described in the following.

There are various LED displays on the market, and the size can be customized on demand. The LED display in this paper adopts four 4*8 display units, forming a 128 (row) x 256 (column) display. High density dual color 8*8 LED matrix display is

used, providing fine graphic and three colors are sufficient for various demonstrations. The dimension of unit is 800mm× 500mm. The LED display is equipped with driver chip, which can illuminate the LED, featuring shift register, memory and tri-state output, e.g., 74HC595 driver chip (consisting of 8-bit shift register and a memory). The LED driver chip is controlled via a control board, which consisting of single-chip microcomputers and gate circuits in general. The matrix of display is large, and it is difficult to control the on/off of the whole matrix simultaneously. In general, only one column of LED can be controlled, so the screen at a moment is illuminated and scanned by one column of dots respectively. The demonstration program is input to the single-chip microcomputer, and the microcomputer controls on/off of LED according to the demonstration program, forming a demonstration instrument to display images.

3 Programming for LED Display Demonstration Instrument to Demonstrate Standing Waves

Standing waves are superposed by two waves with same frequency and opposite directions, generally the reflected wave and the original wave. Procedures for LED display demonstration instrument to simulate this process:

First, one red incident wave (sine wave) travels from the left of LED display. From right of LED display, a green reflected wave begins to travel. Half-wave loss is allowed for the reflected wave (phase difference between the incident wave and the reflected wave may be π or zero). The reflected wave travels in reverse direction without interfering with the incident wave.

As the reflected wave travels, the part of incident wave superposed with the reflected wave (standing waves) is displayed in yellow. After the reflected wave arrives at the left of LED display, the fluctuation of incident wave, reflected wave and superposed wave is displayed on the screen.

The three waves relating with the standing waves are displayed in above. To display the relationship of the three waves, the generating process of standing waves and actual standing waves, more controls are necessary. So some buttons are set on the demonstration instrument. 8 buttons are set on the demonstration instrument in this paper, which is connected with the control board to control running of the program. Of which, one button is used for switch between programs, and other buttons are used for control of demonstration programs. The display of the incident wave, the reflected wave and the superposed wave is demonstrated in above. Now the forming of standing waves and the principle is demonstrated in detail via buttons.

- 1、 Demonstrate the actual standing waves, which is the graphic only with the superposed wave. Control the button to control the superposed wave (slow to fast). Only the unique “bulge” of standing waves can be seen as a result of persistence of vision, the same as actual standing waves.
- 2、 Demonstrate the forming process of standing waves. The reflected wave is superposed with the incident wave, forming the standing waves. The phase of reflected wave changes suddenly where the incident wave encounters. Demonstrate this phenomenon slowly, so that the students can understand the whole standing waves.

- 3、 Demonstrate the principle for forming of standing waves. Select the wave node, abdomen and another point of standing waves. Set a vertical line at each point. Display the incident wave and the reflected wave on the screen simultaneously, and make the three waves change slowly, so that we can see that the standing waves is the incident wave superposed with the reflected wave.

In addition to demonstration of above common standing waves, we can demonstrate some special standing waves, e.g., such as non-uniform standing wave generated by non-homogeneous rope, change of number of nodes and abdomen due to change of the frequency etc. In addition to standing waves, this device can also be used to demonstrate other physical phenomenon via programming. Of course, this device can also be used to demonstrate phenomenon of other subjects. The following is the actual demonstration instrument described in this paper.



Fig. 1. The classroom demonstration instrument using LED display

4 Summary

The key factor for above demonstration is programming. Although these programs are small, it is still difficult for common teachers. To fulfill this by special programmers, the cost is a problem. Difficult teaches needs different demonstration, but some programmers are not professional, so many details of programming will be instructed by the teacher. Before this LED display classroom demonstration instrument is manufactured by special manufacturers, it is difficult for the teachers to use such demonstration instruments. One way to solve this problem is to organize the students to write the demonstration program during practice, e.g. curriculum design or graduate design. The teachers will give subject and requirements, and the student will program and debug, so as to obtain proper demonstration program. Using this method,

the teachers can obtain the demonstration program. The students can complete the practice and understand the relating knowledge additionally.

In one word, this paper not only describes the LED demonstration instrument, but proposes an idea of practice for the students, which is more objective and practical.

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A Study on a Bilingual Teaching Mode of Organizational Behavior Based on a Competency Breakdown Structure

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Abstract. As a fundamental course, Organizational Behavior contains extensive information which reflects contemporary global social changes and thus is challenging for the students to study with a clear direction. The authors of this article therefore put forward a bilingual teaching mode based on a competency breakdown structure. The mode integrated the students' competencies cultivation into learning outcomes, and broke down the core desired capabilities into cooperation, leadership, innovation and scholarship. With the bilingual tool, this teaching mode aimed to enhance the students' essential competencies and to change their modes of thinking with various teaching methods, which has achieved great classroom effectiveness and boosted the students' all-around abilities.

Keywords: Competency Breakdown Structure, Organizational Behavior, Bilingual Teaching, Higher Education.

1 Introduction

Organizational Behavior is determined by the Ministry of Education as a core compulsory subject of majors in the 21st century like Management and Economics, etc., which is also a fundamental subject for year-one or year-two students in Business Administration Undergraduate Programs. The authors of this study raised a bilingual teaching mode of Organizational Behavior based on a competency breakdown structure. Through practice it is proved that this method is effective in clarifying student's learning objectives, enhancing students' all-around essential competencies and improving teaching quality.

Organizational Behavior covers extensive academic areas ranging from Psychology to Anthropology, which often makes first-year undergraduates get lost in the ocean of concepts and theories. At the same time, along with the development and change of the international community, the behaviors between and within organizations are changing continuously, which requires increasingly diversified abilities from the students. These internal and external needs call for a course reform in order to cultivate students with all-round essential competencies, capable of working in an international environment. Therefore the authors broke down the learning outcomes into detailed realistic competency requirements for business students and reformed the structure of theory

teaching and practice teaching in view of the real-life needs. This transformation had significantly promoted the effectiveness of follow-up specialized course teaching, increased the students' social cognition and moral consciousness, and improved their English communication skills in the meantime.

2 Competency Breakdown Structure of the Learning Outcomes

With international teaching ideology on the base of cutting-edge resources and concepts, Organizational Behavior was positioned as a course which targeted at promoting students' competency and essential qualities in the international environment by teaching bilingually. It's expected that the trinity of knowledge-based, capacity-oriented and essential-qualities-oriented education would be realized upon completing the course. By using a bilingual tool, this course focused on cultivating students' four essential competencies through both academic and professional education: Cooperation, Leadership, Innovation and Scholarship, so as to enhance students' academic thinking and professional capability.

The course followed a teaching and learning process of 'concepts→ theories→ cases→ applications', and established a reasonable system to assess students' competencies. A solid subject foundation was thus set up and the students were proved to have a better understanding of the influences of organizational behaviors on organizational performance effectiveness in the practical teaching environment, which could be applied to their future career, and even the future life. Furthermore, English textbook was adopted and the course was delivered bilingually to ensure that the content of original textbook was authentically revealed to students. Students were required to participate in class activities bilingually as well. As a result, it was expected to enhance students' English communication ability, to cultivate their global vision, to set up their professional business administration thinking mode, to improve their practical problem solving skills, and finally to cultivate students with all-round essential competencies, capable of working in an international environment, which met the strategic talent requirements of the twenty-first century in China.

3 A Study of the Teaching Mode Based on Competencies Breakdown Structure

The teaching mode based on competencies breakdown structure aimed at the improvement of students' capacities by using bilingual teaching, case studies and scenario-based experiential learning methods flexibly to realize the learning outcomes.

Case Study is the most effective teaching mode of Management. However in this course, case studies must serve the teaching goals which had enjoyed remarkable effects. Meanwhile, the authors found out that the prevalent issues of over-concentrating on language itself in the bilingual teaching of fundamental courses for management undergraduates, including the ambiguous focuses of students' capacity development and the ambiguity of teaching mode. Therefore, this research proposed an innovative teaching method – a case teaching method for Organizational Behavior based on competencies breakdown structure, which targeted at the development of thinking modes with the bilingual tool.

3.1 The Tool: Bilingual Teaching

With the development of globalization and the internationalization of enterprises, there is a realistic demand for Business Administration higher education to establish an international perspective on teaching Organizational Behavior. Therefore, this research suggests using English language as a basic teaching tool.

To establish a good bilingual foundation, it's essential to cooperate with foreign business universities. Take our program as an example, we cooperate with University of Technology and Sydney and the City College of New York, etc. Every semester senior professors were invited from our partner universities for short-term exchanges to teach Organizational Behavior, in order to promote bilingual teaching and to realize international sharing of teaching resources so that to construct a global perspective for the students. Moreover, effective teaching faculty was cultivated through team building and the cooperation with foreign business universities.

All of the written teaching materials and 70% of the oral teaching were given in English. Meanwhile, 50% of the student participation was in English. However we emphasized a real application of English as the means rather than the end to teach. Cutting-edge international research on the subject was integrated in the lectures. Various contemporary teaching means like case studies, class activities, experiments, and e-learning were widely utilized in the course and English existed as a two-way communication tool instead of one-way one.

3.2 The Core: Student Competency Cultivation

Combining the real demand of corporations with the topics in Organization Behavior, the lecture emphasized four essential competencies on students: *Cooperation*, *Leadership*, *Innovation* and *Scholarship* (see figure 1). Therefore, the case design and lecture content not only explained the knowledge that needed to be covered in this subject, but also gave a clear focus on what essential competencies that students should acquire.

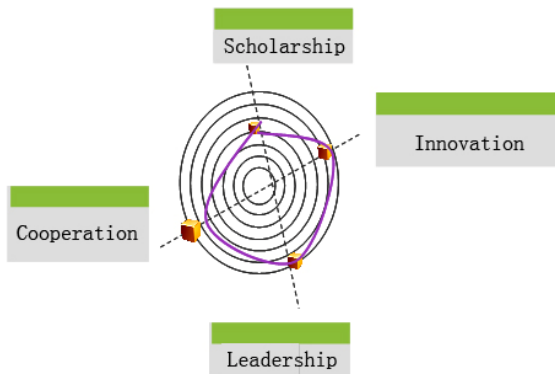


Fig. 1. Competencies breakdown structure of the learning outcomes

The course contained 3 major cases which are discussed at class. Each case was designed to foster three to four kinds of competencies. Students were organized by teams, which improved their corporation, intercommunication and leadership all the time. Instructors decomposed competencies exercise into different cases and which were reinforced continually. By doing a corporation project throughout the whole semester, students' competencies in each dimension were practiced comprehensively.

3.3 The Target: Thinking Mode Transformation

Students were supposed to understand how to apply what they have learnt to analyze and solve problems. This course provided opportunities to research and practice in corporations. Students were organized to conduct research reports and to design consecutive analysis models. It started with sample questions and students are encouraged to hold their own opinions. Students collected all kinds of information and analyze materials in terms of both theories and practices. Students were cultivated to be active and creative through team discussions, presentations and debates.

3.4 The Means: Diversified Teaching Methods

The course was divided into two parts, lecture and seminar, to achieve each topic. At first, key concepts and theories were taught by instructor with practical examples and cases. Then, students were led to discuss and research the topic by the means of scenario design, games, cases and debates. Under students oriented, multimedia teaching method was adopted: scenario experiential learning, team involvement, scenario simulation and role playing are parts of practice teaching. All the measures enabled students to perceive the behavior differences and the impact to organizations.

3.3.1 Multimedia Teaching

Multimedia teaching equipments such as video and audio materials was used to enrich course content and to enhance teaching effectiveness. By giving vivid presentations of individual attitudes, perception of value and culture under different culture contexts as well as to show corporation meetings, team building, and training and culture symbols, students' understanding of how the knowledge was applied in reality was enhanced consistently. In addition, we have made the lectures more vivid and intuitional with many videos such as foreign teaching videos, videos of classical experiments of this course done by foreign students and videos of successful entrepreneurs' experiences. This greatly inspired students' interest in professional courses.

3.3.2 Scenario-Based Experiential Learning

Well designed scenario simulation of different teaching topics was to be brought in the classroom through role playing, scenario designing and gaming and so on. We created a virtual managerial scene and assigned several roles to students on either team basis or individual basis. So students could experience different behaviors as well as the effects. For example, the scenario simulation of market competition in terms of the prisoner's dilemma theory is assigned students with different roles in the market. They could experience competition, cooperation, communication, negotiation and business ethics.

Therefore, it's easy to acknowledge how these behaviors affect individuals, organizations and market by different market rules. We let students enjoying themselves in the course and experiencing managerial practices by their own. Others cases design were classical team games, simulation of the dilemma of value confliction and language communication games. Those were all supposed to achieve good results.

3.3.3 Multi-channel Participative Teaching

External foreign teachers were invited to give an exemplary lecture presentation, which made it available for students to experience a true English teaching environment and English ways of thinking and an international perspective was promoted. We also made use of modern communication technologies such as course websites, tutors' teaching blogs and on-line discussion groups to assist the teaching and learning as well as dealing with doubts. It not only realized the teaching objectives but also achieved a well combination of lecturing and educating as well as the students' personal growth.

4 Conclusions

By the teaching reform of Organization Behavior which was based on the competency breakdown, teachers transferred themselves from the theory explainers to the learning guiders for students. The class teaching was also transformed to an interactive teaching mode from the original talking and listening one. The new model has created pleasant class atmosphere, enabled multi-thinking and encouraged students to think, to talk and to work. Students were not receivers any longer, but creators and dominators of learning. The essential competency breakdown structure has improved teaching effectiveness, transformed the students' thinking mode and enhanced students' all-around essential competencies successfully.

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Online Course Design in the Context of Cloud Computing

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Abstract. Cloud computing technology has been improved and widely adopted with the development of computers and networks. In this paper, we first analyze the primary issues existing at the current online course design. Second, taking advantage of cloud computing, we propose online course design strategies based on the context of cloud computing. Some preliminary results on online course design mode are presented in this paper.

Keywords: cloud computing, online course, dynamic resource lib, learning mode.

1 Introduction

Cloud computing technique has been widely applied to education with its rapid development. The arrival of the cloud computing era provides online education new ideas, new methodologies, and new formats for further development while education informalization is being promoted step by step. Like a power plant, the powerful computability of cloud computing can make resource sharing, interaction between instructors and students, and learning management possible and convenient. Online courses are the core of an online education system, as well as the basis of an online learning environment. It is innovative to explore the online course design in the context of cloud computing. This research has positive impact on promoting quality resources sharing, faculty course management, and student learning performance. It is also significant to promote education resource opening, flexibility and individualization, as well as to implement lifelong education, and construct learning style society.

In this paper, we first analyze some issues existing at the current online course design. To solve these issues, we propose some strategies and mode to design online courses through taking advantage of cloud computing. The rest of the paper is organized as the following. Section 2 presents the basic concepts related to clouding computing and online education. In section 3, the issues in online course design are analyzed and identified. We propose four strategies to fix the issues in online course design in section 4. And in section 5, an online course design mode in the context of cloud computing is discussed. The whole paper is concluded in section 6.

2 Related Concepts

2.1 Cloud Computing

Cloud computing refers to the on-demand provision of computational resources (data, software) via a computer network, rather than from a local computer. Users or clients can submit a task, such as word processing, to the service provider, without actually possessing the software or hardware. The consumer's computer may contain very little software or data, serving as a basic display terminal connected to the Internet. Since the cloud is the underlying delivery mechanism, cloud based applications and services may support any type of software application or service in use today.

The principle behind the cloud is that any computer connected to the Internet is connected to the same pool of computing power, applications, and files. Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction [1].

Cloud computing describes a new supplement, consumption, and delivery model for IT services based on the Internet protocols, and it typically involves provisioning of dynamically scalable and often virtualized resources[2][3]. It is a byproduct and consequence of the ease-of-access to remote computing sites provided by the Internet [4]. This may take the form of web-based tools or applications that users can access and use through a web browser as if they were programs installed locally on their own computers [5].

Most cloud computing infrastructures consist of services delivered through shared data-centers. The cloud may appear as a single point of access for consumers' computing needs. Commercial offerings may be required to meet service level agreements (SLAs), but specific terms are less often negotiated by smaller companies [6].

2.2 Online Course

Online education refers to instruction in a learning environment where teachers and students are separated by time or space, or both, and the teacher provides course content through the use of the Internet. Students receive the content and communicate with the teacher via the same technologies [7].

Online courses are the courses delivered through the Internet. "Online" is used here to characterize the fact that the course is not taught in a classroom face-to-face but through some substitute mode that can be associated with classroom teaching. That means people do not have to go to a real class to learn. Although there is a long and varied history of distance education, the current intersection of technology as a means to facilitate real-time communication with community-centered interaction, and the increasing acceptance and employment of those developments in the broader culture, have uniquely positioned online schools in a position of significant innovation and responsibility [8].

Many online study programs are mainly text based, using HTML, PowerPoint, or PDF documents. Any attempt to personalize the educational experience is essential in that students respond to personal attention and feedback. Today a wide spectrum of instruction modes is available, including the following:

- Virtual Classroom: A virtual classroom is a learning environment created in the virtual space such as Second-Life.
- Virtual operating room: giving students a space to learn the basic induction procedure before stepping foot in a real-life operating room.[9]
- Hypertext courses: Structured course material is used as in a conventional distance education program. However, all materials are provided electronically and can be viewed with a browser. Hyperlinks connect text, multimedia parts and exercises.
- Video-based courses are like face-to-face classroom courses, with a lecturer speaking and Power point slides or online examples used for illustration. Video-streaming technologies are used. Students watch the video by means of freeware or plug-ins.
- Audio-based courses are similar but instead of moving pictures only the sound track of the lecturer is provided. Often the course pages are enhanced with a text transcription of the lecture.
- Animated courses: Enriching text-oriented or audio-based course material by animations is generally a good way of making the content and its appearance more interesting. Animations are created using Macromedia Flash or similar technologies.
- Web-supported textbook courses are based on specific textbooks. Students read and reflect on the chapters by themselves. Review questions, topics for discussion, exercises, case studies, etc. are given chapter wise on a website and discussed with the lecturer. Class meetings may be held to discuss matters in a chat room [10].
- Peer-to-peer courses are courses taught "on-demand" and without a prepared curriculum. A new field of online education has emerged in 2007 through new online education platforms.

3 The Primary Issues on the Current Online Course Construction

Through analyzing the excellent courses at national, state, and university three levels, we found, even though a great progress in online course design has been made, that some issues still exist. Some critical issues are identified as the following.

1) *High construction cost and high technical threshold*

Due to the limitation of high technical threshold, most online courses cannot be developed by faculty themselves. The courses are either developed through some specialized tools or customized by some professional information technical companies collaborated with faculty. The development costs are relatively high.

2) *Poor portability*

Most online courses in different universities and regions regardless flash courses or web courses are designed over different network platforms. The lack of universal standard in design makes online course portability poor.

3) *Insufficient updatability*

Most online courses are designed in advance, but cannot be updated in time. They cannot keep up with times and the technical development of frontier. These courses cannot satisfy the students who are eager to obtain new knowledge continuously. Information can be delivered quickly through the Internet. Quick updating is an advantage of online education. Most online courses, however, have not taken advantage of this point to serve learners.

4) *Lacking the design of learning activities*

Most online courses are delivered in a traditional way, such as using e-document, images, and instructor's manuscript. They lack the design for learning process. The learners cannot obtain in-depth understanding to the knowledge with the online courses which design lacks learning activities.

5) *Insufficient interactivity*

Most online courses have been designed to adopt e-mail, BBS forum, and so on as a way to make students and instructors interactive. However, the interactive mode is relatively weak, and the depth of interactivity stays at a shallow level of just providing students learning suggestions, distributing announcements, and consulting students about tests and examinations. There are no incentive and supervision measures to promote in-depth interactivity between instructors and students, as well as among students.

6) *Lack of individualized design*

Most online courses currently tend to be unified, templated in terms of content. It is more like a duplication of face-to-face teaching, rather than online education. The courses lack diversity and personalized design. They cannot meet the individualized learning demand of learners.

7) *Lack of co-design and resource sharing*

Most online courses are delivered with a traditional textbook, plus some images, video, and course ware. The related resources and contents tend to be unitary, lack co-design. Repeated and overlapped work largely exists. Some online courses are restricted to use locally. There is no mechanism to share resources, even lack of sharing thoughts.

4 Online Course Design Strategies

The threshold to develop online course under the context of cloud computing is lower than in the context of non-cloud computing. Some IT techniques can be obtained through the Internet as a form of service. Instructors can integrate, develop, and manage online courses on their own mind. They can also take advantage of various excellent resources, as well as many other ways to set up online courses, such as co-design between faculty and students, between faculty and faculty, across regions, and collaborating remotely. Considering the characteristics of cloud computing, the following different teaching strategies are adopted upon various teaching contents, teaching functionalities, and teaching objectives when designing online courses.

1) To set up an online course learning platform based on cloud computing technique

- Organizing knowledge in dynamic modules and constructing knowledge flexibly

Online course design mostly focuses on learning objective, knowledge structure, learning points, knowledge sections, and knowledge extension. And, the content schedule mostly follows the order of arrangement of a textbook which is fixed and not flexible. This design does not take into account the students' need to customize their learning. In order to construct an online course conveniently, increase its reusability, and share resources, each course can be modularized dynamically such that instructors can construct each online course easily and flexibly based on the de facto needs and learners can make their own choice to select knowledge modules upon their demands. Dynamic modularized design can solve the problem of duplicating work for the same resource. The same content module can be reused in different courses, even across different platforms.

- Miniaturizing design on knowledge content and customizing knowledge learning

The significance of miniaturizing design of knowledge content is to integrate, migrate, manage and share resources easily. It benefits instructors to develop their online course rapidly, as well as learners to customize their learning easily. From the point of learners, miniaturization design can make learners convenient to learn at any time and any place; from the point of resource reusability, the designer can select the mini-content based on their needs; from the point of individualized construction, every miniaturization module can be considered as a component. A course designer can construct various personalized applications with the components based on actual need.

- Designing knowledge in a network to construct flexible knowledge system

Knowledge net nodes can be strengthened to link and update upon learners' demand and specific teaching objectives. Instructors can set up relative stable knowledge nodes following teaching objectives. Learners can also establish their own learning nodes upon self-need to construct their network knowledge system.

- Developing course ware and learning tools and integrating various functional software

During a learning process, the learners can write down, edit and save the knowledge browsed at any time, and record their learning thoughts and experiences. With a preserved interface, a course designer can add the corresponding learning tools upon demand, and learners can select learning tools upon their learning habit. This way can make learners independent and efficient in learning.

2) To set up an online course individual learning platform based on cloud computing

Learners can establish their own learning platform based on their personal dynamic webpage. Personal webpage can include blog, micro-blog, RSS subscribing, forum, online discussion, resource collection, learning calendar, and so on. With an open interface in a personal webpage, learners can expand the corresponding modules to satisfy various learners for various demands and personalized needs. From the point of learners, individual learning platform can be customized to either share with others or be visible only to the learners themselves so as to raise the active participation of the learners.

3) *To construct dynamic resource lib*

Resource construction is the lifeline and the basement of online courses. A quality online course should be full of quality knowledge contents. In the context of cloud computing, we can make full use of the advantage of the Internet to integrate various excellent resources to be a knowledge lib that can be updated continuously, expanded consistently, reused, and developed sustainably. The point of the dynamic lib design is at the collective wisdom, co-design and sharing, and the potential personal learning resources.

4) *To set up a collaborative learning platform*

Collaborative learning can activate students' learning activity and interactivity, as well as maximizing the individual learning performance. And learners can obtain the in-depth understanding and sentiment to knowledge in co-exchange and study. Collaborative learning platform can include multiple modules, such as group learning, thread discussion, chat room, and resource co-setup. Learners can explore and exchange opinions with help of the Internet. The platform is the linkage between instructors and students. It is a self-express room, as well a site to exchange up to date information and obtain new knowledge, and a bridge of communication and innovation.

5 Online Course Design Mode

We propose the scheme of an online course design mode in the context of cloud computing. The scheme is shown in Fig. 1. The purposes of the scheme are as the following.

- 1) To promote learners to learn with efficiency and quality;
- 2) To help learners to have an in-depth understanding and digestion to the knowledge learned;
- 3) To maximize the individual wisdom of teachers and learners;
- 4) To develop excellent online course through collective wisdom;

This mode takes teachers and students as the main body. Both teachers and students set up the dynamic resource lib together. The course knowledge learning platform is the heart of the scheme. Teachers provide learners full knowledge service through personalized and modularized knowledge. Learners can learn through selecting the corresponding modules upon their interests and needs. Teachers monitor and detect the process and progress of students learning through online course management system. Learners can manage their learning process using individual learning management system to make learning plan, record learning experience, and collect learning resources. Collaborative exchange platform is an important channel between teachers and students. It can conduct exchange both in real-time and in non-real time. This platform is the primary battleground for conducting learning activities. Group discussion, project exploration, and case study can all be conducted over the collaborative exchange platform. The information in Table 1 presents briefly the functions of different components of the platform shown in Fig. 1.

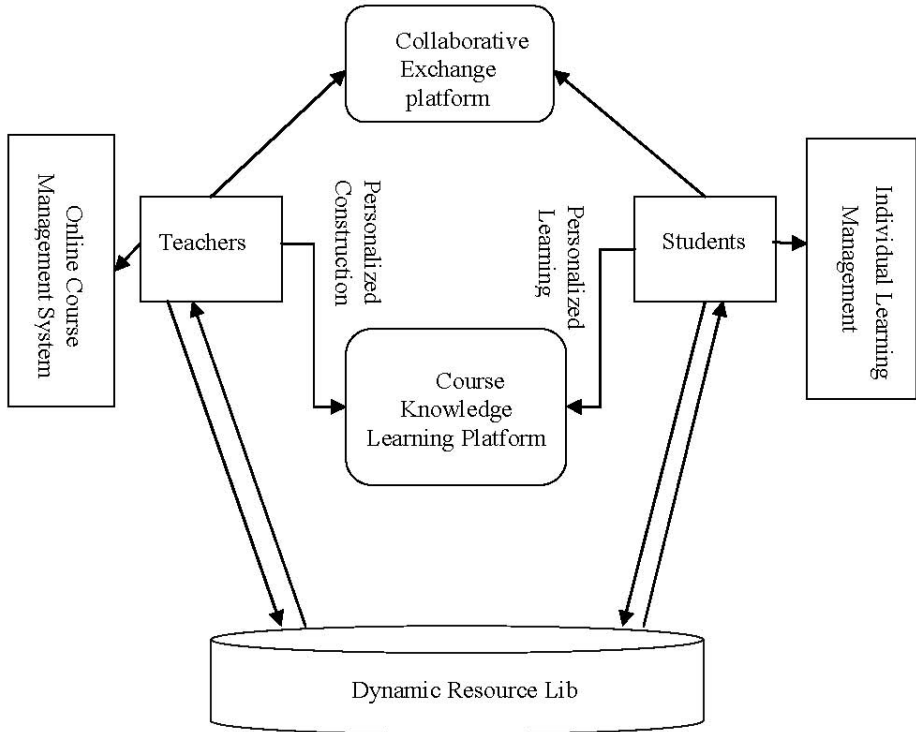


Fig. 1. Online course design mode scheme

Table 1. Brief description of the components in online course mode

| Component | Brief description |
|------------------------------------|--|
| Dynamic resource lib | Primarily includes learning objective lib, knowledge point lib, testing lib, image lib, reference lib, animation lib, and course ware lib. |
| Course knowledge learning platform | Mainly includes Navigation, miniaturization and modularization knowledge, knowledge testing, and network knowledge node. |
| Collaborative exchange platform | Mainly includes real time discussion, non-real time discussion, Wiki, online collaborative document, online collaborative PPT, email, topic activity, and group activity. |
| Course management system | Mainly includes course announcement management, student tracking records, topic discussion management, group learning management, course content management, and course assignment management. |
| Individual learning management | Includes personalized web page, RSS subscription, personal blog, bulletin board, learning calendar, and electronic bookmark. |

6 Conclusion

It is novel to study online course design in the context of cloud computing. In this paper, we propose online course design strategies and the corresponding design mode based on the analysis of the current situation of online course development. This paper provides general ideas to the majority of online course design researchers. We admit that the study depth needs to be improved, and the course design mode needs to be justified in practice. We believe that, with the in-depth exploration and popularization of cloud computing study, the study on online course design will attract more and more attention.

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Study on Students' Translation Ability Development in College English Teaching

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Abstract. At present, the university education in China has entered an employment-oriented mode of new transformation stage more emphasis on student professional ability. Under the situation of reform and development of university education currently, however, the study on exploring how to carry out college applied translation to fit for the new era demand, how to locate the translation ability and how to conduct training and assessment is rare. One purpose of this article is to attract more people to pay attention to college applied translation teaching. Applied English major and translation ability are important aspects on professional capacity-building. Through studying on students' translation capacity, the article shows that college translation ability should cover the ability of bilingual information communication, electronic tools using, machinery conversion capacity on the primary translation, the variant ability in dealing with difficulties and translation tools using and concentrate on ability training in study.

Keywords: university education; English translation; translation ability training.

1 Introduction

At present, the university education in China has entered an employment-oriented mode of new transformation stage, which is the only way for the development of higher education with Chinese characteristics. Driven by the new knowledge-based economy, professional settings on the college applied English major should be employment-oriented and closely connect with the industries and enterprises. To develop students' professional abilities should be in close with their majors and bilingual communication skills in future professional career, offering students with communicative language ability in production, management and service and basic translation ability in various foreign situations. Since the 1970's, "translation capacity" has become one of the major study objects within the translation field. Many scholars both domestic and abroad have carried out extensive and in-depth study and they agree that "translation competence" is language transformation and communication skills; its study objects should focus on students with undergraduate level and above. However, research on translation ability for University learners is rare, which attribute to weak English knowledge and few translation courses opened in some schools.

For a long time, university translation teaching has not adapted to university's translation theory guidance system that there is no clear training objectives. It basically focuses on the lower undergraduate level and follows the undergraduate translation theory, lacking of vocational relevance. The courses and teaching materials are out of practice which is unable to satisfy the social work's demands for qualified personnel, resulting in lacking of undergraduate English level and necessary English expertise knowledge and professional ability.

2 Translation Ability Localization

In the new situation of proposing the development of professional ability in vocational education, university translation teaching has become more and more important. The teaching is a bilingual information communication skills combination with industry, which includes industry's basic knowledge and skills, ways to learn certain professional knowledge, variable translation capabilities, presentation skills, translation strategies and methods. Taking use of limited communicative language ability, professional knowledge and skills, trainee should be able to get in the work as soon as possible. Jobs recently for foreign language students mainly are primary positions in SMEs, such as foreign trade salesman, merchandiser, customs specialist, trade documents operator, the general secretary of foreign companies, hotel attendants and tour guides and so on. Therefore, the development of translation ability should concentrate on translator's limited ability to select effective translation methods and focus on the purpose of primary communication. In addition to the necessary professional knowledge in business, tourism and foreign trade, I think they also should have abilities of bilingual communication skills, mechanical conversion capacity in primary translation, variable translation capability and using reference and electronic resources.

2.1 Bilingual Communication Skills

Bilingual communication skills mainly refers to the ability to effectively process oral and written communication via using English in work and social interaction, which is an improvement from the ability of "language" to "communication skills". The "language" is linguistic knowledge mainly for voice, vocabulary, grammar, while the "communicative competence" is the integrated use of certain language and is the ability to use language appropriately in the right circumstance. Now the occasions for university graduates to use English mainly are hotel reception and services, travel guides, foreign business phone, foreign business interviews, foreign e-mail, fax processing etc.. Bilingual information communication skills can satisfy such needs. However, due to English communication skills for college graduates are relatively weak on the whole, bilingual information communication skill is a more limited, mechanical language communication pattern.

2.2 Machinery Conversion Capacity on the Primary Translation and the Variant Ability in Dealing with Difficulties

University English translation is a practical course in the applied English major. At work, translation really applied is mainly on quotations, negotiations, business contracts, letters and guides, which have been learned systematically in translation teaching, so students only need to do conversion in accordance with what learned. Therefore, I think translation capability includes bilingual information communication ability and machinery conversion capacity in the primary work.

However, from the nature of work, translation is a task or processing tool, having obvious practical function and purpose, which is applied translation. In it, the guiding role of the functionalism has been widely proved. Jia Wenbo, as the mainstream school of functionalism, expressed that "teleology" plays very important role in applied translation, which not only provides its direction at the macro policy, but also feasible way for translator to implement language conversion smoothly. Zhong Shuneng also takes the similar view that the teleology brings guidance to non-literary genre such as brochures though it doesn't act as a comprehensive principle to promote study. Functionalism is basic to a solid and objective rationale on exploring college applied translation teaching. It emphasizes anticipation function as the purpose based on analyzing the original and than choose the best method in accordance with context. The theory proposed brings possibility and rationality of variable translation in theory, because the variant forms under the guidance of a particular purpose but not arbitrary. The variable translation ability which is an effective method to dealing with various of translation problems flexible provides learners with a new connotation that directly impact on the strategies, content and methods of translation teaching in University. The variant, also known as "non-integrity translation" is first proposed by Professor Huang Zhonglian. The translator, in order to meet reader's specific needs and purpose, consciously change the original. Its evaluation criteria are based on the specific reader's satisfaction. The advantage of the variant is to translate information content which subject to the form of the information. It provides a set of alternative methods to deal with the contradiction between content and form. Its instructive to the translation teaching is to information extraction of applied text that translators can provide readers with useful information according to the intention of the commissioned. The dominance to choose full translation or the variant is translation purpose, so translators should know assignee's needs at work. If the needs are not expressed, translators should make a judge based on the relationship between the text and work, thus to provide useful information to readers improving unit content information.

2.3 Ability of Using Translation Tools

In recent years, translation tools highlight the increasing significance at practice. For the ability of using translation tools to assist translation, scholars both home and abroad have also made some study. As early as in 1972, Holmes has proposed study on applied translation in the framework of translation studies, including translator training, translation assistance and translation criticism. Ge Jianping also believes that the ability of translation not only refers to the ability of using language itself, but also

the ability of using tools to help complete translation, so it is necessary to put the skill that how to use translation tools to improve translation effectiveness into training. The graduates, as grass-roots workers, have limited capacity in language communication and conversion, so teaching students to use translation tools is an effective way to help them improve translation capabilities and handle the difficulties at practical work. Translation tools such as network resources, common electronic tools (World Wide Web search engines, powerword, Kingsoft, Dct.cn, Dy.eye etc.), simple translation language database and the use of translation software can help students independently complete all translation tasks and improve translation capacity.

3 Cultivation on Real Scene-Based Applied Translation Ability

Christina Schaffner and Beverly Adab described two major trends in the field of translation teaching in European universities in the book "Study on Development of translation ability." They agree that translation teaching is more emphasis on vocational ability and teachers are increasingly emphasis on the approaches of "Mimic real scene" and "process" to improve students' translation ability. Kirally believes that a certain situation and social and cultural background are conducive to learners to actively play its role in cognitive agent and gain knowledge by the way of meaning construction Thus, to create true scene benefit for learners to construct meaning is one of the most important aspects. Learning from abroad the experience of translation teaching, it is better to use teaching pattern featuring with mimic real scene and aid-the-poor programmed training, focusing on practicalness, openness and the occupational. Based on task-driven and project-oriented, activities in favor of enhancing the vocational ability for learners should be widely conducted. Practice teaching is an essential stage in university education. It is a bridge combined theory and skill education with enterprise application. To enable graduates to adapt to the job, the training on English application should fully take advantage of internship base and carry out teaching under mimic real scenarios. Learning from the real work situation can help stimulate students' thinking and make them more easily construct the meaning of knowledge. In addition, as translation is a complex social activity, the teaching should combined with social context, in which to master professional translation skills.

Scenario simulation approach emphasizes on constructing real translation project scenario in class, which is a more comprehensive profile including various elements, such as the initiator, reviser, user and translator etc. among which the first three can be simulated by teachers in the class. The approach narrows the gap between classroom practice and occupational practice. It effectively stimulates students' internal motivation improving participation and responsibility. The external training put the teaching into the real translation projects entirely. The translation process refers to a variety of interpersonal skills and training on customer-oriented occupational ability based on the demand of signee achieving translation actualization and socialization. Learning from the actual situation and training target on translation ability of Vocational College, the paper focuses on the study of the training model in university to explore a new way on the development of translation ability. Translation teaching contents in university includes various applied text such as tourist reception,

business meetings, banquets translation, quotes, logo, trademark, advertising, business correspondence, company presentations, agreements, tenders, contracts. According to objectives in college translation teaching, teachers should be ready for the following aspects:

Teachers should choose proper text in simulating scenario in the class. The teaching should concentrate on case studies, theory to practical to develop translation skills. As a carrier of knowledge, translated text assures to achieve specific teaching objectives. The content of all these texts should be close to real translation project. Teachers can use their own resources and actual materials accumulated in external training with students as translation work and themselves act as organizers and quality audits. When the text features strong practical and closes to the jobs, learners can truly feel the professional translators' translation process in practice accumulating translation experience.

Teach students to use a variety of translation tools. When teaching, teachers should guide students to effectively use electronic translation tools. They can ask students to search background sources related to translation project before teaching in accordance with the content of the text; collect parallel text with related topics to understand the differences between the source language and the target language. They also can suggest students read some translations about a brief introduction of tourist attractions, company profile, business contracts and so on which can apply some common patterns.

Adhere to real scene-based teaching combined with teaching and external training. First through teaching and analyzing specific text in the class as example, teachers make students learn some established rules and professional routines of contract translation and then arrange contract translation tasks. Students are grouped into the forms of the individual, group discussion and class discussion, through which to revise the translation. As students are weak in mastering language, there are always have mistakes even if the text has been modified, so teachers must rise guiding suggestions and help make correction.

4 Assessment of College Applied Translation Ability

The assessment of translation capacity is an integral part of translation competence. It directly reflects the effect of the training, which is benefit for regulating learners' translation behavior to cultivate their translation ability having clear orientation and initiative. University translation teaching is within the scope of pedagogical translation. The assessment on the trainees' translation ability is mainly for the skills of language using and communication, which is the basis to further examine their bilingual conversion ability. Assessment with customer's satisfaction and industries and enterprises' requirements for standards focuses on primary purpose of communication. It should integrate the practical teaching and enterprise (customer) assessment into the assessment of translation capabilities and emphasize on multiple dynamic assessment to make the assessment content, methods and opportunities diversification to enhance the assessment objectivity and effectiveness.

a) Diversify of content evaluation. For the comprehensive assessment, the content assessed should cover translations on different areas including business English communication, translation of business letters and contracts, foreign trade negotiations, tour reception, tour guides etc., ensuring the assessment objectivity and comprehensiveness.

b) Diversify of evaluation methods. It should adopt a wide range of evaluation methods including class discussion, case studies, self-assessment and peer assessment, practical training activities, midterm and final test to ensure learners' ability reasonableness and accuracy.

c) Diversify of evaluation time. Pining on the characteristics of university teaching, it is better to take dynamic assessment emphasizing on process evaluation. With the development of technology and information era, knowledge is regarded as a process. Knowledge system is in a state of flux, so translation teaching should pay more attention to the process of teaching evaluation. Observe students' behavior in the translation process and make evaluation according to students' vitality in discussion and spoke depth enabling students to discover their own problems and shortcomings in time. Through identifying gaps, they can learn English targeted to improve the translation.

d) Integration enterprise assessment into evaluation of translation ability. The assessment of translation ability in university largely depends on students' qualification in translation at work, so it is necessary for the enterprise to evaluate students' practical ability on applying translation, work attitude and professionalism during training.

5 Conclusion

At present, the university education in China has entered an employment-oriented mode of new transformation stage more emphasis on student professional ability. Under the situation of reform and development of university education currently, however, the study on exploring how to carry out college applied translation to fit for the new era demand, how to locate the translation ability and how to conduct training and assessment is rare. One purpose of this article is to attract more people to pay attention to college applied translation teaching. Applied English major and translation ability are important aspects on professional capacity-building. Through studying on students' translation capacity, the article shows that college translation ability should cover the ability of bilingual information communication, electronic tools using, machinery conversion capacity on the primary translation, the variant ability in dealing with difficulties and translation tools using and concentrate on ability training in study.

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Application of Multimedia Technology in Reading Lessons of College English Teaching

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Abstract. Cultivating students' reading skill is a focus of College English Teaching (CET) in China and its improvement bears necessity and urgency in the new educational situation characterized by the advance in information technology. Based on the theory of Constructivism, the multimedia teaching mode of reading lessons has become possible and feasible. This application of multimedia technology is not to discard the traditional teaching mode completely but to optimize and integrate the strengths both the two modes possess. With regard to the characteristics of multimedia technology and CET at present, three constructive considerations are proposed concerning teaching method, teaching courseware and teaching evaluation.

Keywords: CET, Multimedia Technology, Reading Lesson, Constructivism.

1 Introduction

College English Teaching (CET) in China is expected to help students lay strong foundations in English language, master language learning methods and broaden their cultural knowledge. The basic objectives of CET are to develop students' reading, listening, speaking, writing and translating abilities so as to enable them to exchange their ideas in English. However, CET in the traditional teaching mode has been confronted with lots of realistic limitations and problems, and how to improve the quality and efficiency of CET becomes one of the highlights of the reform of higher education. With the rapid development of information technology, the multimedia teaching mode has gradually developed into an important means in CET, which is centered with computers to integrate sound process technique, image process technique and audiovisual technique into a harmonious whole. It has been widely applied but mainly in the aspects of listening and speaking activities of CET. This paper aims to explore the possibility and feasibility of applying multimedia technology in reading lessons since reading comprehension is the focus of CET and the key part of English examinations in China.

2 The Theoretic Basis: Constructivism

Formalization of Constructivism is generally attributed to Jean Piaget, who articulates mechanisms by which knowledge is internalized by learners. He suggests that through

processes of accommodation and assimilation, learners construct new knowledge from their experiences. With assimilation, learners incorporate the new experience into an already existing framework and the incoming information is modified to fit in with what has been already known. Accommodation is the process of reframing one's mental representation of the external world to fit new experiences. Learners are viewed as the active constructors of knowledge rather than passive receivers, and learners' autonomy and initiative is accepted and encouraged. Teachers' role, however, has shifted from controllers to facilitators who help to promote the learners' meaning construction. According to constructivists, knowledge cognition is not realized by the direct stimuli from the objective world, but by mutual interaction between objective and subjective worlds through dialogues. Learning is the process of obtaining knowledge and knowledge cannot be "taught". It should be "learned" by learners in certain social and cultural contexts with the interaction with other people, including both teachers and learning partners, which requires that collaborative learning play an important role in this kind of construction. Knowledge should also be "learned" in certain environment where learners conduct their "discovery learning" and "exploratory learning" by making use of multiple learning tools and information resources to achieve the expected learning objectives, and the necessary learning materials include printing materials, audio-visual materials, multimedia courseware and any information from the Internet resources¹.

There are many different schools within Constructivism, but all of them share the same basic assumption about learning. That is, unlike a computer disk or empty container, students do not wait passively to be filled up with knowledge, but actively construct their knowledge. Teachers cannot entirely control students' learning, but can do much to facilitate students' own active learning process. The essence of constructivism lies in the idea that learners must individually discover and transform complex information if they are to make it their own. Hence Constructivism requires learners to constantly check new information against old rules and then revise the rules when they no longer work. This view has profound inspirations for teaching, as it suggests a far more active role for students in their own learning than is typical in the traditional teaching mode of English language.

3 The Traditional Mode of Reading Lessons

The traditional mode of reading lessons refers briefly to face-to-face teaching, characterized as being teacher-centered in classroom. The teacher plays a role as an authoritarian who lays stress on the detailed study of the language points, such as vocabulary and structure, while students only passively receive language knowledge and do repeated drill exercises. Passing through the enrichment and development of various teaching methods such as Grammar-Translation Method, Cognitive Approach and Functional Approach, this teaching mode shows much reasonability and feasibility. Its advantages lie mainly in the two-way communication between teachers and students, which fully embodies the sincerity and flexibility in language communications with teaching directed against students' individual differences. However, the weaknesses of this traditional teaching mode are quite obvious. Firstly, the teaching approaches are rather monotonous which may frustrate students'

motivation and initiative of learning. Secondly, the teaching process is mechanical and the teaching materials are usually separated from authentic language environment. Hence the amount of information delivery is restricted without tridimensional teaching scenes. Thirdly, the acquisition of language knowledge is exceedingly more emphasized than the cultivation of language skills. The last but not the least, with the ever-increasing enrollment of college students, teachers tend to have trouble in managing the big English classes with students' English levels being different.

4 The Multimedia Mode of Reading Lessons

Based on Constructivism, It is reasonable and feasible to apply modern multimedia technology to language teaching to improve the efficiency of CET. This multimedia teaching mode of reading lessons is to be established as "learner-centered" by mainly taking advantage of multimedia classrooms, multimedia language labs and on-campus network systems, etc.

Firstly, the teacher functions as a designer, an organizer, a facilitator and a commentator instead of a controller or an authoritarian throughout the teaching process. Teachers may prepare various learning materials for students, such as multimedia courseware, VCR, videotapes and other network resources, to create more authentic and vivid learning "situation" so as to stimulate students' learning interests. All these help to activate their prior knowledge and construct new knowledge in a relaxing way². And the learning process can be facilitated and supervised in class for intensive reading and out of class for extensive reading. Moreover, by adopting multimedia communication system like BBS or E-mail, teachers can conveniently assign, guide and comment on exercises and homework.

Secondly, students become active learners instead of passive receivers. With the availability of abundant multimedia learning materials and convenient access to teachers' guidance and assistance, students are encouraged to construct English knowledge with great enthusiasm. The open learning environment based on multimedia technology and network system enables students to have the opportunity of conducting "discovery learning" and "exploratory learning" by themselves and makes it possible to perform collaborative learning among partners. Students may not only consult teachers, but also share understanding with each other, thus to evaluate and modify what they have learned and thereby to improve their English proficiency.

This multimedia mode of reading lessons has the qualities of making complicate problems simplified and making nonobjective problems intuitive. Its nonlinear organization and display of rich teaching contents can arouse students' positive and divergent thinking and provide dynamic and open structured cognition of knowledge. However, its weakness lies prominently in its lack of sufficient two-way communication, making teachers unable to supervise and urge those students with low level of conscientiousness and self-discipline³. Therefore, the application of multimedia technology in reading lessons is not to discard the traditional teaching mode completely but to optimize and integrate the strengths both the two teaching modes possess in the expectation of achieving relatively perfect teaching effects.

5 A Demonstration of Reading Lesson in New Teaching Mode

CET for undergraduates of non-English majors in China is usually allocated twice (four periods) each week and two weeks for one unit. Within the eight periods for a unit, two periods are given for listening and speaking, four periods for reading and two periods for writing and other extended exercises. To illustrate the above discussed teaching mode of integrating multimedia technology into reading lessons, the following is a brief demonstration of how one intensive reading lesson is conducted.

5.1 Teaching Materials

- 1) Textbook of *New Horizon College English* (Book Two, Unit 5), Text A “Weeping for My Smoking Daughter”;
- 2) Self-designed multimedia teaching courseware;
- 3) A clip of videotape and several pictures of cigarette advertisement, cigarette packets and patients of pneumonia, etc.

5.2 Time Allocation: 4 periods (180mins)

5.3 Teaching Objectives

Students at the end of this lesson will be able to:

- 1) Grasp the key words and expressions in the text;
- 2) Understand the language points and grammatical structures in the text;
- 3) Catch the main idea and structural organization of the text;
- 4) Make use of multimedia resources for obtaining information and references.

5.4 Teaching Media

Multimedia classroom, multimedia computer, projector, big screen, courseware, videotape, pictures, blackboard and chalks, etc.

5.5 Teaching Procedures: Each steps Including Self-Study out of Class for Some Time

5.5.1 Study of Key Words and Expressions: 60 minutes

Teacher’s activities: collect and present the definition, usage, examples of each key word or expression in courseware; guide and supervise the relevant exercises in the textbook

Students’ activities: read all the words and expressions following the courseware; appreciate them with the help of teacher’s oral explanation or notes on the blackboard; finish the relevant exercises on one’s own or by cooperation

5.5.2 Background Knowledge and Lead-in: 30 minutes

Teacher’s activities: download from multimedia Internet relevant knowledge, such as the International Anti-Smoking Day, smoking and pneumonia, etc; upload lead-in

questions on BBS for students' preparation; provide useful websites and give necessary clues or references for students.

Students' activities: collect relevant information and materials from library or multimedia Internet; activate their prior knowledge and construct new knowledge related to the topic by preparing teacher's pre-reading questions; collaboratively discuss in panel and present ideas on the screen.

5.5.3 Reading Comprehension of the Text: 75 minutes

Teacher's activities: remind students of using reading strategies and facilitate their reading; design text-related comprehension exercises in courseware and present them on the screen; explain some important or difficult language points in the courseware in the form of hyper links or on the blackboard with chalks impromptu; summarize the main idea and structural organization of the text in the courseware; check students' learning efficiency by asking some questions orally

Students' activities: read through the text by applying top-down reading strategy; finish text-related reading comprehension exercises; study the language points, grammatical structures, difficult sentences offered in the courseware; discuss and present the main idea and structure of the text collaboratively; collect the difficulties and consult the teacher

5.5.4 Theme-Related Discussion: 15 minutes

Teacher's activities: learn of the percentage of students who smoke; survey on students' viewpoints on smoking.

Students' activities: express their viewpoints in the class; share opinions via BBS or E-mail; write essays after class.

5.6 Teaching Feedback

By integrating multimedia technology into traditional reading lessons, the teaching and learning process becomes more relaxing and interactive. Offered authentic English learning environment and abundant multimedia materials, students gradually build up their confidence in learning with a strong sense of participation. As a result, their curiosity and initiatives in English are greatly stimulated and enhanced. Especially, the well-designed courseware is quite popular with students, who often ask for copies as revision reference after class. Therefore, its designation is expected to be emphasized on the qualities of being both constructive and interesting. All in all, this reading lesson under the new teaching mode is greeted with rapturous applause and thus successful.

6 Further Considerations of the New Teaching Mode

CET has experienced lots of reforms and changes since it is established as one of the fundamental and required courses for undergraduates. Considering the unavoidable difficulties of CET and the characteristics of foreign language teaching, some problems and suggestions are proposed as follows for educators' further consideration.

Firstly, CET in China is designed for non-English majors. Their main concern is to pass the exams of Band Four or Band Six while their exposure to English language is

quite limited due to their major requirements and big-classroom learning environment. According to the syllabus of CET, reading is regarded as the focus of it, and reading comprehension plays the most decisive role in exams. Therefore, the improvement in reading lessons should be put the first place in CET. Application of multimedia technology can enhance students' English proficiency by making it possible for them to experience more authentic English learning environments, stimulating their sensory inputs to arouse their preference to learning, and providing more chances of pragmatic use of English by flexible participation in and out of class. So multimedia teaching mode is definitely expected to be advocated and promoted.

Secondly, courseware is the major aspect of multimedia teaching mode and determines the effect of reading lessons to a large extent. It is necessary for teachers to design their own courseware instead of using the published ones. The courseware should conform to the teaching syllabus, reflect teachers' teaching concepts and styles, and accord with the nature of human learning, students' learning habits and the characteristics of reading lessons. Thus teachers' training for using multimedia technology independently becomes urgent and teachers' moral values and reasonable benefits should be emphasized. However, students should be aware of not being dependent on the courseware too much, for it may flourish their laziness in learning and be harmful for developing their thinking and initiatives in knowledge construction. Meanwhile, the strengths of traditional teaching mode are expected to be kept and optimized, such as the emotional face to face communication and the use of chalks to explain or stress key or difficult language points.

Thirdly, when applying multimedia technology into reading lessons of CET, the teaching evaluation can be mainly conducted in terms of students' learning process but not the only conventional examinations. With regard to the classroom teaching, students' interactions with teachers, the classroom atmosphere and students' performance in assignments are the primary considerations for teaching evaluation. Basically, to evaluate the effectiveness and quality of students' learning, teachers can design some oral and written tasks which involve students' active individual or group participation. By observation and investigation into learning process, teachers can learn about students' attitudes, interests, motivations and requirements of English learning and thereby adjust their teaching accordingly, including teaching methods and teaching resources.

7 Conclusion

It has been accepted that CET should shift its attention from merely the acquisition of language knowledge to the pragmatic use of language and its comprehensive competence. And the conventional CET mode is confronted with lots of barriers that prevent it from achieving its desired goals. With the development of information technology, applying multimedia technology into CET has become the inevitable mainstream of the reforming of CET, which makes it possible to create more authentic English learning environment and to provide more opportunities for students' access to sufficient English learning practices.

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The Reform of Professional English Teaching in the Major of Electronic Information

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Abstract. In this paper, starting with the characteristics of the major of electronic information, from the need to create professional English courses, combined with the characteristics of English courses and teaching requirements, analysis of the current English teaching problems, we propose a concept of English teaching reform. For the practical application ability of students, teaching ideas, teaching methods, materials selection and other aspects should be reformed in order to improve the students' practical skills of professional English.

Keywords: electronic information, professional English, practice teaching, education reform.

1 Introduction

In the information age and the context of economic globalization, no matter which area and what profession, competition for talent is unprecedented fierce. And in the talent competition, the first is to ask to master the language tools in the global exchange of information within human [1]. This makes a bilingual professionals become "scarce commodity." This is both a powerful driving force, but also a heavy pressure to foreign language teaching, including professional English teaching reform [2].

2 The Need for Professional English Teaching in the Major of Electronic Information

The professional English course is indispensable component in university English education. This course is neither a pure language course, nor a pure specialized course, but a course to train students to use studied knowledge of English as a tool to learn the knowledge of others. It enables students to master the basic skills in professional reading, listening, speaking, writing and translating revolving around the practical needs of professional exchanges, so that the students use English as a tool not only for professional information, but also for the exchange of information.

The professional English in the major of electronic information has practical, theme-rich features. Through the study of English courses, enable students to master English vocabulary commonly used in electronic information and habits of professional

expression; to improve reading and translation ability to acquire knowledge from information in English, to lay a good foundation for the skilled reading of English literature of electronic information technology, materials and books; and increase the use of English for professional knowledge and information capabilities, more conducive to master and update the knowledge of the forefront of electronic information science.

The Ministry of Education proposes 12 measures to strengthen the undergraduate education in 2001, which requires all colleges and universities to open 5% -10% bilingual courses within three years, and to introduce the original materials. English foundation and the effects of bilingual education are inextricably linked. To master a certain amount of specialized vocabulary, reading and translation ability in English scientific literature should lay a good foundation of learning bilingual courses. Therefore, professional English teaching should be used as an effective means to link Basic English and bilingual education.

3 The Problem of Professional English Teaching at Present

View from the classroom teaching, the professional English teacher and students both reflect boring classroom atmosphere to show the rigidity situation in teacher speaking, and students can only listen. Judging from the test, English test scores of students and English test scores are basically the same. That is, the basis of a good student of English, professional English achievement is high.

From the answers of paper, students can basically reflect the original meaning, but because they do not deeply understand two different habits between English and Chinese, so the translation was not smooth. The difficult or unfamiliar for some information, most students can not accurately reflect the translation of the original meaning.

Chinese translation of English technical information and English abstracts of thesis writing is an important part of practice teaching, translation, and writing quality is good or bad can directly reflect the quality of English teaching. By reviewing paper, we found that the main problem in the translation of vocabulary is very mechanical, very jerky. They could not understand some meaning into the context, let alone compare, judge, rendering and processing. And the means they use to solve the problem are relatively simple, usually by means of electronic dictionaries and other translation tools to complete the translation [3].

4 Analysis

4.1 Students' Interesting Is Weak, and the Emphasis on English Is Not Enough

In professional English courses, learning content has strong professional color, form and style of articles are not so interesting as College English Textbooks. Meanwhile, professional English has its own specific characteristics of patterns, and long sentences are more, these make it difficult for beginners. Also because of a lot of specialized vocabulary, the students remember them very difficult, and this is not

conducive to the cultivation of student interest in learning. Currently, there are many employers value the University of CET results, so, when students complete the first two years of English learning and through the CET, the majority of them think that is over for the task of learning English. Coupled with a heavy high-grade professional courses needed to be learned, the students spent more time and energy on these courses, thus ignoring the English learning. Compared with Basic English, professional English has too few hours of teaching (for the 32 hours per semester), resulting in difficult to achieve the purpose of English teaching [4].

4.2 Single Way of Teaching, Teaching Is Not Satisfied

The teaching skills and teaching methods are traditional, single, abstract and stylized. A mismatch between learning and application of teaching led to the negative interaction. In the teaching of professional English, subject to restrictions on hours, teachers generally emphasis too much on reading, translation and explain. That makes classroom atmosphere so boring, and students were not enthusiastic. On the other hand, because of the strong sense of professional, the professional English teachers are always selected from the teachers who master the professional content well, but in oral expression and teaching methods, they are less than college English teacher.

4.3 Textbooks and Reference Materials

To ensure high quality teaching, materials is an important factor. Currently, electronic information materials are the original documents in English which have strong representation. These books always cover various aspects of the professional knowledge fields, and generally have done a drawn novel, systematic, and readable. But they are common defects are: Do not contain scientific and technological knowledge of English, or science and technology knowledge of English is not comprehensive, and not be integrated into the English data to explain; The arrangement of teaching materials and the teaching of professional basic courses and specialized courses are not synchronized, the students are in the absence of relevant of professional knowledge, that increases the difficulty of teaching; The content and length of selection is not quite reasonable, some parts are out of date and can not fully reflect the latest developments in electronic information science and cutting-edge technology, so that students lose interest in learning; The lack of reference materials. The development of electronic information technology is so rapid. Therefore, we should constantly update reading and reference materials from abroad, monographs, theses, newspapers and information on the Internet. Textbooks given to students should be appropriate guidance and recommendations.

These cases show that the professional English is needed to set up in any professional course, but the situation can not meet the needs of teaching development. The teaching quality is far apart from the standards that outline required. In order to let it become a useful tool for students after they enter society, it is imperative for the professional English to be reformed.

5 The Idea of Education Reform

For professional English education requirements, characteristics and teaching situation, in order to improve the teaching of English, try to achieve the goal of teaching English, I propose the following idea for restructuring:

5.1 For the Students

Make students realize the importance of learning English. Allow students to clear the fundamental goal of learning English is the application, in terms of learning English for professional purposes is to use English to obtain or exchange of expertise. So the students of electronic information not only need to learn specialized courses, but learning English is also particularly important. It is the assurance for the students to further improve the practical application of the language ability, but also it is an indispensable means of training high quality personnel.

Foster the students interest in learning English, grasp the English proficiency of students. "Interest is the best teacher ". In the teaching process, we should make a lively atmosphere in the classroom, and stimulate students' interest in learning.

To enable students to understand the specific practical significance of English, to enhance interest in learning, teachers can cite many examples to prove it. Such as authors required in various academic journals in English summary; in order to carry out scientific research required access to foreign literature to understand the latest international scientific developments, etc.. Especially with the accelerated process of China, international exchanges will become increasingly frequent, professional English will be a useful tool to success for the students into the society.

5.2 For the Teachers

Have a good professional quality and the quality of foreign language teachers are necessary requirements for doing a good job to teach the professional English. The goal of professional English teaching is focus on improving the professional knowledge through the English learning, not just raising the level of ordinary English language. Teachers who both have a certain standard of English and more professional quality can better accomplish the task of teaching. Training the professional teachers to grasp English is easier than training the English teachers to grasp the professional acknowledge, so, professional teachers can be trained in English listening, speaking and teaching methods.

5.3 The Methods of Teaching

The teaching methods based on heuristic and task. Within the limited hours, in order to ensure the progress, reading can be arranged before class. Teachers make the mission objectives (the views are set forth, reasoning analysis), that will also help students to think independently. In addition, students in the preview may not be entirely correct understanding, so they will listen carefully to verify their original

understanding in class. Through this link, you can improve their sense of participation and interests in learning, teachers can keep abreast of the students understanding [5].

Discuss questions with teachers in the teaching. Although the students know some basic knowledge of professional course, but they are lack of in-depth understanding, and the English expression is unclear. Therefore, it is necessary for teachers to translate English technical terms and professional English in teaching, and at the same time, that may stimulate students to actively participate in the teaching process.

Classroom teaching is combined with extra-curricular training. Professional English teaching is emphasized on professional exchange of information. In order to improve teaching quality, teaching is appropriate to combine classroom teaching with extra-curricular training. Exemplary and authentic materials should be provided to the students in classroom. That makes students familiarize with the expression style of English. Extra-curricular, the students are encouraged to practice in English language by making full use of the second class and modern teaching methods.

We should cultivate the habit of students to read aloud. In the classroom, as long as time permits, teachers can arrange for students to read aloud. This is a bold help for students to speak English and to overcome the "dumb" English.

5.4 Teaching Materials

Focus on teaching content and make change, there must be the excellent teaching materials. Under the conditions allow, I have written professional English teaching materials for electronic information technology. Materials should include three main aspects - the electronic information professional knowledge, professional writing skills in English translation, electronic information technology.

6 Conclusion

Focus on teaching content and make change, there must be the excellent teaching materials. Under the conditions allow, I have written professional English teaching materials for electronic information technology. Materials should include three main aspects - the electronic information professional knowledge, professional writing skills in English translation, electronic information technology [6].

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Using Senior Project to Improve Specialized English Teaching

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Abstract. Specialized English is a course that gaining specialized information by reading Specialized English documents. With the development of technology, more emphasis should be put on specialized English teaching. Senior project is closely related with specialized English, which can improve the teaching result of specialized English. This paper investigated the correlation between senior project and specialized English to figure out a useful method. Based on characteristics analysis, correlation were emphasized on literature review and translation. Improving methods were proposed accordingly. Based on the Sino-US cooperation, this effect can be further promoted. Proper utilization of senior project can improve the teaching effect of specialized English.

Keywords: Specialized English, Teaching, Senior project.

1 Introduction

Specialized English is a course that gaining specialized information by reading Specialized English documents. It mainly adopts English to carry out the knowledge teaching, and the related documents are mostly the knowledge that the students have already known and grasped. This kind of course aim at training the students' ability of utilizing Specialized English and combining specialized knowledge and the language English. Therefore, Specialized English is neither like the basic English teaching nor like normal specialized courses[1].

Nowadays, social productive forces has developed highly, economy integration has been to be the general trend, which has brought forward higher requirement to new century talented people. Specialized English teaching is one kind of means adopted by China education to adapt to times needs. Ministry of Education in September,2001 has been promulgated "some ideas about reinforcing the teaching job of colleges and universities and enhancing the quality of education", requiring clearly that colleges and universities should "to create condition in education, using English carries out common class and specialized course teaching ". Form that, English teaching in specialized courses has become very popular in China College education reform, and universities and colleges all over the country participated in this education reform practice[2].

The capstone achievement in obtaining a bachelor's degree in Engineering is the senior project. The senior design experience is intended to be a culminating experience

in college education as an engineer. Senior project plays an very important role, which is the combination of learned knowledge and practical problems. Senior project is the opportunity for students to utilize their knowledge to solve real problem, a practical training before working. In planning, designing, and executing design project, student will be expected to bring together disparate pieces of knowledge that he/she have gained throughout studies in college. It is critical to student to improve their ability in problem identification, planning, problem solving, which can acclimate him/her to the real working area rapidly. It is also a test for the ability of teaching, creativity cultivation of teachers[3].

With the development of modern science and technology, international cooperation is getting more and more closely. Good command of specialized English is getting more and more essential, especially in academic area. Therefore, not only good command of academic knowledge, but also hands-on ability and good command of specialized English are also necessary for college students to adapt to the social condition rapidly after graduation.

Based on the relationship of specialized English and senior project, this paper is proposed to find a good cooperation of specialized English and senior project, to promote the teaching effect of specialized English.

2 Characteristics of Specialized English

2.1 Purpose

The purpose for this course is lingual teaching, based on different majors. For automotive industry students, the purpose is to gain the ability of reading English academic literature to obtain update information and technology in auto industry, and improve the ability for academic communication.

2.2 Industry Based Learning

Specialized English teaching should be determined by industry demand. The course content, textbook, arrangement of teaching activity should be industry oriented on auto industry. Therefore, course content should include both the basic theory and latest technology development in auto industry, thus to provide update information for students.

2.3 Low Teaching Hours

Usually, teaching hours for auto Specialized English is 32 hours, which is far less adequate to maintain ideal teaching effect. Thus, teachers are not only the spreader for text information, but also instructor for learning method. Focus should be put on developing the ability of effective study and rational learning management. However, most of the teachers spend a lot of time on vocabulary, grammar and translation, but not ability development. Consequently, students' initiative and interest for the course reduced, which deteriorates the status of Specialized English.

2.4 Unique Vocabulary, Expression and Text

Compared to public English, Specialized English has unique vocabulary, expression and text. The language feature for this course is abundant vocabulary, long sentence and complex structure. Thus, this course seems boring and difficult to students. The using of Edutainment Technology is quite essential to improve students' initiative and interest[4].

3 Relationship between Specialized English and Senior Project

Senior project includes basic theory and practical operation, which is widely related to specialized English. Senior project provides a good opportunity to improve the ability in specialized English application.

According to the syllabus, specialized English is arranged on the seventh semester, last for the whole semester. Senior project is on the eighth semester. Specialized English can provide the basic techniques for senior project, especially in literature review and translation.

Literature review is required in senior project. With rapid development of science and technology, more and more material is in English, which means students should put a lot of effort on literature translation. Translation is totally specialized English based task. Without the proper technique, students will spend 2 to 3 times to finish translation with lower quality.

4 Methods

4.1 Using Opening Report Writing to Improve Literature Search, Reading and Summarization

Opening report is an essential part of the senior project, which requires a lot of literature review in the specific project area. Students are required to search literature, reading and summarize the research content of the literature, especially in English. Most of the time, specialized English consists of lots of academic vocabulary, expression and sentence, which are quite hard to students. Specialized English teaching should take the advantage of opening report, to improve the ability in English literature searching, reading and summarizing.

One useful method is to move the start of senior project to the middle of seventh semester. Students can begin to search, read and summarize English literature. Teacher should include some of the techniques in these three subject accordingly, to enhance the ability of students. As literature review requires many literature, students can be divided into groups with 3 to 4 person based on project subject. They can work together to finish the literature review. It can not only improve the ability in literature review, but also ability in specialized English and cooperation, which will enhance the result of both specialized English and senior project[3].

4.2 Using Translation Work to Improve Translation Ability

According to college graduation rule, students have to finish one English paper 5000 words translation. Translation is quite difficult in English literature. Usually, students spend a lot of effort on it, without good result. This is due to the emphasis on application using of specialized English. Without using after learning for a while, students lose the ability in specialized English dramatically. Senior project provides a perfect chance to review the basic technique taught in specialized English.

Therefore, specialized English teaching should include some technique in literature translation for senior project. As student knows this techniques will be used in the following semester, they will have more interest and work hard. Teacher can using senior project translation as a case teaching to enhance the teaching results. Using senior project translation as a case analysis can help students understand theories quickly, shorten the distance between theory and reality, and raise their analysis ability to concrete problems. It is helpful for students to transform knowledge into ability of solving problems in Reality[5].

4.3 Using Sino-US Cooperation Senior Project

As the long-term cooperation between our university and university in US, Sino-US projects are undergoing frequently, among these years. Many students are sent to US to finish their senior project with absolute English environment. Learning English. Learning English in US is obviously better and faster than in class in China.

Doing senior project in US has two ways. One is divided students into different foreigner teams to work with US college students, individually. The other is form a team of Chinese students, to cooperate with US colleges students between teams. Both methods are quite good for the improve of specialized English ability, which is demonstrated by our senior project. Most of the time, students have to talk, discuss, even argue with foreigner in project issue, or daily life, which force students to improve their English, especially in specialized English. All students improve English ability dramatically in listening, speaking, reading, writing and translation. Many students participant in these senior projects went to US university to pursue their master study.

5 Conclusion

Senior project is closely related with specialized English, which can improve the teaching result of specialized English. This paper investigated the correlation between senior project and specialized English to figure out a useful method. Based on characteristics analysis, correlation were emphasized on literature review and translation. Improving methods were proposed accordingly. Based on the Sino-US cooperation, this effect can be further promoted. Proper utilization of senior project can improve the teaching effect of specialized English.

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Teaching “The Outline of China” Course to the Foreign Students Using Moodle

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Abstract. For mutual understanding and friendship among the people of China and the people all over the world as well as cooperation and exchange development in the field of education, culture, politics, economy and trade, the Government of China set up series of scholarship for young talents, researchers, teachers from all over the world (CSC site). These scholarships offers annual basis. Many young talent students from China also go abroad for higher education in well reputed Universities, this because of China’s rapid growth of economy. Authors aim of study to propose a prototype for learning “The outline of China” course and also bring all foreign as well as Chinese students in a platform in the shape of communities, where they can share their idea, issues, experiences, and solution. The prototype is based on Moodle, which provides a great learning environment for online as well as traditional class environment.

Keywords: LMS, e-learning, moodle, metacourse, cohort.

1 Introduction

China representing one of the earliest civilizations in the world. It has a recorded history of 5000 years, and the Chinese created a brilliant culture in the past thousands of years. Since the founding of People’s Republic of China in 1949, the great changes have taken place. China is playing an important role in the international affairs economically, culturally, and politically. It offers many scholarships under the Ministry of education for foreigners in undergraduate, graduate and postgraduate courses, according to Chinese Scholarship council; the numbers of scholarships listed is eleven except those which are being offered by Universities their own. China increases bilateral relationship with other countries in the field of education, culture, economy, politics, and trade.

The outline of China course is being taught to the International students studying in Chinese Universities for undergraduate, graduate and postgraduate programs. The course is designed very technically, which provides necessary and important

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information about history, culture, natural resources, education, geography, politics, tourism and earliest Chinese civilization, etc. Due to, limited semester duration and class timing, students cannot get their desire knowledge about Chinese reform, civilization, culture, education, natural resources and specially tourism places.

The authors surveyed foreign as well as Chinese students of different Universities in Beijing regarding “The Outline of China” course , and finally, we came into conclusion that, there must be an emerging technique through which students can learn more about this course and have a interaction with others foreign students, who are studying in Chinese Universities and even with Chinese students in a platform, where Chinese civilization, culture, education, history, politics, and geography will be discussed. The China is the largest country that sends students abroad for higher education, and students have a great experience from different countries, so they can also share their experiences in this forum.

In this paper, authors propose a prototype for learning “The outline of China” course using a best Learning Management system (Moodle). The academicians around the world have a strong believe on open source software utilization specially Moodle, because Over 100,000 organizations use Moodle all over the world such as Capita and the Open University in UK[12,13]. The authors also discuss the features of Moodle use in this course such as metacourse and cohort. Authors also propose a social network with six different communities such teachers, foreign students, foreign students’ alumni, Chinese students study abroad, Chinese students study in China and Chinese students studied abroad alumni. The authors present its social and educational impact on both Chinese and foreign students.

2 Course Management and Outline

“The Outline of China” course is a compulsory course, which is being offered for foreign students in Chinese Universities, the credit points of course is different in different Universities, for example in University of Science and technology Beijing, the course has a four credit points. The course covers only necessary, basic and important information to foreign students, but student’s interest learning about China cannot be fulfilled by limited class timing and semester duration. The attractive culture, history, education system, geography, natural resources and tourism inspire students to learn more about China, therefore authors propose a prototype using moodle as a LMS, which can be managed as follows:

- Course content (the Outline of China)
- Site wide groups(for communities)
- Audio and Video data
- Lecture notes
- Reading materials

The outline of China course content divides into fifteen parts; each has distinct features. It also provides a discussion forum for foreign as well as Chinese students in every part. Through these kinds of activities students can interact with each other and share their ideas, experiences and knowledge. The course starts with introduction about course and outline of course, the course content is as following. Administrative

divisions and municipalities, geographic features and climate, natural resources, nationalities, population and family planning strategies, religions and their religious freedom, a long history, education and reform in education, politics, foreign policies, and reform and opening to outside world,

3 Moodle as an E-Learning Tool

Educational Institutions, mostly, Universities have put their academic resources and services online. Their aim is to bringing the global communities onto a common platform [14]. Open sources software provides these facilities with minimum investment and great output [15]. There are many famous learning Management systems; and among them are proprietary and open sources such as from email to www servers and even operating system [10]. They provide many facilities for online learning, the moddle is one of them, and it is very famous LMS or VLE, which has been developed to promote the constructivist approach for education [1]. It is open sources software used to organize individual and group learning [2]. It is easy to use, robust, and has rich functionality. Moodle course formats allow many different learning resources; these resources are included word documents, audio, video, web links, pdf documents, e-learning courses and modules [8]. Moodle can also provide tools to create simple html pop up web pages. There are range of collaborative activities in moodle such as discussion forums, chat room, RSS room, polls, quizzes, and calendar. User can also create their own blogs [7].

3.1 Create a Metacourse in Moodle for Content Management

Metacourse is kind of shell, which holds two or more classes, it is beneficial for blended classes as well as a class that has multiple session in a same topic. Users’ addition and deletion can be done only through course, which is linked with it and auto enrollment in metacourse is also possible to assign a key to user in child courses [6]. In “the Outline of China” subject, the metacourse can provide sharing of resources such as course outline, documentaries, extra materials, audio, visual materials and collaborative activities such as wikis, blogs, groups, cohorts, discussion forums among foreigners as well as Chinese students [11]. Every university has its own child course with user’s registration; the child course can also contain gradebook, e-mails, assignments, quizzes, lecture notes etc. The fig. 1 shows the relationship among site wide groups, metacourse and child courses. The metacourse will provide all relevant materials such as text, video, lecture notes, graphics, audio, and extra reading materials for students.

3.2 Site Wide Groups Using Cohort

Cohort is collection of users, which can be allocated across of course category. It can be allocated in other course. It is also called site wide group, where users can be enrolled manually or synchronized automatically. The cohort can be set up as a group, every group can see all the resources in the course, but only discuss and see members in their own group. Even within each course, we can create separate groups,

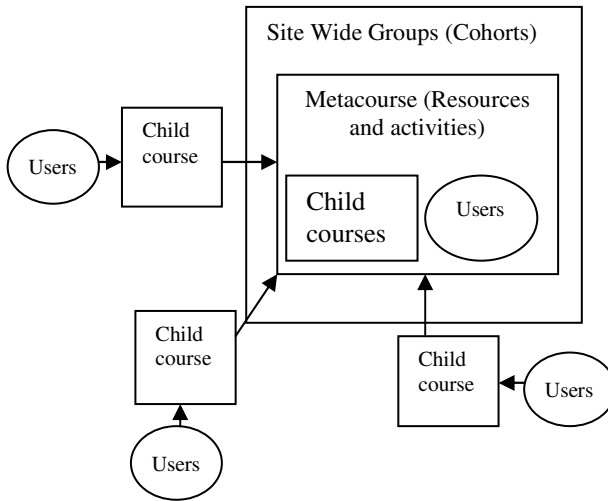


Fig. 1. The metacourse and child course relationship

one for each cohort [4]. We can set up the forums in separate group, so that students can only see the post from their cohort, e.g. students from different universities who learning tourism development course they can discuss in this forum about their field. There are some basic advantages of cohort such as simplify the students enrollment with single click, it has also ability to control membership of global groups with course enrolment at the site level. The groups can be created according to students’ field of interest such as engineering, natural sciences, arts, social sciences, tourism, geography, education, politics, and history.

3.3 Moodle’s Application as a Social Network Tool

According to MOE official released, more students will be encourage to study in China in different fields such as Engineering, Social Sciences, medical sciences and other subject. This is part of China’s educational reform; China also wishes to attract more overseas talents to promote China’s global “Soft power”. (for more information also see Ministry of education site, China), in 2010 the number of International students reached to 260,000 and China’s plan for 2020 is 500,000 in different capacities such as in the form of scholarship and self finance. The figure from MOE also shows that a huge number of students from China choose to study abroad due to China’s rapid growing economy, the number reached 284,700 in 2010. So a great effort made by China for educational reform and open many scholarships for talent students from all over the world. This means that huge number of talents students from many countries and even from China study in well reputed Universities, if they will come in a platform, where they can share their educational experiences, ideas, and issues, so there will be a social reform in the world as this is one of the aim of China.

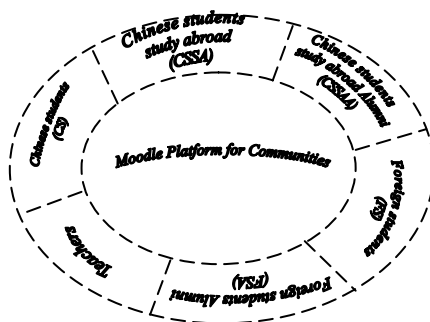


Fig. 2. Communities diagram

a. Moodle Platform for Communities

Moodle provides a platform for collaborative activities such as discussion forums, chatting, wikis, groups, and cohorts [18]. The authors propose six communities, using cohort function, and members can join this social network according to their role such as registered students, guest, teacher, course creator, teaching assistant, and alumni, etc, and the fig. 2 show a hierarchy of communities.

These communities will join a platform where all resources and activities will be shared. These communities can be divided into two levels, first is course based level communities in which every university has their own groups of Teachers, Teaching assistant, Chinese and foreign students and second is site wide level communities in which all teachers, course creator, teaching assistants, students, alumni of Chinese and foreign can join. The student can take advantage of joining both course level and site wide level communities. The site wide level or research based communities members can not join course level communities, although course level communities can join site wide level communities.

b. Impact of Moodle Learning Communities in Students' Social and Educational Development

To create a Community means to provide an environment, where individuals, experts, learners, develop their professional skills and practices by learning together, which is one of the best environments for collaborative learning [16]. In this part authors want to show how much potential a community learning environment has for learner, and how communities can interact with each other and create a good learning environment both for Chinese as well as for foreign students [17]. The communities can play an important role in individual development as well as national development by discussing issues and their solutions [5]. Students are national assets and futures of the nation, who can play their role in national development. As we know that communities are the wave of future, but proper utilization of them in organization is an important factor. We present two levels of community in this research, first is course level learning community, where students of relevant university who learn the outline of China can make communities among foreigners as well as Chinese students, and second is research communities, in which all six types of community members can join and discussion on national and international issues such as education, social, environment, history, culture, geography, natural resources, civilization and economy.

3.4 Moodle Prototype for Course and Communities Management

Moodle provides pedagogical missing features of LMS in many other such tools. Instructors can customize online courses in this flexible platform [3]. It can be used in a single instructor site or a system of thousands of students [8]. In fig. 3 the authors present overall moodle application prototype for “The Outline of China course” and communities along the hierarchy of components.

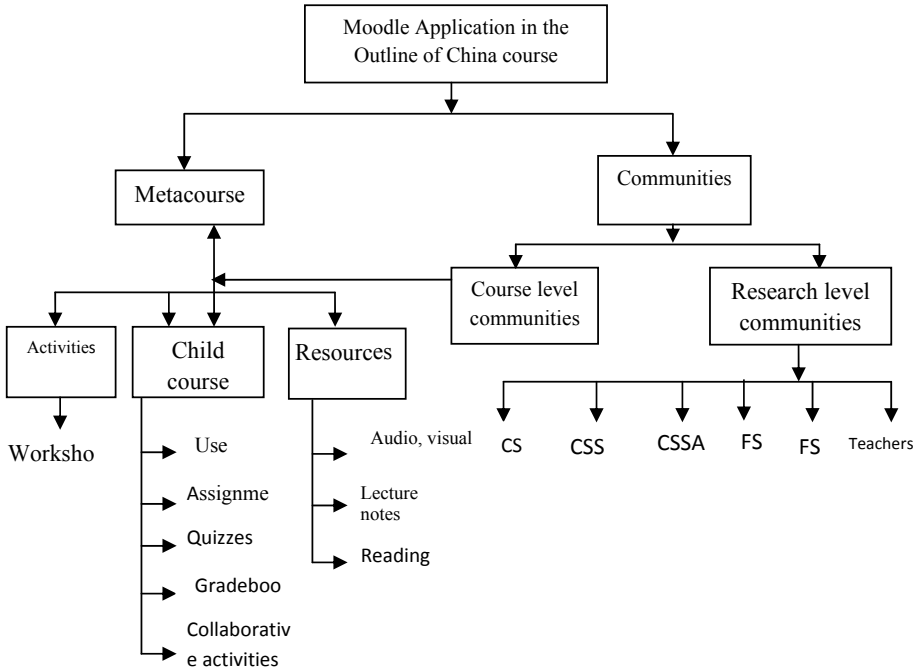


Fig. 3. Moodle platform prototype for course and communities’

4 Conclusion

Very rapid growing community of over 200,000 registered users in more than 175 countries support moodle [12]. Its features provide an active participation from students. It numerous functions and features made moodle prominent in LMS open sources software market [11]. The overall benefits for foreign student as well as Chinese students by using this platform is numerous, the students from other countries can learn a 5000 years of Chinese civilization, a very short time rapid economy growth strategies as well as culture, history, geography, tourism, and education policies.

The whole system provides a platform where both foreigners and Chinese students can come in an environment with a common interest. Through this platform foreign

students can learn Chinese language easily and Chinese students can communicate in English with foreign students whose native language is English. This platform also provides a way to Chinese students to motivate foreigners to come to China for study, visit historical, and cultural places.

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The Research of Audio-Visual Teaching in College Physics Teaching Practice

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Abstract. As a modern teaching method, Audio-visual teaching plays an increasingly important role in modern education. Owing to its outstanding advantages of intuition, vividness, representability and abundant information, audio-visual teaching has been widely applied in modern teaching activities. Combining with the author's practical teaching experience, this work elaborated several aspects including the leading role of teachers during the course of Audio-visual teaching, the production of multimedia courseware and some attentive problems of audio-visual teaching for college physics teaching activities. According to the course characteristics of college physics, this paper emphasized the combining necessity of audio-visual teaching and traditional teaching methods. Both of two methods mentioned above should play their strengths and avoid their weaknesses to enhance the teaching quality of college physics course.

Keywords: Audio-visual teaching, College physics, Traditional teaching mode.

1 Introduction

The purpose of education lies in cultivating talents. It is worthy to study on how to promote the modern education and train modern talents. Naturally, it needs to turn to the modern educating methods to realize the modern education. The Audio-visual teaching is exactly one method of modern education which opens a fresh door of modern education by means of using new technologies, such as computer technology, electronic technology, network technology, etc[1-3].

The college physics is an important fundamental course for science and engineering university. The involved the basic concepts, laws and methods are not only the foundation of other relevant professional knowledge, but also an important item which is used to train the scientific quality and scientific thinking of students[4]. However, the college physics course has its own many features, such as strong foundation, plenty of information and abstract physics concepts. What is more, the teaching activity often involves some physical processes which are hard to be seen and touched. Such as synthesis of particle displacement vectors, the inner energy of ideal gas, the velocity distribution function, the principle of electric fields superposition, the principle of self-induction and mutual induction, the diffraction and interference of waves, the emission theory of electromagnetic wave and modern

quantum theory, etc. It is very hard to achieve expected teaching effect only adopting traditional teaching methods. The emergence of audio-visual teaching has changed the traditional teaching mode. This new method makes the teaching activities much lively and fully mobilizes the enthusiasm and interest of the students, as well enhances their knowledge and understanding.

Recently, the author made a survey to find out the situation that the students recognize the audio-visual teaching in our class. One hundred and thirty two students are involved in this survey. The survey result is presented in table 1.

Table 1. The survey result for 132 students

| Survey items | Percentage (%) |
|---|----------------|
| 1. who interest electric teaching | 97.4 |
| 2. who support audio-visual teaching | 92.7 |
| 3. who grasp the content | 84.4 |
| 4. who think audio-visual teaching promote themselves | 86.9 |
| 5. who think audio-visual enhance communication with teachers | 67.1 |
| 6. who adapt audio-visual teaching | 82.8 |

From the survey, we can see that 97.4% of students show their interest in audio-visual teaching mode, and 92.7% of students declare their standpoints to support audio-visual teaching. Furthermore, 86.9% of students think audio-visual teaching method promotes their learning achievement, and 82.8% of respondents claim that they adopt to this teaching mode well. At the same time, a part of students mention some disadvantages and some deficiencies. For example, 32.9% of students argue that audio-visual teaching hinder the communication between teachers and students. Aiming at these problems, the author is willing to discuss them in sections below.

2 How to Play the Leading Role of Teachers in Audio-Visual Teaching

Fig.1 shows a typical layout of audio-visual teaching. Obviously, teachers are the sponsor and organizer of the whole teaching activities. Teachers are in charge to supply the external learning conditions and inspire the inner learning motivation of students as well as their subjective initiative. Hence, it is necessary to investigate how to play the leading role in audio-visual teaching for teachers effectively. Teachers can enhance the leading role from several items mentioned below.

2.1 Lead the Students to Cultivate Learning Interest

As the saying goes, the interest is the best teacher. It is the first step and vital to guide the students to produce interest in the college physics course. The author sums up several ways for interest cultivation in the practical teaching. (1) Let the students to

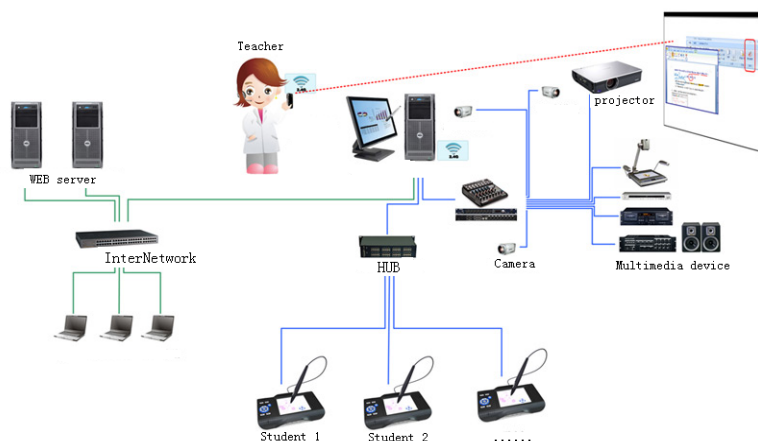


Fig. 1. The typical link of audio-visual teaching

clarify the learning purpose. The status of college physics course should be explained clearly in the whole campus life. Meanwhile, the relationship between college physics and other specialized courses needs to be clear for the students as well. Make the students understand why they ought to learn even master this course. (2) The heuristic teaching method needs to be adopted. The experiments show that the students will enthusiastically depend on themselves to find out the answers of problems met in their learning process under the enlightenment of teacher. Doubtlessly, the heuristic teaching stimulates their learning motivation. (3) Insert the discuss session appropriately. Discussion is prone to give birth to sparks of thoughts and winnow truth from falsehood. Discussion leads the students to share their thoughts each other and adjust their original ideas. Furthermore, the classroom atmosphere will be active because of discussions. (4) Improve the teaching artistry. For example, teachers could intersperse some stories and anecdotes of physical masters during the course of teaching related knowledge. For example, when Newton devotes himself to the creation and research, he feels very annoyed because it is difficult to find out a symbol to describe the calculus. One day, he fell into thinking again while he was peeling an apple. A piece of apple peel fell into the ground unconsciously, and Newton stepped it on excitedly while yelling “find it, that is it”.

2.2 Guide the Students to Form a Good Learning Habit

The access to knowledge of students comes to realization step by step in daily learning life. The repetition of some certain behavior comes into a habit. A good learning habit will benefit someone for lifetime. For example, preview is a good learning habit which will make students focus on those problems they have interests or don't understand. It is also a good habit to summarize and analyze the mistakes occurred in the exercise, while know why the error takes place.

2.3 Study on the Characteristics of Audio-Visual Teaching and Steer It Masterly

The teachers should master the characteristics of audio-visual teaching and give full play of its advantages of audio-visual teaching. For example, for the chapter of special relativity, the animation technology can be applied to arbitrarily scale up and down the dimension of space and time, as well as speed down the fast physical process in order to be seen by students.

3 Fabricate the Courseware Earnestly

Centering on the teaching contents, teachers should highlight the relative knowledge points. Rational utilization of sound, image, video, animation and other multimedia approaches may help to implement situational teaching mode. It is our pursuing goal to make from the invisible to the visible, from the static to the dynamic, from the abstract to the intuitive, from the complicated to the simple. Thereby, the elaborate courseware will largely increase the capacity of classroom teaching and widen the horizons of students. Teachers ought to produce the courseware personally and be modest to learn from others. In the interval of class break, teachers may discuss with students to capture their advices and improve the courseware. The establishment of the good feedback link is helpful to further perfect the courseware in the following teaching activities.

4 Combine with Traditional Teaching Methods

There is no doubt that audio-visual teaching mode has its shortcomings. For example, its flexibility is weak, and to some extent, it weakens the leading role of teachers and reduces the communication between teachers and students. Thus, the combination of audio-visual teaching and traditional teaching methods shows its obvious necessity.

Aiming at the presenting problems in the survey, the teachers should use the different teaching methods flexibly. If the teaching content includes many images and some special physical process, audio-visual teaching is the best choice. If the content of formula derivation is dominant, the traditional teaching method is easier for the understanding of students. For example, explaining the biot-savart law, the teacher can illustrate how to solve the magnetic fields of linear conductor and circular current. Then the composite magnetic density of linear conductor and circular current in a spatial arbitrary point could be demonstrated by multimedia method.

5 Conclusions

Based on the survey, the author talks some viewpoints about audio-visual teaching in college physics teaching practice. In the practical teaching process, the author emphasizes that audio-visual teaching mode and traditional teaching mode should be used cooperatively according to the teaching contents.

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Teaching Object Oriented Database with Db4o*

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Abstract. Databases are used in many facets of society by an array of people. While the obvious platform for most database applications has been a relational Data Base management Systems (DBMS), the object-oriented programming languages which are widely used in software development are not well matched to their development. In many ways it is obvious that there is an ‘object-relational’ impedance and mismatch. There are currently only a few courses about object-oriented database development in universities. In this paper, an object-oriented database named db4o is introduced as a viable alternative to traditional database development methods. It is now used in our newly developed object-oriented database course. With a visual object management viewer, db4o helps students to understand basic object-oriented database conception and to grasp programming with the object-oriented programming language.

Keywords: Object Oriented Database Management System, teaching, Db4o.

1 Introduction

Information available to people today has grown exponentially. The internet and in particular the Wide World Web has further changed the way in which we access various sources of information. Databases are directly or indirectly involved in the management of this information. Databases are used in many facets of society by an array of people. They no longer exist purely in the domain of information of technology [1].

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Traditionally, the obvious platform for the most database applications has been a relational DBMS [2]. There is a significant body of research about teaching relational DBMS [3,4]. On the other side, object-oriented analysis helps programmers to reduce the gap between real problem world and solution world. Object-oriented programming languages are widely used but don't often integrate well with the design of DBM systems. Many researchers have discussed the pedagogies on teaching object-oriented programming [5,6].

When programmers prefer to use object-oriented programming languages to access relational data stores, there will always be some kind of object-relational mapping problems [7]. To solve these problems, Object Oriented Database Management System (OODBMS) is one of the possible approaches. It appears that, there is little research about the teaching of object oriented databases. In this paper, we will discuss teaching object oriented database with an object oriented database management system named db4o. Db4o helps students to understand object oriented database conceptions and to develop applications with object oriented database in practice.

2 Problems with Object Relational Mapping

Relational databases are built on theoretical concepts developed by E.F. Codd [8]. An Entity Relationship Diagram (ERD) is the most commonly used modeling technique for relational databases [9]. While in object oriented programming languages, class and object diagrams are the most used [10]. Programmers strongly prefer to work with persistent data held in program objects, rather than use SQL directly for data access, even though this means working around the famous "impedance mismatch" between tabular data and object state [11]. Object systems are typically characterized by identity, state, behavior and encapsulation. Relational systems describe a form of knowledge storage and retrieval based on predicate logic and truth statements. They are characterized by relation, attribute, tuple, relation value and relation variable. There are distinct differences between how the relational world and object world view the design of a system [7].

Object/Relational Mapping has been the traditional answer to the impedance mismatch. Object/Relational mapping systems whisk data to and from a relational database to appropriate objects based on O/R mappings [11].

Mapping classes to tables is one of the most easily recognized problems. However, the relational model doesn't support any sort of polymorphism. There are three options to map inheritance into the relational world: table-per-class, table-per-concrete-class, or table-per-class-family. Each of them has potentially significant drawbacks. With O/R Mapping, there are other problems such as the schema-ownership conflict, dual-schema problem and entity identity issues [7].

3 Object Oriented Database Management System: Db4o

An object Database Management System is a DBMS that supports the modelling and creation of data as objects. ODBMS combines the elements of object orientation and object oriented programming languages with database capabilities [12]. Unlike

relational database management systems, there are no official standards for ODBMS although some efforts are now being put into the pursue standardization [13].

Db4o is an open source object database management system, which is available commercially and through Open Source license [14]. Db4o enables developers to store and retrieve any application object with only one line of code. Db4o has been chosen for applications in embedded systems in which zero administration, reliability, low footprint, high performance, and smooth are critical features [12].

Db4o provides database engine in a single programming library for both java and .Net. The installation is very simple. Put the library in the development environment, create a blank database file and store any object. For example, In Java

```
public void store(Engine engine){
    ObjectContainer db = Db4o.openFile("car.db4o");
    db.set(engine);
    db.commit();
    db.close();
}
```

It opens the database and stores the object named engine into database. Db4o eliminates the object-relational mismatch entirely.

Db4o offers supplies three different querying systems, query by example (QBE), native queries and SODQ Query API. QBE is the simplest way to retrieve objects but has some obvious limitations. Native queries are the main db4o query interface and they are the recommended way to query database from applications. Native query system gets around all of the constraints that QBE has. The SODA Query API is db4o's low level querying API, which is used when dynamic generation of queries is required [14].

Besides these querying systems, users can review objects or classes in db4o database. With a tool named ObjectManager Enterprise, db4o users can browse classes and objects in db4o object database [14].

4 A Case Study

The Beijing Institute of Graphic Communication (BIGC) elected to offer a new alternative course named *Object Database Management Systems* to all computer major students in the second semester of 2010. This course was offered as an alternative course to the traditional database design course. Students who are interested in this course were required to have some knowledge of object oriented programming language. There were 37 students who took the course, they were second or third year students, and all of them had finished a java programming course and relational database course previously.

In the first week, the classes are designed to help students review their object oriented programming and relational database knowledge and to understand the problems storing/retrieving objects with relational database. An assignment is given to students to store and retrieve object with RDBMS. For example, a class named Student with two fields for simplicity in java:

```

public class Student {
    private String name;
    private int age;
    //...
}

```

Then an object of Student is created and saved into database,

```

Student stu = new Student("Andrew",22);
Connection connection = DriverManager.getConnection(url, username, password);
Statement st = connection.createStatement();
String sql = "insert into student values("+
            """"+ stu.getName()+""", "+
            stu.getAge()+") " ;
st.execute(sql);

```

To query all students in the RDBMS in java:

```

String sql= "select * from student ";
ResultSet rs = st.executeQuery(sql);
if(rs.next()){
    String name= rs.getString("name") ;
    int age = rs.getInt("age");
}

```

In the following several weeks, key conceptions of object database management system are introduced with db4o as the teaching environment. Students were asked to store and retrieve the same objects with db4o. For example, the same object of Student class is saved to db4o database in java:

```

ObjectContainer db = Db4oEmbedded.openFile(Db4oEmbedded
    .newConfiguration(), DB4OFILENAME);
Student stu = new Student("Andrew",22);
db.store(stu);

```

Then objects can be retrieved with different query systems, For example with QBE in java:

```

Student qst = new Student();
ObjectSet<Student> result = db.queryByExample(qst);

```

In this course, students are asked to store and retrieve the same objects respectively with RDBM and ODBMS as the first and second assignment. This helps students to understand the differences between RDBMS and ODBM systems.

ObjectManager Enterprise tool is also introduced in the course. With this tool, students can view the classes and objects in the db4o database. The class viewer displays all classes and their fields as shown in Figure.1. The object viewer will display all objects and their status as shown in Figure 2.

can view classes and objects in db4o in a visual way. All these characteristics help students to grasp the object database and develop better object database applications in practice.

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Application of Streaming Media Technology in Modern Distance Education

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Abstract. With the rapid development of multimedia and network technology, produces a new type of media---Streaming Media. Streaming Media thoroughly overcomes the defects that the traditional Internet can only show texts and images. It sets the video, audio and pictures at an organic whole and will become the mainstream of the Internet application in future. Based on the basic principle and characteristics of Streaming Media, this paper expounds the making of Streaming Media files and discusses applications and advantages of this technology in modern distance education.

Keywords: Streaming Media Technology, Modern Distance Education, Application.

1 Introduction

In the era of the high-speed development of Internet, multimedia technology develops gradually mature. In order to solve the limited broadband and crowded network and to achieve the transmission of narrowband network video, audio, animation and other multimedia information, produces a multimedia technology of transferring information real-time in data flow---Streaming Media technology. Since birth, Streaming Media technology has been widely applied to many aspects of Internet information services, such as the Internet multimedia news release, live online, advertising, e-commerce, video on demand, remote medical treatment, the Internet radio, real-time video conference, etc. And the rapid development of Streaming Media technology also brings about the energy and vitality to modern distance education.

2 Streaming Media Technology

Streaming Media technology is a broadcast technology to make audio, video and other multimedia broadcast with real-time way on Internet and Intranet, without having to download. The essential technology of Streaming Media is stream transmission. In the system of using stream transmission, the user, without waiting for the entire downloaded files completed, only after several seconds or dozens of seconds start-up delay can use the corresponding players or other hardware, software

to decompress streaming multimedia files such as compressed animation, audio or video, and then to play and watch, while the rest of the multimedia files in the server will continue to download.

2.1 The Principle of Streaming Media Technology

There are three parts of Streaming Media system: client, Web servers and Streaming Media server. The realization of stream transmission needs two conditions. One the one hand, the right transfer protocol is needed. One the other hand, it is to need to cache. In the implementation scheme of streaming, HTTP/TCP (Hypertext Transfer Protocol/Transmission Control Protocol) is used to transfer control information and RTP/UDP (Real-time Transport Protocol/User Datagram Protocol) to transfer real-time multimedia data generally. And caching system is used to compensate for the influence of the delay and jitter and to ensure the right order of data packets, so as to realize the continuous transmission and not to appear the broadcast temporarily pause because of network congestion.

2.2 The Characteristics of Streaming Media Technology

Compared with the traditional multimedia, Streaming Media has the following characteristics:

2.2.1 Greatly Shorten the Start-Up Delay Time

Because client can browse without the download of all data completed, the start-up delay time is shortened greatly.

2.2.2 Save Large Amounts of Storage Resources of the User

Streaming Media files generally use a special kind of data compression/decompression techniques (CODEC, Compressor/ Decompressor). No to influence the quality of file playback, some unnecessary data will be dropped. Usually the files having used a streaming media technology have only a 3 to 5 percent of the traditional WAV and AVI files. Therefore, it can save much memory space for client-side.

2.2.3 Synchronicities

Because of download, transmission and broadcast of the technology simultaneously, the information send out by the server can be transferred to a client synchronously and the client can communicate and exchange better with the server.

3 The Making of Streaming Media Files in Distance Education

To use Streaming Media technology to conduct modern distance education, the first is the making of Streaming Media files. Currently, the making technologies of Streaming Media files mainly have Windows Media of Microsoft, the Real Media of Real Networks and QuickTime of Apple, etc. With Windows Media technology below as an example to illustrate the making process of Streaming Media files.

3.1 Introduction of Windows Media Technology

Windows Media is Streaming Media technology launched by Microsoft Company. There are three parts of the key of the whole technology: Windows Media Tools, Windows Media Server and Windows Media Player. Of those, Windows Media Tools is its core part. Its main function is to help users to establish the multimedia streaming in ASF (Advanced Streaming Format). The information such as video, audio, images, control scripts and time points transfers in network packet by using this format to realize the release of Streaming Media. ASF can support arbitrary compression/decompression coding method, and use any kind of underlying network transmission agreement, which is of great flexibility. Windows Media Server plays parts in management and monitoring. It can issue many documents and ensure the safety of Streaming Media files. Windows Media Player performs a play-carrier role of Streaming Media files. The three parts supplement each other and compose an organic whole.

3.2 The Making Process of Streaming Media Files with Windows Media

Figure 1 shows the making process of streaming media files.

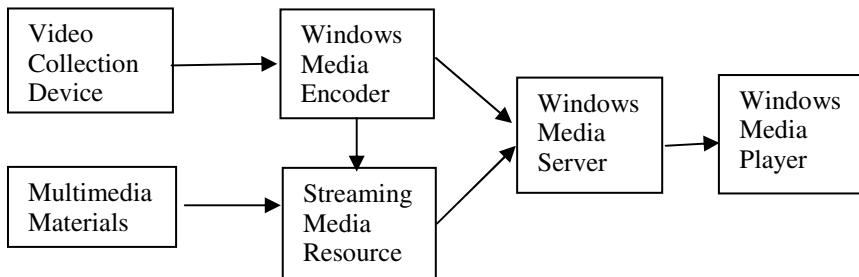


Fig. 1. The Making Process of Streaming Media Files

Firstly, it is recorded with video or audio equipment of the recorded the teachers teach, some AVI animation to demo made by 3DS MAX, VCD/DVD clips, excellent multimedia courseware and PowerPoint/HTML lesson plan etc. Secondly, sound files and images recorded by using Windows Media Encoder are transferred to ASF files and are saved on Windows Media Server. Also continuous real-time data streams generated by teachers teaching process through MSBD (Media Streaming Broadcast Distribution) agreement directly are released to Windows Media Server. Finally, client will decompress and play the data stream files that have received from Windows Media Server with Windows Media Player.

4 Applications and Advantages of Streaming Media Technology in Modern Distance Education

Modern distance education is a kind of new-type teaching mode with the development of the modern information technology. It overcomes the shortcomings the limitation of the traditional education because of time and space and realizes teaching and learning anywhere at any time. In the process of distance teaching, the most important is to transfer information that may be diversified, including various types of data, such as video, audio, animation, graphic, etc, and then to present in the client browser. In the limitation of the current network broadband, stream transmission will be the best choice.

4.1 Applications of Streaming Media Technology in Distance Education

4.1.1 Live Online

Live Streaming Media is to direct-broadcast after the digital of the teachers video/audio teaching content, while the learners in client Web browser or Streaming Media player is watching. It is named real-time teaching on the Internet. Not to store Streaming Media files in advance, online teaching based on Streaming Media can direct-broadcast not only after the video/audio digital, but also real-time electronic document and electronic screen video/audio information, and therefore, accomplish information and electronic document broadcast information completely in sync. After live online teaching process, teaching programs generated based on Streaming Media format can be stored to Streaming Media Server and the learners can often watch by way of vod if the teaching content without understood, until they have understood the teaching content completely.

4.1.2 Online Demand

The learners can request specific data stream playback and choose learning content by online demand. The teaching content forms the learners demand are rich and colourful, such as multimedia teaching software, teachers' video, related text, graphics, animation, electronic lesson plans, etc. Meanwhile, learners can control the learning process by themselves, such as to suspend, replay, forward, backward and flip the learning content. In this study way, learners no longer accept knowledge passively, but completely master learning autonomously. The technology allows for different learners by starting delay in the users' computers to use the corresponding release device, or to get first-class teacher's instruction but no time, space, or region restrict. It is real sense of "Remote teaching" .

4.1.3 Two-Way Video Communication

Two-way video communication is a real-time information transmission between a teacher and learners. The camera can real-time transfer both a teacher's teaching process and the learners' learning process to Streaming Media coding machine. By acquisition card collection, the information is real-time posted on the Internet after coding, which can make a teacher and learners conduct real-time interactive learning, such as exchanging online and participating in discussion activities.

4.2 Advantages of Streaming Media Technology in Modern Distance Education

4.2.1 Interactivity of Teaching Information

Teaching information using Streaming Media can not only live video/audio teaching information in the network, but also live electronic documents and electronic screen information. The distance learners can through touch screen or mouse be free to demand the teaching programs that they want to watch and can control the teaching programs at will. Meanwhile, learners can also transfer images and sounds to teachers when they need, which can simulate the school education way, also the class mode. With using the video conference and media streaming video demand function, teachers and learners, learners and learners, learners and media can carry on the omni-directional interaction.

4.2.2 Richness of Teaching Mode

Streaming Media technology used in modern distance education can reappear teachers' curriculum explanations and the instruction and teaching scene in traditional process of teaching and also increase the blackboard function PowerPoint electronic lesson plans and index title area aiming at these content. Therefore it can make learners switch learning content freely according to their learning need. It will break through the limitation of the traditional face-to-face teaching style and provide a time scattered, resources shared together and vast teaching mode for learners.

4.2.3 Conveniences of the Courseware Making

Using Streaming Media technology to make multimedia courseware does not need teachers in making multimedia courseware as before to design HTML pages and SMIL files etc, now only to connect cameras, and then they can easily put their teaching contents directly to learners. Or firstly record teacher lectures, then use this technology for synchronous editor. This kind of software operates simply. It can make teachers put their more energies into course study.

5 Conclusion

Streaming Media technology as a new network technology has shown strong vital force. Streaming Media technology used in network teaching enriches the teaching contents and show forms greatly and brings distance education vitality. With the further development of the computer network and the continues expansion of the network broadband, multimedia network platform will be constantly improved and Streaming Media technology will play a more important role in distance education in the future.

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Study on Innovation Mode of Quality Piano Curriculum in Senior Normal Universities and Colleges

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Abstract. The quality piano curriculum has been developed in many universities and colleges in China since its construction in 2006. I found some problems in many-year practical activities and thought it through, and studied the innovation mode of the quality piano curriculum on the basis of the status analysis on the quality piano curriculum of the senior normal universities and colleges to think that the passionate teaching is required for the quality piano curriculum and the modern media is necessary for constructing the piano teaching. So I put forward some viewpoints for how to innovate and construct the quality piano curriculum.

Keywords: quality piano curriculum, innovation mode, passionate teaching, modern media.

1 Introduction

The quality curriculum construction is the important constituent of *Teaching Quality and Teaching Reform Program for Higher Education* of the Ministry of Education, and is also the key of improving the teaching quality and the personnel training quality. The connotation of the quality piano curriculum includes the following aspects: a. Education is the purpose, the aesthetic education is taken as the teaching objective, and the music elements (rhythm, texture, harmony, and musical form) during the process of playing the piano are expressed in the music to embody the modern concept of music education taking the music aesthetics as the core. b. The modern technical methods and means are used to systematically integrate the piano teaching resources and highlight the radiation effects and modeling function. c. The close combination of piano scientific research and piano teaching is enhanced. Five high-class thoughts are embodied, namely, high-class teaching staff, high-class teaching contents, high-class teaching methods, high-class teaching materials and high-class teaching management.

At present, the construction of national quality piano curriculum and provincial quality piano curriculum has had a certain scale, and these quality curriculums have made a positive contribution to improving the teaching quality, enhancing the teaching and scientific research abilities of the teachers and improving the comprehensive quality of the students. However, I found some problems in many-year practical activities and thought it through, and I think that the quality piano

curriculum in the senior universities and colleges does not proceed smoothly without a hitch and has many difficulties in the construction. In particular, the quality piano curriculum can not be renovated in curriculum content in time and lacks of characteristics in innovation, so I put forward some ideas on these issues.

2 Status Quo of Quality Piano Curriculum

2.1 Advantages and Disadvantages of Quality Piano Curriculum

(1) A complete and scientific teaching system for the quality piano curriculum has been established, and a multi-level curriculum system has been formed in the light of different needs, different ages and different physiological and psychological characteristics. For example, the elementary piano curriculum has been set in groups for freshmen and sophomores to enable them to master the piano playing technique and solve the common problems in playing; the small class and ensemble class teaching forms have been used for the junior and senior to broaden the scope of student's knowledge and solve the individual problems. At the same time, Foreign History of Piano Art, Chinese History of Piano Art, Piano Pedagogy and other theory curriculums have been opened. (2) The curriculum contents are relatively perfect, which are mainly characterized by establishing the correct art of playing and musical quality concept, forming a good habit of playing and performing, and mastering the artistic skills in playing the piano, such as hand posture and finger support, sight-reading playing, sight reading, staccato, legato, non-legato, musical interval and chord technique, musical scale and arpeggio technique, polyphony technique, soft pedal application, bitone and tritone technique, basic harmony analysis, etc. (3) The teaching methods mainly include individual class, group class, ensemble class and collective class. The multimedia is used appropriately in the teaching to make the piano curriculum more interesting and scientific. In addition, the heuristic method, the instruction method, the demonstration method, the knowledge point method, the open method and other teaching methods are blended for use to ensure that the piano curriculum makes the students understand the formal beauty and structural beauty of the music and fully activate the students' imagination and creativity. (4) A evaluation system for the quality piano curriculum has been established in teaching evaluation to perfect the teaching archives, the evaluation principles, the evaluation methods and the evaluation ways, and is expressed in the form of quantification.

There has been a certain achievement in the construction of quality piano curriculum, but there are many deficiencies, for example, the interest-oriented utilitarianism phenomenon is serious; there is a certain gap between the course development objective and the overall social demand; the multimedia piano teaching is still at the initiation, exploration, practice and development stage; there are still many deficiencies in the practical piano teaching process.

2.2 Insufficiency of Education-Oriented Music Connotation Education Construction

The most essential characteristic and the largest advantage of music education lie in that it can make people happy to obtain spiritual and aesthetic pleasure, namely, the

musical world the ancient people said. The reason why balance was pursued in the ancient Chinese music teaching is harmony, harmony is the necessary condition of existence, is most necessary and essential for human development and is beyond the capacity of other disciplines

However, many people learn to play the piano in the view of material gain in the modern society. To emphasize piano skill education and focus on skill training seem to promote the development of piano education to some extent, but this kind of piano education having impure academic motivation, violating the laws of music education, having excessive emphasis on music skill training and ignoring the cultivation of musical capacity is a kind of utilitarian music learning, for example, many students who have passed grade 8 or grade 9 piano exam play the piano inflexibly and lack of ability to understand the musical composition, and they can not make people hear the dulcet music and feel rich colors and can not express the feeling in the music at deep level, so that music becomes an empty shell without soul, only with skills. Like the behavior characteristics expressed from Yao Jiaxin event, the purpose of educating people was not achieved.

3 Study on Innovation Mode of Quality Piano Curriculum

3.1 The Passionate Teaching Is Required for the Quality Piano Curriculum

Connotation of passionate teaching: The connotation is not a classroom teaching mode, but only an important means to realization classroom interaction. In view of causality causing interaction between teachers and students, the teachers' teaching passion is the fuse of interaction between teachers and students, and the students' classroom "activity" is the natural response to the passion of teachers. The purposes are that when the passion of the students is fully mobilized to influence the teachers inevitably, and the mode of teachers' teaching passion, students' learning passion and interaction of teaching passion is followed to ensure that the benign circulation of passion interaction is formed between teachers and students. During the whole teaching activity, the teachers continue to understand and explore the students, so that the students form the correct habit of thinking and scientific world outlook and moral outlook while accepting the knowledge and improving the capacities continuously. In short, the important sources to produce the teaching passion come from fully molding the students and continuously perfecting the students' personality in the classroom teaching process.

How to achieve passionate teaching?

(1) Passion comes from the confidence to the piano education, the self-confidence to control the classroom teaching ability, the self-confidence to the teaching contents (skills, techniques and style of musical composition) and the self-confidence to the learning capacity of the students.

(2) Passion comes from the exploration to the unknown. The classroom teaching is not a process to explore the unknown, but a process to teach the known. Because of the nature of piano, the teachers must repeat the known contents of the teaching materials in the classroom over and over again, so it is easy to generate slack psychology, and the teaching passion can not be conducted. Therefore, to make the

classroom teaching full of passion, each lesson should be regarded as a process of exploring the new teaching process and the new teaching methods. The piano works with different styles should be selected by aiming to the characteristics of the students, and various teaching means should be used to make the students master the playing skill and the capability to annotating the works with strong expressive force, thereby achieving the purpose of shaping and educating the students. The teachers enjoy the exploration to the unknown and continue to perfect their own passion in this process.

(3) The mood and emotion quality cultivation should be made in the piano classroom teaching. Mood is the experience produced for whether the objective things meet the needs of the people. Mood and emotion are the power components in the psychological quality structure, have the spontaneous factors influencing the human behaviors and should be controlled purposefully and consciously.

In the piano classroom teaching process, the purpose of thoroughly excavating and correctly expressing the emotional factors should be achieved to ensure that the whole classroom teaching process is full of passion. The teachers should make themselves and the students merge into the music in the teaching process to profoundly experience the happiness, anger, grief and joy of the composer, pursue the true, the good and the beautiful, cultivate the taste and temperament and sublimate the spirit, thereby achieving the purpose of education. For example, the teaching forms of four-hand playing and double-piano playing are used to stimulate the learning interests of the students, initiate their passion, turn on the heart lights of the students and make the students listen respectfully, observe, analyze and comprehend at any moment, so that their active and positive learning capacities are strengthened, the cooperative consciousness and the collective sense of honor are enhanced, and the emotion of each participant is sublimated.

(4) The emotion and sense merging should be achieved in the piano classroom teaching.

The piano teaching is an active process of playing, listening, analyzing, understanding and cooperating, the essence of interaction lies in emotional interaction and communication between teachers and students. Sense refers to a process of passing on the teacher's knowledge to the students in the classroom teaching activity; emotion refers to a process that the teachers' passionate demonstrative playing and in-depth explanation affect the students and themselves to induce the students' comprehension to the music to the maximum extent, so that the students can fully master the knowledge to arouse an emotional resonance in human values and guide their leaning life and normalize their behaviors to achieve the purpose of education.

3.2 Quality Piano Curriculum under Modern Media

Modern education media mainly means modern technology information carriers that can record, store, transfer, process and present educational information. According to how those media impact on human sense organs, modern educational media can be classified as visual media (slide show, projection, miniature materials, etc.), audio media (radio, recording, CD player, electronic audio, phonograph records, etc.), visual audio media (movies, TV, video, VCD, etc.) and interactive media (multimedia computer aided teaching system, language experimental teaching system, campus

network system, the Internet, etc.) Professor Li Kenong from South China Normal University defines modern teaching media and technology as: theories and practices that apply modern education theory and modern information technology through the process of teaching and learning to realize education optimization by means of teaching and learning resources design, development, utilization, evaluation and management.

Compared to traditional teaching media, modern teaching media has some distinctive characteristics: (1) Advanced equipments: including projectors, tape recorder, VCR, TV, computer, LCD projector. (2) Varied presentation forms: modern media can use video, audio, color and space, etc., to present teaching content from multiple perspectives. It can breakthrough limit of time and space, reflecting objective things intuitively and vividly, making abstract problems concrete, and complex problems simple, therefore essential characteristics and internal relations of things will be revealed.

The ultimate goal of application of modern teaching media and technology is to improve piano teaching efficiency and optimize piano class. In the limited time of class, teachers can use multimedia to inspire students' interest in learning and arouse their enthusiasm for music, to make use of their multiple sensory perceptions to add amount of information they can get, and to let them receive emotional and moral edification while learning knowledge and skills. However, the application of modern education media in music teaching may result in many drawbacks: (1) While the amount of information is abundant, the class may be superficial. Since all of music-related materials are used in teaching scenery, key points and difficult points cannot be emphasized, thus, students are overwhelmed, and the contents of class will not be understood and received well. (2) The class may fall into routine and limit students' thinking. All of modern media courseware is pre-designed by teachers, students are given little room to think further and have to do some simple and superficial answers according to teachers train of thoughts. The potential development of thinking ability of the students is imprisoned and their creative mind will not be set free. (3) In-person teaching is replaced by media. Playing is an indispensable link in music learning, but opportunities that students can get to play in class drops sharply, some even to zero, due to application of modern media courseware in piano class. (4) Teachers neglect themselves as leading roles in class, which weakens teachers' function in teaching practice.

So, how to construct quality piano curriculum by modern education media?

(1) Highlight key points of teaching contents by theory of constructivism. In courseware, teachers should consider key points of piano class, design teaching contents based on seeing, listening and interest inspiration, let students experience process of creation, only in this way can students construct an understanding of teachers instruction. With the help of modern education media and technology, through music playing, lecturing and presentation, key points and difficult points of teaching contents can be focused on. During the robust process of teaching and learning interaction, students will be encouraged to summarize and master characteristics of music works, so they will complete knowledge construction. For example, in group piano class, students can discuss some methods such as songs accompaniment and improvisation, or contents of a small concert, students should be guided to discuss mainly on focus imaginatively, without going astray far from teaching goal and contents.

(2) Controlling amount of information transferred. A teacher should control the amount and rate of information transferred in class. If contents are presented too much and too fast in a class, it will be beyond what students can accept and cannot be understood well. So, a teacher must have a good arrangement for the amount of information and steps of task to achieve the teaching goal effectively and substantially.

(3) Construct students' creative thinking skills. It should be emphasized that students are subject of teaching activity. Let students actively participate in teaching activities to realize interaction between teacher and student and between students themselves. For example, encourage students to use their own viewpoints when learning piano works, to put forward some exploratory problems for music works performed. By making comparison research of on works performed by the media, the teacher and themselves, students will know if the timbre they played is melodic, or if the style is accurate, and, after further discuss, they can resolve the problems that appear in performance.

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Strengthening Quality Monitoring System of the Experiment Teaching, Enhancing the Quality of the Experiment Teaching

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Abstract. As for the factors influencing the experiment teaching quality, this paper gives an analysis to the problems in the quality control system in experimental teaching. Combining with the characteristics of our university's experimental teaching and the management practice, we have made an active exploration on the construction and optimization of quality monitoring system during the process of the experiment teaching, and put forward ourselves' monitoring indicator of quality control system and gained ideal results in practice.

Keywords: Experimental teaching, monitory control system, quality.

1 Introduction

Experimental teaching is an important part in university education teaching, which constitutes an organic whole in undergraduate education of universities together with theoretical teaching, and has an important influence in developing the students' creative spirit and practical ability. With the deepening reform of university education, to improve the experimental education quality is increasingly required, at present, the quality monitoring systems for undergraduates teaching established by many colleges and universities are mostly aimed at the characteristics of theory teaching. There are some problems in experimental teaching quality monitoring system, such as unscientific experiment teaching quality evaluation system, inadequate monitoring intensity, and weak monitoring role for students and lack of systematicness in experimental teaching quality. Therefore, the important issues worthy of our careful study and practice is to carry out studies of experimental teaching quality monitoring measures in colleges and universities, establish a student-centered and experimental-teaching-strengthened quality monitoring system, strengthen the concept of practice education and improve the quality of experimental teaching. In recent years, aiming at the factors affect the quality of experimental teaching, the problems existing in the experimental teaching quality monitoring

system has been analyzed, for the purpose of strengthening experimental teaching and raising the quality of experimental teaching on the whole, aiming at experimental teaching characteristics in our university and combining with our specific teaching experimental management practice, we have actively explored and practiced the establishment of experimental teaching quality monitoring system and the optimization of monitoring system and put forward our own monitoring indicators system and applied them in practical work, the results are satisfactory.

2 Some Problems Existing in Experimental Teaching in Our University

2.1 The Relatively Insufficient of Experimental Equipments

In recent years, the equipment condition in our school laboratory is greatly improved with the academic funding offered by the State central and local governments to build the fundamental laboratories and characteristic advantage discipline laboratories. From 2002 up to now, the total research funds have accessed to 60 million Yuan, together with supporting investment in our school, our school actually invests more than one million on laboratory equipments. putting into use these instruments and equipments has greatly changed the condition of laboratory hardware, which enables the laboratory has entitle to carry out all experimental items listed in teaching program, and to carry out 50-70% experiment of “three nature”. However, there is no doubt that the phenomenon is still existing that little fund in the specific allocation with large amount of fund investment, part of the routine laboratory equipments are relatively less than high-tech equipments, and lack of conventional instruments in some experimental courses, which results in more persons in a group in some experiments. A small number of experiments can only be arranged to visit or made for some demonstration experiments due to lack of equipments, which greatly reduces the effect of experimental teaching, the operational abilities of students can’t be properly trained and exercised.

2.2 The Relatively Lack of Funds for Low-Value Consumption

High-quality experiment project can’t be obtained without the support of laboratory consumable items. Currently, the funding for low-value consumption remains roughly 300 million Yuan each year in our school, which includes not only the laboratory consumable items of the students majoring in science and engineering but also the reagents and animal experiments by medical students, etc. The funds are allocated to school faculties and laboratories to use each year according to a certain proportion, which results in a relatively lack of funds for some schools in low-value consumption, such as College of Life and Science, Chemistry and Chemical Engineering College. The relatively lack of funds for low-value consumption has objectively caused some experimental projects can’t be carried out at all or carried out without high quality, students practical operation ability, to some extent, can not achieve the requirements of personnel training.

2.3 The Development of Experimental Team Lags behind the Development of Theory in Teachers' Team

Establishing a group of high-quality experimental teachers is the key to build a good laboratory; the quality of experimental personnel will determine experimental level and the quality of experimental teaching. With the rapid development of modern science and technology, in particular, the rapid development of information technology has brought new opportunities for experimental teaching.

New technologies such as computer network, virtual simulation, etc. should be timely introduced into experimental teaching in the laboratory to advance modernization of experimental teaching methods. Brand new experimental teaching methods can foster students to give full play to the imagination and become masters of the experiments. These technologies are required to be first mastered and applied by laboratory personnel. It is a very urgent task for the laboratory personnel to update their knowledge and make improvement. Some irrational structure phenomenon exist in the current experimental team, and it fails to form a technical team and a management team to adapt to laboratory development, which influences development and quality improvement of experimental teaching research. Meanwhile, because the current distribution of our school emphasizes more on science-oriented research, most teachers, influenced by employment job titles and post allowances, are actively declaring research topics, writing research papers, on the contrary, they are lax on undergraduate teaching, many teachers considered that: "Comparing with having a good class, it is more effective to declare a number of research topics and write several research papers, therefore, as long as the students attend the class, that's OK if they do not have much response." Laboratory staffs are also impacted by this idea, together with the particularity of experimental courses. Often they don't invest enough time and energy on experimental research, preparation and guidance, which also greatly reduces the quality of the experimental course.

3 Strengthening Laboratory Monitoring System in Experimental Teaching

3.1 Introducing Experimental Teaching Supervision and Guidance System

Make the Experimental Teaching Supervision and Guidance team give full play to their supervising role. Organize the School Experimental Teaching Supervision and Guidance team to deep into the scene of experimental education in every institute, through lectures, laboratory sampling tests, teaching document checks, issuing questionnaires to students and other ways to check the experimental teaching situation of every institute, make inspection and evaluation on teachers' experimental effect, and make timely feedback and improvements on the existing problems. Follow the tracks and check the experiment teachers usually reported by the students, give them timely help and guidance to urge them to improve their teaching methods as soon as possible to improve the teaching level. Experimental Teaching Supervision and Guidance Team makes a full range of supervision, guidance and inspection on all aspects of the experimental teaching process and the effect, which improves the quality of experimental teaching with the method of combining supervision and guidance, guidance with supervision, giving first place to guidance.

3.2 Establishing Secondary-College Teaching Quality Monitoring System

In order to better play the role of college in experimental teaching quality monitoring, our school has established and implemented secondary-college teaching quality monitoring system. College leaders and the Experimental Teaching Supervision and Guidance Team made up of relevant professional professors are responsible for the foundation of the college and the examination of unit and guiding the teaching work. Each college formulate its teaching standards and quality standards and practical implementation plans of each section in experimental teaching according to their respective characteristics of disciplines of the experimental teaching, for the experimental teaching files, experiment content, experiment guidance, experimental teaching effect etc, we insist combination regular inspection with random check, grasps the situation of experimental teaching, and take relevant measures according to the actual situation. The implementation of the secondary teaching quality monitoring system fully mobilize grass-roots teaching unit of the college to strengthen the enthusiasm of teaching quality management, different from the college-level monitoring system, the controlling factors in the secondary teaching quality monitoring can be an organization of teaching links and running states at more microscopic level.

3.3 Introducing Students' Supervision Mechanism

Students are both participants in teaching activities and audiences in teaching activities, as far as the teaching quality concerned, the students have enough experience, also have enough rights to speak. Therefore, we make use of the "student correspondents" system on the one hand to make students provide various phenomena, conditions and factors affecting the quality of teaching, on the other hand, we also go directly deep into the experimental teaching field, extend questionnaires to students and investigate some key factors among students.

3.4 Formulating a Scientific and Rational Experiment Questionnaire

In view of the above several measures, we respectively formulate the experiment teaching questionnaire in University of South China (for experts), the experiment teaching questionnaires in University of South China (for students). We mainly consider three major primary indexes through the experiment teaching for questionnaires used by experts:

For three primary indexes, we mainly consider their inherent law, they are divided into: management of experimental teaching, process of experimental teaching, the quality of experiment teaching.

Experimental teaching management, this primary index contains the equipment and environment, experimental arrangements and organization etc, two secondary indexes. They mainly inspect the quality and conditions of experiment devices, use and maintain of equipment, hygiene in lab environment, experiment timetable, number of people grouped in experiment, log books of experiment teachers. These indexes mainly inspect the situation of basic hardware and situation of organization in laboratory experiment.

The process of experimental teaching, this primary index includes the teaching materials, experiment preparations, experimental guidance etc three secondary indexes. They mainly inspect the experimental teaching outline, teaching calendar (teaching schedules), experimental teaching materials or instructions, lab reports. The experiment teaching staffs who lecture and guide experiments beforehand record; make sure whether experimental arrangement are reasonable and get prepared for the students' experiments. Carry out the post responsibility of experimental teachers. These are mainly for the preparation of experiment teachers' guidance and guidance behavior.

The quality of experiment teaching, this primary index contains students' operating level, the student evaluation etc two secondary indexes, they mainly examine the ability of students' independent operation and normalization and the feedback of experiment course from students. This primary index is the core of the whole quality monitoring system, and the basic observation point in measuring the quality of experimental teaching.

what we mainly concern is the actual experimental teaching effect with questionnaires used by students, mainly involve experiment contents, experiment consumables, experimental guide from teachers, experimental effects from ten big aspects of, through the investigation of these problems, we can analyze the advantages and disadvantages of specific teachers, specific experimental courses, specific experiments project and weak links and take practical measures to improve based on these aspects.

4 Apply in Practice, Improve the Quality of Experimental Teaching

From this semester, we will organize school teaching supervisor groups to inspect experimental teaching on experimental sites. Our focus is to check course teaching demonstration experiment center at the provincial level and teaching situation of physics and chemistry two open laboratories etc. in the inspection process, the members of Experimental Teaching Supervision and Guidance Team come to the laboratory is the cumulative total 22 person-times, retrieving 807 copies of the *experiment* teaching questionnaires in University of South China (for students), 17 copies of the experiment teaching questionnaire in University of South China (for experts), mastering relatively comprehensive and just firsthand original material that reflect the situation of experimental teaching in our college. First-hand experts in teaching supervisor groups evaluation results show that our overall situation of experimental teaching in the majority is "excellent" reaching 82.35% above. The students' questionnaire statistical results show that students think that our overall situation of experimental teachers teaching is good, reaching 88.73% above.

In questionnaires we found that experts and students' mainly responded questions focused on "experiment instruments and equipments aging Taiwan insufficient sets, each group has too many students, reducing the students' opportunity to practise, thus affecting the effects of teaching." Etc. Main problems are as follows:

(1). space limitation in experimental platforms, insufficient sets of instruments, or wear enough, low value funds in colleges, or experimental animals are repeatedly used, or unreasonable arrangements in college teaching, each group has too many students, reducing the students' opportunity to practice and thus affecting the effects of experimental teaching.

(2). Experimental instruments or equipments are aging, insufficient sets of instruments, or delayed maintenance affect the effect.

(3). There are no standard experimental instructors with partial experimental courses, lesson plans, not even the written experimental teaching outline (check), no schedule arrangement, even no arrangements or a coordinated arrangement of teachers.

(4). The guiding teacher is not present with postgraduates' substitute; the effect of experimental guidance is not good or is not responsible enough.

(5). Experiment teachers are not on-site for guidance, or the discipline is not good on experimental site, a large number of participating students, but fewer teachers are arranged to take experiment classes.

(6). The teacher does not fully prepare not before the experiment, etc.

Aiming at these main problems the student reacted, we take some measures:

4.1 Cutting Down the Number of Groups and Increasing Experimental Consumables to Improve the Quality of Experimental Teaching

After examination, we strictly require function experimental center of 5 to 6 people/group to arrange experiments jointly with the medical school, schools in experimental animals and low-value consumables shall be quite tilted.

4.2 Allocating Experimental Equipment According to the Requirement of Experiment Configuration

Such as physics laboratory, students generally report that there are fewer instruments and equipments, and badly damaged. We actively reflect the implementation of students in the laboratory, arranging nearly 30 million yuan in this year's equipment fees to buy the oscilloscope, the Doppler Effect comprehensive experimental apparatus and frank - Hertz experiment instrumental equipments, the equipment conditions of physics lab has been greatly improved and has a good reputation among the students.

4.3 Bulletining the Institute and Strengthening Management to Improve the Teachers' Responsibility

In view of a phenomenon that the partial teachers ask postgraduates to give classes and no standard experimental instructors, experimental program and experimental organization, we meet and inform this kind of phenomenon at the school teaching dean congregation, requesting the institutes to strengthen supervising management and to improve the responsibility of college teachers, in a follow-up investigation we find that such phenomenon reflected by students is greatly reduced.

5 Conclusion

The establishment of the experimental teaching quality monitoring system and further optimization problems of monitoring system is studied and practiced combined with the actual experiment teaching management. The implementation of quality monitoring system in experimental teaching has made obvious effect, experimental teaching process is further standardized, experimental teaching system and contents are further optimized, the quality of experiment teaching is further improved. Various monitoring measures in experimental teaching quality monitoring system mutually connect and support each other and form an organic whole, making the monitoring system scientific, systematic and operable.

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Study on Case-Based Teaching for Project-Driven and Object-Oriented Development Course

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Abstract. Object-oriented development is a practical course integrated with knowledge and skill, so the course can directly strengthen the development skill of students on the object-oriented software development. Through four-year teaching practice in the Computer Science and Technology Department, Information Management and Information System Department and other undergraduate departments, I have proved that the case-based teaching for project-driven and object-oriented development course not only improves the teaching quality, but greatly stimulates the independence and innovation of the students and better cultivates students' ability to solve the problems, receiving significant achievements.

Keywords: Object-Oriented, Project-Driven, Case-Based Teaching, Software Development.

1 Introduction

With further development and application of the object-oriented application software, the object-oriented development is widely used in all kinds of industries, and also plays an important role. In 2007, Jiangxi University of Finance and Economics offered the object-oriented technology course for Computer Science and Technology Department, Information Management and Information System Department and other undergraduate departments to meet the demands of the talents cultivation plan. And the University also offered "Java Development", "VB.NET Development" and "VC Development" courses to satisfy different majors. But how to cultivate and increase the students' application ability to solve practical problems, get solid foundation and to serve the society by learning the object-oriented development as a practical course integrated with knowledge and skill, my group, based on so many years of teaching practice, course characteristics and teaching plan, distributes the class hours according to the proportion of 1:1 (32 class hours + 32 class hours), selects the applicable projects and the completes projects with distinctive leading, times and practicability as the teaching content, adopts the case-based teaching method, and also requires the students to proceed their project design synchronously. Through four-year teaching practice, I have proved that the case-based teaching for the project-driven and object-oriented development course not only improves the teaching quality, but greatly stimulates the

independence and innovation of the students and better cultivates students' ability to solve the problems, receiving significant achievements. Below, I put more emphasis on introducing the key teaching procedures of "VB.NET Development" course under the project-driven mode, and the course is offered mainly for Information Management and Information System majors.

2 Teaching Design

"VB.NET Development" course is offered in the 5th semester of the university learning, because until the semester, all students have finished all compulsory courses such as "Computer Technology", "C Program Design", "C++ Program Design", etc, what's more, the course is offered and proceeded with Management Information System synchronously, and the students have the object-oriented basic concept and foundation knowledge of the software development.

The teaching target of "VB.NET Development" course is to make the students be familiar with NET and master the system structure of NET, programming method of VB.NET object-oriented program, the data access of ADO.NET and the basic development method of the Web system. And I also try my best to make the students really master the application of the object-oriented project development and to gradually cultivate the development ability of the students. During the teaching process, I always follow the principle of "Taking the case-oriented project as main line, the students as object, the supervisor as core, NET as basis and the project as drive", adopt the project-driven and case-based teaching, focus on the consistency of teaching procedures and software development progress, and painstakingly design the teaching procedures for meeting the students' learning progress and receptivity. So, the following problems must be paid more attention to the teaching design:

2.1 Case-Based Selection

The case-based selection is directly related to the teaching quality. So, the teachers must select the case based on the completeness and expansibility of the development system and students' learning confidence and excitability based on the actual demands, and must ensure each lesson of the selected case not only includes the basic knowledge of VB.NET and structure of application interface but reflects database management or web application and applications of related practical knowledge.

2.2 Case-Based Structure

The teachers should hierarchically divide the teaching plan into several relatively independent and realizable subprojects based the whole process from the demands of the case-based projects to completing the development and handing over to the users. And the teachers should prepare relevant theories, technology knowledge, etc. centering on the each subproject. And the teachers should adopt progression method to distribute all knowledge, difficult and key points in each concrete subproject, and then combine NET in the object-oriented software development method for improving the designed basic thoughts and knowledge of project development efficiency and organizing the concrete content in categories. Moreover, the teachers should perform

step by step based on the students' actual situations, which not only has operability but can make the students gain achievements in the process. If all procedures above have been done, I believe the students can enjoy the enthusiasm of learning new knowledge and skills in each lesson and stimulate the learning interest.

2.3 Teachers' Software Development Ability

Project-driven and case-based teaching mode puts forward higher requirements for the teachers' comprehensive quality, which not only requires the teachers with teaching ability but has the ability to do software development. In this way, the teachers can perform better in teaching and guiding students' practice. So, the teachers can be very familiar with the software and have rich experience in software development by accepting the training and working in software companies or joining in academic forum and technical exchange.

3 Teaching Practice

If the project-driven and case-based teaching method is adopted for the "VB.NET Development", the teachers should not only determine the teaching project and its content but also guide the students to perform basic experiment and comprehensive design. To cultivate the students' ability of the comprehensive utilization of VB.NET, the teachers should pay more attention to the following aspects:

3.1 Development Group

The project-driven and case-based teaching method especially focuses on the integrity and comprehensiveness of knowledge. So, the students must cost much time and energy to finish the related project design, absorb the new knowledge from the teachers while finishing the basic experiment, and also designing the project selected by them. For stimulating the teamwork spirit, the teachers should divide the students into several project groups composed of two or three students and based on their ability within the first week of the new semester. And every group should select a project head in charge of related project design and task assignment. The grouping method is beneficial for cultivating the coordination ability and teamwork spirit as well as arousing the students' subjective initiative and lightening the teacher's burden.

3.2 Difference of Development Project

After grouping, every group should select a feasible software development project based on its condition and characteristic. And the project can be selected from the list supplied by the teachers or the new one found by the students. Anyway, the selected project must be different for avoiding plagiarism.

Once the project is confirmed, the group should earnestly investigate, analyze and discuss the requirements of the project based on the project's theme, and then make overall design and mark off all the concerned modules. Secondly, the head should allocate the different modules to the group members, and the members should make specific design by themselves, so every student can practice themselves

comprehensively. Finally, the group should make creative design to improve the function of each module after the project design meeting the basic requirements.

Every group should design the software based on the following basic elements like complete function, strong practicability, easy expansion, beautiful interface, easy operation, regular code and easy installation.

To stimulate the learning interest and confidence, the project development of every group must keep pace with the case-based teaching schedule for making the students be their roles quickly. The classification of functional modules is similar. Taking the development as an example, its overall structure, user interface, database operation and interface share the same design methods, and there is only difference in specific design content.

In the process, every group should independently finish its project development. Specifically, they should make efficient use of their time to work out detailed project plan, continuously study and absorb the new technology on software development, examine the software function, and scientifically do overall design and realize the modules. All these works can make them form a good programming style and thought, improve their ability to develop software, strengthen their study on the related knowledge, and deepen their understanding of the object-oriented software development flow.

3.3 Teaching Method

When the project-driven case-based teaching method is adopted, the teachers must teach the specific design and case realization step by step while following the basic principal of the software development flow and combining VB.NET. The development must be based on the design principal from whole to part, simple to complex and easy to difficult. Taking the management information system case as an example, the main teaching content is as follows:

(1) Familiarize the visual development of VS.NET and the framework of Microsoft.NET, and learn how to use the various tools supplied by the system. It is very important to the students for the development with stable structure, easy function and great operation, because it will provide lots of convenience to the students.

(2) Make clear the main design object and task of the case-based design system.

(3) Build the analysis file covering requirements of main function, performance and operation based on the project design.

(4) Make the overall design including module diagram of systematic hierarchy, modules design and database sheet.

(5) Develop the control interface to control the application of its each function. The master interface must be rational in logical arrangement, convenient to implement any function, and quick for the information response.

(6) Develop the functions for the system. Each specific function should be realized at the master interface. Each function can not be realized without man-machine order, so it is firstly to design rational function and then place it at the interface.

(7) Refer to the visit database of ADO.NET. Connect ADO.NET to the database, and then browse, search, upgrade and serve data, and then easily get data from the database by SQL.

(8) Make fixed and general report forms. The students should make fixed report forms in advance for the report forms based on related standards and efficiency. There is a large amount of users' information in the system, and the information should have different output styles and also be printed. And the output style can be adjusted by the users via Excel.

(9) Develop users' authentication. The system must have the authentication function which confirms the operator's authority and certain operations like addition, deletion and alteration based on the specific requirements stipulated in the analysis instruction. The safe sub-system with the function of user authentication is very necessary for keeping the system stable.

(10) Develop the function of backup and data recovery. The system must have an installation function which can meet the requirement of users before putting into operation. Adopting the binary stream files, the data in the system can be saved as a file by the export operation, or the data can be recovered from the exported file by the import operation, realizing data backup and recovery.

(11) Visit the database by ASP.NET Web for searching related data on Internet.

(12) Write related report and defense. File related documents based on the standards and requirements of the project development, and then make defense preparation.

4 Evaluation

In the 12th week of the semester, the teachers have made a mid-term inspection and evaluation, and then assigned a mid-term score for each student.

The course, covering many concepts, wide knowledge and high practicality, focuses on cultivating the students' operation ability. Thus, the students' scores are mainly on the following four parts:

(1) Daily performance. It includes the attendance, answer and others, which occupies 10% of the total scores;

(2) Basic experiment and experiment report. It includes six verified experiments and experiment report, which occupies 20% of the total scores;

(3) Project design. It, as an important part of the course, will focus on the operation skill and innovation of the student and also the performance, extensibility and popularity of the project design, which occupies 50% of the total scores; and

(4) Defense performance. It will check the advantage and disadvantage of the project design, so it is a key part of the course. It can supply a chance for the student to improve the expression ability, the panel includes several teachers from relevant departments to the defense performance, which occupies 20% of the total scores.

5 Conclusion

Looking back the four-year practice of the case-based teaching mode for the project-driven and object-oriented development, I have found that the implementation of the teaching mode "taking the case-oriented project as main line, the students as object, the supervisor as core, NET as basis and the project as drive" not only cultivate the development ability and teamwork spirit of the students but stimulate the learning

independence and innovation. Meanwhile, the teaching mode is also a great challenge for teachers, arising higher requirement for teachers. So, the teaching mode is a qualitative sublimation, which can lay a solid foundation for the students and also cultivate their comprehensive ability to solve practical problems.

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Multimedia Teaching Research Based on Human Factor Engineering

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Abstract. As a modernization instruction manner, the multimedia instruction has been widely used in the teaching of the colleges and universities. But some of the process of making multimedia courseware and the process of the instruction of the multimedia didn't consider the human physiology and the psychology character, hence affected the effect of learning. From the point of view of human factor engineering, the paper discussed the designing of multimedia courseware and the process of multimedia instruction and pointed out that some of respects should be pay attention which could make the designing of multimedia courseware meet the student' physiology and psychology requirement, in order to promote the multimedia instruction efficiency.

Keywords: human factor engineering, multimedia, courseware, instruction.

1 Introduction

At present, as a major manner of instruction, computer multimedia teaching has been widely used in the teaching of the college and universities. The multimedia instruction is a kind of modernization instruction manner which makes use of vision, auditory and cartoon. The application of the multimedia instruction not only changes the traditional learning way but also changes the traditional teaching way. So it takes critical effect in inspiring study interesting, developing student's intelligence and promoting the class efficiency, optimizing class structure, etc. But during the use of the multimedia, the most important thing is to deal properly with the human element and to handle the relationship between computer and human. This is the key point of how to apply the multimedia instruction. In order to make the multimedia technical to service instruction well, to promote the learning efficiently and to get ideal effect, the paper discusses the design of multimedia courseware and multimedia instruction from the perspective of human factor. Some points that can make the designing of multimedia courseware meet the student' physiology and psychology requirement in order to help the students to study efficiently should be pay attention to.

2 Multimedia Teaching and Human Factor Engineering

Human factor engineering is also called ergonomics or human-machine engineering. "China Enterprise Management Encyclopedia" defines it as that human factor engineering is researching the interaction and reasonable combination among human, machine and

environment, making the designing of the machine fit for the human physiology and psychology character, and attaining the goal of promoting efficiency, safety and health, comfortable. Human Factor Engineering is a science of designing and improving the system of the human-machine-circumstance according to the human character. Human – machine – circumstance system is indicated the system including human, machine and the environment in the same time and same space. Such system is also simply called man-machine system. In the system, human is main decision maker and user. Machine is general named of all using elements. Man and machine depend on each other, condition each other and affect each other in the integration system so as to complete a certain work. In order to realize the optimum cooperate between human and machine, human factor engineering takes the optimal work as the main aim of human factor. It emphasizes that human is the basis and all the design of the products should fit for human's physiology and the psychology character so as to make the man-machine system play specialty and achieve the purposes of high efficiency ,safety, health and comfort.

Multimedia instruction is also called CAI, which is Computer Aided Instruction. As a kind of modernization instruction manner, it can meet the trend of modern education development. Some of foreign study show the proportion which we gain the knowledge from hearing is only 15% and from the vision is only 25%.But if we combine hearing and vision, the proportion what we learn and remember can reach 65%.During multimedia instruction, with the aid of multimedia software, we can combine hearing and seeing elements to make students learn more knowledge in short time, to improve studying efficiency and quality. With the scientific and figurativeness, Multimedia instruction shows its unique charm which makes the teaching form more abundant, optimizes the instruction processes and improves instruction quality. At the same time it widens the students' mind and view and improves student's mental, practical ability and creation capacity.

Form the view of human factor, during the multimedia instruction, teachers, students and multimedia courseware constitute a man-machine system in which human and multimedia courseware can interact and influence each other. In order to realize the optimum matching, the multimedia courseware should fit for the human's physiology and psychology to optimize the teaching course. It marks as high efficiency, safety, health and comfortable under the multimedia instruction. High efficiency is meaning the combination between high quality and high efficiency .Safety is meaning that during the teaching process, the mistakes can be reduced or removed to achieve the efficiency, safety and reliability. Health is meaning that the unhealthful elements can be limited or removed. Comfortable is meaning that during the teaching and learning, teachers and students have satisfied and comfortable sensation which relates to the working and study efficiency and it is high requirement for the instruction. Thus it can be seen that the human factor is the basis of design and using of multimedia courseware, and it is also a manner of evaluating the quality of multimedia instruction.

3 Human Factor in the Design of Multimedia Courseware

The design of multimedia courseware is an complex system project which relates computer science, education, psychology, physiology, informatics and aesthetics and a lot of other sciences subject. Not only the origination of the courseware content, but

also the courseware color, the layout of the interface, sound, picture and the words should have theoretical basis. But in the fact, lots of courseware haven't consider these aspects. These improper courseware have many arbitrary which follow the designer's feeling. The color isn't matched well and sound and picture aren't matched properly. As a result, the improper courseware will affect study efficiency. As follow, we will discuss some issue for multimedia courseware from the human factor aspects.

3.1 Layout of the Subject on the Screen

In normal design of the multimedia courseware, there are words, charts, cartoons and a lot of elements. We should do an arrangement according to visual principle, also consider the importance degree, from left to right, from up to down, highlight emphasis, and reach a balance. The courseware elements should not be piled up which will make people feel visual fatigue. Form the human physiology aspect, the vision has its limitation for organize the words, hence there are too much elements to organize in short time, which will take some overload burden for study and take some trouble for further study. Thus, in the design of screen, we should try to use least data to show maximum information and remove all the verbalization words and charts. All of these will help to stress the key point to prevent visual fatigue.

3.2 Selection of Courseware Content

Nowadays, the design of some multimedia courseware copies from the textbook which has abundant content interface. The research shows that defective multimedia content could enlarge external cognitive burden to the students. So the best multimedia teaching interface should reduce the external cognitive burden as much as possible, increase the correlative cognitive content but could not exceed the students' memory limitation.

The base principle of multimedia content is briefly, clearly and influencing. The content selection should have clear and concise key point with outline type mostly. The only word lengthy article is forbid. Some word material such as noun explanation, drawing and list could adopt automatic vanishing type after reading.

3.3 Designing of Words

Too many words on the whole screen which may cause eye tired is not recommended in the multimedia courseware. Usually, it could not exceed 7 or 8 lines in a page. The word type size could not too small and script could be attractive. The hollow, solid and artistic calligraphy could not be used for saving the reading time. The word type must have the same style. The headline, text of the same level must have the uniform word type, word size and color. The head line in different level must be arranged as the first class, the second class with different word type, word size and color to show its logic. Adding some sound and cartoon properly could express the teaching content well, attract the students' attention, increase the study interest. But the sound and cartoon couldn't add too much to avoid to usurping the key point place and leading the vision tired of eye. It should be added on some important content to draw the attention of the students to have constant memory effect.

3.4 Inseting of Diagram

The diagram in the multimedia content has the visual, clear, impressive characteristic which could express the teaching intent vividly and inspire the interest of students. The interface of the diagram should be as large as possible and in the center position adding the word explanation. The diamond or chessboard type should be adopted during the cut-in time to increase the vision interest and improving the short memory.

3.5 Using of Color

The color can strengthen the student's attraction and inspire the interest. The color serves the content. Different themes, content adopt different color. Do not use too much color, usually one or two kinds of color are appropriate because overmuch color can enlarge the time of information that the brain deals with and then increase the probability of fault, and easy to cause the eye tired. It must have high contrast degree between the background color and word color. The background color should avoid high brightness and saturation. The high brightness and saturation in small area could create the visual gravity attracting people's attention. The psychology sense should be considered when we choose the color, such as warn and cool, light and heavy, go forward and draw back etc to fit the person psychology characteristic.

4 Human Factors in the Multimedia Instrument

4.1 Teachers Play Leading Role

The aim to use multimedia courseware to assistant teaching is to accomplish the teaching effectively. The teacher is in the leading position, and should not rely on the computer totally, reads the content on the multimedia courseware to the students word by word. The multimedia courseware should be used from human factors engineering standpoint .The human characteristic and machine function should be understood definitely. Dividing the work reasonably between the human and machine may have better effect in teaching. When the multimedia courseware is played, adding the board writing content, adding the teacher's gesture etc traditional teaching methods could be beneficial for student to stepping with the teacher's thought, strengthening the presence sense, grasping the emphases and difficulty, improving the learning effect.

4.2 Strengthen Interaction between Teachers and Students

The multimedia teaching has the characteristic of information with large quantity, high speed, so some teachers may speed up the teaching process consciously and the student could not finish the entirely lecture note which may lead the emotion of boredom and resistance etc that could have bad effect in learning the content. To forbid the situations above, the teacher should set up the interactive relationship with the students positively and believe that the students have the ability to join the interaction.. The teacher plays the role of leader, collaborator and participator. The final aim is that students learn the knowledge. During the interaction period, the teacher should show fairly to each and set up mutual trust actively. The teacher should also explore the potential, motivate

subjective activity and improve the satisfaction of the students. The students join the teaching course actively and meanwhile the teacher could test the accomplishment sense and responsibility sense which may inspire the larger teaching emotions of the teacher.

5 Conclusions

Owing to many human factors in the multimedia teaching, the design of multimedia courseware should consider the physiology and psychology as the starting point. The teacher should play the leading role in multimedia teaching, handle the relationship between the human and machine, and strength the enthusiasm in teaching and learning. Then both the teacher and the students gain the sense of accomplishment. The teaching can gain the greatest efficiency and teaching effect and can achieve the final goal of improve the teaching quality.

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Study on the Choice of Field of the Opportunity-Driven Entrepreneurship of College Graduates

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Abstract. In recent years, the phenomenon that the college grads have difficulty finding a job has become the focus attention of the whole society. This article points out the unique function of opportunity-driven entrepreneurship by comparison of opportunity-driven and necessity-driven entrepreneurship, and puts forward the advice to college students how to choose their business suits own entrepreneurial field according to the particularity features of opportunity-driven entrepreneurship. At last the essay gives several concrete proposals on how to choice the field of opportunity-driven entrepreneurship in order to alleviate the employment pressure and adjust employment structure.

Keywords: college graduates, opportunity-driven entrepreneurship, field of entrepreneurship.

1 Introduction

In recent years, in order to solve the problem of college graduate employment, Government has put forward the "Use own setup business to pull up the employment, Encourage graduates to setup their own business." it has become the focus attention that how to make entrepreneurship and how to improve their opportunity-driven entrepreneurship. Where are the opportunities of opportunity-driven entrepreneurship? How to choose the field of opportunity-driven entrepreneurship? Rational analyses of opportunity-driven entrepreneurship and field of opportunity-driven entrepreneurship certainly have practical significance to guide college students.

2 Connotation and Characteristics of Opportunity-Driven Entrepreneurship

The Global Entrepreneurship Monitor (GEM) rolling out by British London Business School and America Babson Business School divides the entrepreneurships into the opportunity-driven entrepreneurship and necessity-driven entrepreneurship according to initial of entrepreneurial motivation. Necessity-driven entrepreneurs refer to the person who want to gain personal basic survival conditions, because of lack employment options or not satisfied to other employment. Opportunity-driven

entrepreneurs refer to the entrepreneurs who are not in pursuit to survival purpose, but for development space, through the discovery or create new market opportunities. Its entrepreneurial behavior choice venture for personal individual preference. The essential is to play individual potential and create integrating resources. Opportunity-driven entrepreneurship can not only solve their own problem of employment but also solve other people's employment. Currently, we should expand the proportion and quality of opportunity-driven entrepreneurship.

2.1 Reflecting the Higher Goal of Opportunity-Driven Entrepreneurship

Necessity-driven entrepreneurs is entrepreneurs who have no other choice to employ or not satisfying with the current employment, mainly about finding no opportunity at the existing market or not considering to create a new market. Opportunity-driven entrepreneurship is the type that the entrepreneurs purpose choice and seizes the opportunity and challenge themselves, constantly developing by subjective consideration. Entrepreneurs tend to have broad ideal and ambition, strong psychological quality and comprehensive ability, and often belong to growth-oriented enterprises, as well have good prospects for development.

2.2 Creating More Job Vacancy for the Whole Society

The reason for the Necessity-driven entrepreneurship is to survive in the society for the founders and their family, the ultimate purpose is to solve the living problems, what entrepreneurs want is mainly about entrepreneurs and their family living and employment, general entrepreneurial and their families can meet the job needs, so they don't need to employ others, thus it rarely brings to the society more jobs. Opportunity-driven entrepreneurship capture the market blank or develop new market for business, the enterprise founded tend to have higher growth in the future, thus it can bring more employment opportunities, and its development prospect is good. Gaojian from Tsinghua University and his team finished the 2007 China Venture Observation Report, which points out that the "double effect of Opportunity-driven entrepreneurship is obvious." Opportunity-driven entrepreneurship is expected to create jobs type venture business survival is the number of average increase twice as an opportunity, which means and increases type entrepreneurs 2.7 jobs, according to projections 5 years this number will increase to 5.9. If the Opportunity-driven entrepreneurship in society increases gradually, it will further activate employment stock incrementally expanding, thus improving the university students' employment structure and quality.

2.3 Decrease Competition among Enterprises by Opportunity-Driven Entrepreneurship

Necessity-driven entrepreneurship is to solve individuals and families' survival, the original intention of founder determines most entrepreneurs don't need wide development space, which most concentrate in the traditional industries such as lease, retail, ceased processing, intermediary, catering and social services etc., which have overcrowded phenomenon and unusually fierce competition. Opportunity-driven entrepreneurship is from the founder's intention to seek personal greater development

and self realization needs. Opportunity-driven entrepreneurs find and capture opportunities to create new products and new business models or realize the potential value in these areas, relatively few competitors. Considering the obvious effect of opportunity-driven entrepreneurs, so we should encourage the students to opportunity-driven entrepreneurs. It is not helpful to alleviate the heavy pressure of employment, but also to adjust the employment structure and reduce competition among enterprises.

3 Analyses the Characteristic of College Graduates

3.1 Advantages of College Graduates Entrepreneurship

(1) A higher degree and scientific and cultural knowledge, strong understanding ability, and extrapolation; (2) Initiative Learning and self-control ability; (3) New ideology, easy to accept the new thing, and even be a fashion setter; (4) Thirst for knowledge, strong ambition for the future, having a strong desire of strive; (5) Computer skill level can be in relatively higher thus easy to access relevant information independently on Internet; (6) Confident, work with passion; (7) Younger , energetic, not afraid of failure, also having the chance to face failure, making them to start again; (8) College students' family is relatively small, its business is likely to get his parents' support.

3.2 Disadvantages of College Students Startup Business

(1)lack of social experiences, interpersonal ability is poor; (2) whether their entrepreneurial ideas and business stand the test of the market?; (3)graduates have fixed assets themselves, so financing difficulties; (4) No actual enterprise combat experience, blind confidence, overly optimistic; (5)Lofty ideal, but the actual capacity is poor; (6) college students generally is only children, "AQ" is low, lack of resistance capability; (7) society tend to think young generation is not trust-worth.

3.3 Grasp the Entrepreneurship Characteristics Accurately of College Graduates

All above are from statistical analysis the advantages and disadvantages of the university student's entrepreneurship, virtually every college students' situation is not the same, we still need to have a comprehensive understanding. Here we provide SWOT analysis method, college students in a four respectively box: his strengths, weaknesses, opportunities, challenges and threats and write down four factors of each factor enumerate the main 4-5.

For example: student A thinks his advantage are: since childhood he was exposed to business family so he has the strong interest in business; After several years work-study he also accumulate some practical experience; Done class cadre, the organization of leadership get exercised; Made a team with some friends who worked together; Product unique and competitiveness in the market.

Students B thinks his own weaknesses are: personal introverted, difficult dealing with people; A poor peasant family background, no capital support, still expecting

after graduation education loan; No team and may be strive alone; severe shortage of Social experience; Prepare pioneering product cost is high, to entrust others processing.

Student C thinks his opportunities are: the College Students Business Fund having been established, his own scientific projects can declare a try, a mentor's strongly recommend; The domestic market changes rapidly, producing the huge demand for sector; Some companies are negotiation with us, individual have sign prospects; Government economy circular encourage policies are also good news.

Student D thinks that their own business challenge are: the market competition is not standard, fake and inferior, their products couldn't be sold out; At present more and more high store rental fee making earned profits much lower; Consumer agitation, oneself may not change the trends quickly .

Based on the above, using SWOT analysis on their situation, play advantage, remedy weaknesses, overcome threat, avoid risk, seize the opportunity, challenge, can make their business plan more practical and grasp the win position.

4 Choice of Field of Opportunity-Driven Entrepreneurship of College Graduates

Although, there are many opportunities in the business field, but for the undergraduates whose ability, fund, and experience are limited, it is not easy to find a way out. Their entrepreneurship must be combined with their own characteristics, pinpoint the "point", which could make difference. The "point" of students in business general concentration in five aspects:

4.1 High-Tech Routes

Colleges students have learned about a lot scientific and cultural knowledge in the school and be in high-tech front line which makes them have big advantage in the scientific research. Students who make business enterprise's success such as "Sohu" are the benefits from the technical advantages of entrepreneurs. For college students who own deep professional basis and lovely research in this field they have a better chance to gain business success. Students can actively participate in the various entrepreneurship competitions, such as "the Challenge Cup", "Kunshan Cup", so as to obtain the chance to stand out; they still can attract enterprise's risk investment. Recommend project: computer software development and online shop, the various professional invention patent transformation, etc.

4.2 Intelligence Fields

Intelligence is the capital of students to startup business; fully using intellectual to entrepreneurship is the effective way of avoiding fierce competition to college students. For example to the tutor field, first, during the learning period college students may accumulate some experience more or less by doing tutor; second college students are easier to earn "brushstroke money" using the ability. Intelligence fields business cost is usually lower, business can be opened by renting an office and

making a hotline. Recommend project: tutor intermediary, creative studio, translation firm, decoration design, etc.

4.3 Join the Chain

College students' funds, ability, experience are very limited; completely depending on oneself to gain success is unlikely. But it can be easier to enter the market and improve the probability of success by using the chain-like alliance enterprise's brand advantages and technical strength, the marketing network, management experience, etc. Generally speaking, college student's entrepreneurs should start from household business advisable because of having weak capital and few people equipped with high join project. In addition, it had better choose mature brand which operating 5 years above and having more than 10 stores. Recommend project: restaurant, services, campus small supermarket, digital printing speed station, etc.

4.4 Setting Up Business Alone

University students set up shop alone suitable for "student route". Because of having the same life experience and familiar with the consumption psychology and peers habit, they could choose location around schools, using cheap goods to attract students' customers. In addition, because of the limited funding, so the propaganda work and public relations are particularly important. They can often post ads or use school societies in joint activities on campus, making some small public relations activities on holidays, such as screening classic movies, etc. Recommend project: the internal or surrounding area book bars, café teen, hairdressing studio, bookstores, school supplies stores, etc.

5 Innovations

The current market is already full and filled with compactions, but there are always chances. College students must find the "vacuum" or "gap" in the existing market, using entrepreneurial opportunities to build career or appears likely. If they can create a new creative market space, the probabilities of success are greatly improved. Such as "problem students education school", "children's toys leasing company" and "grid pave business mode" etc. In Addition, we still can use sales area transfer strategy, such as China's coastal areas and developed areas have some relatively new business projects, but the mainland and backward areas are not, which can be considered the mainland and backward area in the same business, it will have same higher development opportunities and space.

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Evaluation System on the Quality of Graduate Students' Employment Based on Job Happiness Index

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Abstract. The employment situation of graduate students has been the focus of society. It has shortcomings if only reflect the employment situation from the point of employment rate, employability, satisfaction and quality. The problem of graduate students' employment is no longer that whether they can find a job, but they can get happiness experience from work or not. The evaluation system of job quality which is based on Job Happiness Index analyses the factors that affect the job quality of graduate students subjectively and objectively. And at the mean time, analyses the factors from the point of job expectation, human relation and career goal. The establishment of evaluation system makes important sense to students, schools, enterprises, governments and society.

Keywords: Job Happiness Index, Graduate Students, Job Quality, Evaluation.

Graduate students' employment has been the focus of the society. However, the focus has been changed from the employment quantity to quality which making the research of graduate students' employment into a new stage. How to evaluate the quality of employment makes the vital reference for college students' employment education and guidance. So it is very important to develop a employment evaluation system. Meanwhile, there are some important problems need to be solved which are the type of the evaluation system, the indicators of system, the contents of indicator and its deciding elements.

1 Graduate Students' Employment and Job Happiness Index

1.1 Graduate Students' Employment

From the essence, employment is combining laborer with the means of production. And graduate students' employment is combining graduate with the means of production. In quantity, it points that how many laborers carry out the combination, it is measured by rate. In quality, it points that the laborers who have carried out the combination obtain how much money, and whether the condition of employment is well or not.

In addition to employment rate and quality, society also reflects graduates' employment by employability and satisfaction. But employment rate reflect a phased and regional results with a percentage. In addition, because the employment statistics ways and methods are unreasonable, and employment statistics department is unprofessional, the situation of graduate students' employment is not totally true. The

essence of employment ability is a kind of an expression, which the level of can affect the graduate employment. The promotion of employability can help graduates get employed. However, it just evaluates graduate employment objectively, but graduate employment is also affected by psychological factors. Employment satisfaction is a concept of synthesis which reflects availability of opportunity, stability of work, dignity and safety of workplace, equality of opportunity, income and personal development. Satisfaction is an element hard to define, so it is an abstract concept that whether feel satisfying or not and what is satisfaction. To better understand the graduate employment, we first put forward the concept of Job Happiness Index to evaluate the situation of employment and thus establish the evaluation system of college students' employment.

1.2 Job Happiness Index

Happiness is a kind of psychological experience. It is a fact judgment of objective conditions and state for life and also a value judgment of subjective meaning and satisfaction. It is shown as a positive psychological experience based on life satisfaction. Job Happiness Index is peoples' feeling for their own job status. Job happiness is an integration of satisfaction, happiness and sense of worth. It is segmented into subjective and objective indicator. Subjective indicator includes job expectancy, interpersonal relation and career goal, and objective indicator includes salary, and Professional counterparts, work area and industry prospect.

Graduate students' job quality depends largely on the student's subjective discretion, and Job Happiness Index is the core indicator of students' subjective quality of employment. Therefore the graduate students' job quality depends largely on the student's job happiness experience. And at the same time, the experience is influenced by the job quality. The students who have high-quality employment are more likely positive and those who have low-quality employment are more likely negative.

2 The Principles of Evaluation System

2.1 Classification and Evaluation Principle

Quality of employment of objective criteria, subjective psychological perception of students is different. Students between the different provinces of employment status, living and working environment, development opportunities, and social security are quite different, different individuals, different gender; different cultural backgrounds of the students feel about the quality of employment are not the same. Therefore, evaluation should be based on classification.

2.2 Relatively Evaluating Principle

Quality is a relative concept, and thus evaluation results should be relative, Job Happiness Index make people turn their vision to develop individual potential and realize individual value, which include some important components, such as autonomy, environmental controlling, personal growth, purpose in life, self-acceptance and so on. These components can not be evaluated in a quantitative manner, but should be a relatively subjective experience.

2.3 Whole Determination Principle

Each indicator are interrelated, a single indicator is not much making sense just yet. Because each indicator is a reflection of one aspect of goal, only a comprehensive evaluation system can reflect the entire goal. Therefore, we can grasp the integrity from sum of indicators. Emphasizing on the integrity, we can not reject any indicators of evaluation system at any time.

2.4 Subjective and Objective Principle

We measure the job quality from subjective and objective indicators, the two indicators combined, and determined by national and personal conditions. We obtain subjective feelings of people, and then make the feeling quantifications to Students evaluate the quality of employment can, the use of data to be related to the objectivity of the index.

2.5 Dynamic Adjustment Principle

The quality of graduate employment is a dynamic process of development, so the evaluation index weight and content is dynamic, different times and in different environments, different individuals is not the same. Students will employment quality time with the social progress and development of continuous improvement, content will become increasingly rich. Therefore, evaluation index system to continuously adjust to better evaluate the students' quality of employment.

2.6 Public-Oriented Principle

Evaluation results should have a function to guide the schools, enterprises and students. Evaluation results can guide job agencies and staff of colleges continuously improve the level of work, highlighting their own characteristics; guide enterprises to make appropriate adjustments to create favorable environment and conditions; guide individual students to improve their mood and cognitive behavior to improve their employment status.

2.7 Data-Shared Principle

Source of the data should be multifaceted, such as questionnaires, public data online and government data. Comprehensive data acquired in many ways, can analyses the relevant circumstances from various aspects, to prevent the limitations and lack of a single data. We can carry out more specific studies by finding difference from various data, and the evaluation system will be more comprehensive and reasonable.

3 Evaluation Indicators of Graduate JHI

3.1 The Contents of Indicator

Evaluation system of graduate Job Happiness Index has 2 first-grade indicators, 7 second-grade indicators and 28 third-grade indicators. 2 first-grade indicators are subjective and objective, subjective indicator includes 3 second-grade indicators,

which are job expectation, human relation, career goal; objective indicator includes 4 second-grade indicators, which are salary, matching major, work location, industry prospect. Job expectation has 4 third-grade indicators, which are welfare, workplace, position and studying; human relation has 4 third-grade indicators, which are labor relation, colleague relation social relation and friends' reflection; career goal has 3 third-grade indicators, which are matching major, stability and development. Objective indicator includes 4 second-grade indicators, which are salary, matching major, work area, industry prospect. Salary has 7 third-grade indicators, which are monthly income, comprehensive allowance, year-end bonus, reward, medical insurance, retiring pension and holiday; matching major has 3 third-grade indicators, which are social approval, position requirement and united direction; work area has 3 third-grade indicators, which are economic condition, political condition and culture condition; industry prospect has 4 third-grade indicators, which are developing possibility, pay seduction, industry barrier and social status. Each indicator of Job Happiness Index has its particular meaning; the index is determined by different factors.

3.2 The Method of Evaluation

To create a standard, simple and easy to operate of process for evaluating, we use multi-factor score weighted superposition method to get the final result. We first produced a "happiness index based on employment of college graduates employment quality evaluation system table", according to the meaning of each index table, refer to multi-factor score weighted superposition method, to an index from the three indicators are in turn used the following Quality of employment is calculated by the total score, thus to assess the level of quality graduates.

Calculating formula of Job Happiness Index:

$$P = \sum (W_i \cdot F_i) \quad (i = 1 \dots n) \quad (1)$$

"P" is the quality of employment score, "n" is the total number of evaluation index, "W_i" is the weight index, "F_i" is sub-index value. Accordingly, Job Happiness Index (JHI) = 【Job Expectation Index (JEI) × a + Human Relations Index (HRI) × b + Career Goals Index (CGI) × c】 + 【Job Salary Index (JSI) × d + Matching Major Index (MMI) × e + Work Location Index (WLI) × f + Industry Prospect Index (IPI) × g】, "a, b, c, d, e, f, g" denote respectively the weight of each second-grade indicator.

The weight of objective indicator is identified by the calculating formula:

$$F_i = 100 \cdot (X_i - X_{\min}) / (X_{\max} - X_{\min}) \quad (2)$$

"F_i" is an index score, X_{max}, X_{min}, X_i are Index maximum, minimum and a specific score. The weight of subjective indicators is first quantized by scoring, and then using the formula (2) to calculate the relative score.

Table 1. Evaluation system on the quality of graduate students' employment based on JHI

| First index | Second index | Third index | Intension | Remark |
|-------------------------|------------------------|---------------------------|---|---|
| Subjective index | Job Expectation | Welfare | Actual welfare compares with expected welfare | <i>Determined by expected discrepancy</i> |
| | | Workplace | Actual workplace compares with expected workplace | |
| | | Position | Actual position Compares with expected position | |
| | | Studying | Actual studying compares with expected studying | |
| | Human Relation | Labor relation | Relation between administrator and staff | <i>Determined by satisfaction</i> |
| | | Colleague relation | Relation with mates | |
| | | Social relation | Relation with people in daily life | |
| | | Friend reflection | The reflection to job from family, friend and classmate | |
| | Career Goal | Matching major | Recognition of the job | <i>Determined by interest</i> |
| | | Stability | Adaptation to the job | <i>Determined by turnover</i> |
| | | Development | Programming for the job future | <i>Determined by reliability</i> |
| Objective index | Salary | Monthly income | Recognition of workers' basic value | <i>Determined by income</i> |
| | | Allowance | The encouragement to the staff who has outstanding | |
| | | Year-end bonus | The evaluation of workers' annual task | |

Table 1. (continued)

| | | | | |
|--|--------------------------|-------------------------------|---|------------------------------|
| | | Reward | Encouragement to the worker who does outstanding | |
| | | Medical insurance | The Overall Fund for Risk and a serious illness insurance | |
| | | Retiring pension | Livelihood in old age | |
| | | Holiday | Have a rest outside of work | |
| | Matching Major | Social approval | Comparing with the average | <i>Determined by percent</i> |
| | | Position requirement | Inosculation with the description of position | |
| | | United direction | Uniformity between students' job direction and colleges' training | |
| | Work Area | Economic condition | If the city is developed now | <i>Determined by ranking</i> |
| | | Political condition | If it has better job policy | |
| | | Culture condition | If it has nice atmosphere of culture | |
| | Industry Prospect | Developing possibility | If it is the popular industry | <i>Determined by ranking</i> |
| | | Pay seduction | Pay is higher than other industry | |
| | | Industry barrier | Competitiveness of the industry | |
| | | Social status | High or low occupational prestige | |

4 The Sense of JHI

Employment is actually a two-way selection process between enterprises and individuals. On the one hand, enterprises select the right people from the candidates to fill job vacancies; on the other hand, individuals search job in the labor market. The key of employing successfully is to look at the smooth fit of the two-way processes. Schools, society and the government have an irreplaceable role in training the right people. The evaluation system on the quality of graduates' employment based on Job Happiness Index, which has different significance on students, schools, enterprises, governments and society.

4.1 Student: Choosing College and Enterprise

According to the experience of happiness, Students found expectation on the wages and benefits, working conditions, jobs position, and work participation and so on, and choose college and enterprise by the expectation. During the process of choosing, students are more to follow their own experience, instead of pursuing hot profession, college brand, enterprise reputation, industry prospects and social status.

4.2 School: Selecting Enterprises

A job quality evaluation system which is based on Job Happiness Index, making college employment guidance more scientific and oriented, it's to work out a appropriate, targeted, scientific, problem-solving guidance program. It makes college select enterprises with a more scientific and reasonable reference, helping students find more appropriate enterprise by their subjective and objective needs.

4.3 Enterprise: Selecting Students

From job happiness experience, enterprise can know the students' requirement to the aspects of job, and know the subjective feeling. Then, enterprise can employ the workers who are in accord with the enterprise image and culture. In the latter work practice, enterprise can adjust the factors which influence workers happiness, such as wages, work environment, relationship and so on. During the developing, enterprise not only selects students better, but also trains and enhances the capability for sustainable development.

4.4 Government: Macro-controlling

According to the evaluation system, government can make some incentive measures and policies to solve and protect graduate employment, providing career guidance students and playing a third party role between college and enterprise, constructing a good environment for employment. Meanwhile, the government can take macro-control on the job market, in order to make the school-trained people able to better meet the needs of the market.

4.5 Society: Regulating Market

Society can know the advantages and disadvantages of market from the evaluation system, and analyses market conditions and development trend from the employee's

happiness experience. Society takes a certain degree of regulation of market development of the industry, making more people appreciate happiness from work, enhancing the country happiness index.

The evaluation System on the Quality of graduates' employment based on Job Happiness Index; make up the lack of evaluation of employment rate, employability, and job satisfaction, job quality from both subjective and objective aspects. The evaluation system starts with relevant principles and content of the indicators. This evaluation process will be more conducive to reflect the state of graduate's employment scientifically and reasonably, making the corresponding significance for students, schools, enterprises, government and society.

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Research on Development of Medical Informatics in China

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Abstract. Medical informatics is a new subject that studies medical information and knowledge management and its development represents the level of the country's economic, cultural and scientific development. Compared with the international advanced level, China's medical informatics is still backward because of its weak foundation, unreasonable teaching system and backward guiding theory. To improve the development level of China's medical informatics, we should be guided by knowledge management theory and technology; understand the significance of medical informatics' teaching and researching correctly; strengthen the leading mechanism of research work; establish a reasonable teaching and training system. We should also carry out teaching and researching of informatics of traditional chinese medicine vigorously.

Keywords: Medical informatics, hospital information system, hospital information management.

Medical Informatics is the science of researching medical management, process control, decision-making and scientific analysis of the medical knowledge by using systems analysis. It is the interdisciplinary of computer science, information science and medical science. Nowadays, health care organizations are paying more and more attention to information technology and are using it more and more widely. How to use information technology to better serve the medical research and teaching in hospital has become more and more concerned. As a newly emerging frontier interdisciplinary, the research of medical informatics mainly focuses on using computer technology to manage medical knowledge and information for the purpose of serving the clinic, management and research work of hospitals. Because it involves the research and development of a number of basic disciplines and applied technologies, its level of development reflects the overall level of a nation's economy, culture and science.

1 History and Current Situation of Medical Informatics Abroad

Foreign medical informatics research dates back to the hospital information system (HIS) R&D in early 60s of the 20th century in the United States associated with the

MED INT project. Researchers of Manchester General Hospital represented by Barnet have developed a number of hospital information systems, and some cities in the United States like Salt Lake City, Oakland, Stanford and other research institutions conducted a similar study in the same period. In the 1970s, this study was divided into two directions: one is polymer or integrated circuit design in the stand-alone system which is large and time-sharing; the other is focused on small computers distributed design. In the 1980s, with the rapid development of network technology, distributed multi-machine hospital information systems began to appear. R&D of hospital information system in U.S. is the efforts of computer technology used in hospital information management. This study, on the one hand meets the information management needs of hospitals in computer age, the more far-reaching significance is that it has become the basis for generation of medical informatics. Hospital information system has also become a discipline subordinate to medical informatics and the main course for majors who specialize in medical informatics both at home and abroad, which is also highly regarded by the teaching departments and research institutions.

Teaching of medical informatics has become part of training doctors, nurses and administrative personnel in many countries now. Medical informatics' education program, curriculum and content vary widely between different countries and institutions because of the diversity of the training purpose. The United States began in 1972 to support graduate training programs of medical informatics. The teaching of medical informatics in medical schools has become increasingly popular, they not only established the Department of Medical Informatics, had formal degree education, but also had more specialized research centers and recognized academic institutions. Many medical schools in Europe have also set up medical informatics major in 1990s. Erasmus University in Rotterdam of the Netherlands also has MD and PhD programs of medical informatics. These differences reflect the different maturity level and medical organizations of different countries.. With the further development of the professional medical informatics, a growing number of medical informatics curriculum standards have been produced and accepted by various academic training institutions.

The object of medical informatics is information and knowledge of life systems. The content of medical informatics research is the knowledge systems and language systems that is closely related with life information which have infinite complexity. In particular, along with the information explosion and a large quantity of medical knowledge being produced, medical students often feel powerless when learn and master the necessary information. At the same time, it is more difficult for clinicians to track the progress of the latest knowledge. All the doctors are facing unprecedented challenges in the collation and synthesis of knowledge, fact finding, application of knowledge on the subject, which makes them unable to carry out patient treatment effectively and economically. Medical Informatics Research is a worldwide issue, the challenge it faced is unmatched by any other discipline. In other countries, research of medical informatics has a relatively long history and their research has achieved a considerable breadth and depth. Their research focuses on CIS that support clinical work, mainly including health information systems, decision support and quality assurance, electronic medical records and integrated information systems.

2 The Main Problems in the Development of Medical Informatics in China

At present, a small number of hospitals have established Hospital Management Information System (HMIS), yet most hospitals have not completed this system. Compared with foreign countries, China lacks high-level personnel of medical informatics and the level of medical information management is at least ten years behind. It is the result of the lag of teaching and researching of medical informatics. At present, there are mainly the following problems:

2.1 Weak Foundation for the Development of Medical Informatics

Compared with foreign countries, medical informatics in China experienced different development processes, mainly in: medical informatics in China developed on the basis of the medical library and intelligence science, while foreign medical informatics is based on the hospital information system, medical informatics development in China has prenatal deficiency. The task of medical informatics is to develop and evaluate the methods and systems with the acquisition, processing and interpretation of data related to patients through the knowledge gained in medical research and the computer is the tool to achieve this goal. The professional teaching of medical library and intelligence focuses on the medical documentation and information processing, students' computer skill is weak in general, which makes them unable to adapt to the practical needs in management of medical data and information by using computer technology. But until now, the domestic concept and substance of medical informatics is still lack of depth and clear understanding. Many people still think that the medical informatics is equivalent to the medical library and intelligence science, and even think that medical informatics education is just teaching the students how to carry out medical information retrieval. This is a very narrow understanding and is also very harmful to the development of medical informatics in China.

2.2 The Education System of Medical Informatics Is Unreasonable

In 2007, the Ministry of Education took "medical informatics" as the professional directory of higher education, medical informatics in China is a new major. The teaching situation in more than thirty medical schools that have set up the major of information management and information systems can not meet the needs of the development of medical informatics too. Due to lack of the curriculum and teaching materials that adapt to medical institutions' characteristics, the teaching contents vary very much. Many universities only teach some computer professional courses on the basis of the medical curriculum. There are not organic links between courses and rarely involved in medicine information management, fail to reflect the intersection of disciplines and the unique and complexity nature of medical information. Some universities even take the profession as the second computer profession, student employment is located in the public information management that can not meet the needs of hospital information management.

2.3 The Constraints of Traditional Information Management Theory

We have stepped into the era of knowledge economy, but traditional information management theory, because of its own fundamental flaws, such as the emphasis on the management of explicit knowledge, ignoring management of tacit knowledge that is more valuable to the innovation; emphasis on the application of information technology, ignoring the role of the medical hospital staff's intelligence in hospital information management; taking information resources as a cheap public resource to manage, not rising it to the height of capital to understand, have made it unable to meet the information management needs of various types of social organizations. Under the influence of this theory, in hospitals the phenomenon of "information overload but lack of knowledge" is ubiquitous. It not only make medical information management work and hospital information construction go into an awkward position, but also make many people question the value of investment in medical informatics.

3 Development Strategies of Medical Informatics in China

In the 21st century, the rapid development of information technology and knowledge economy constitute the new development background of medical information management. In this context, medical informatics faces with the new task of theory updating and subjects reconstruction. It is a natural trend to take knowledge management theory and technique as the guidance for the teaching and research of medical informatics. We should mainly do the following work.

3.1 Correctly Understand the Significance of Teaching and Researching of Medical Informatics

Currently, the explosion of life science information and medical information is a serious challenge to doctors, patients, health care managers and policy makers. Information explosion is not only reflected in the rapid expansion in the amount of information, but also in the increase of various mechanisms and interpretation which depends on the specific conditions and new frontier scientific theories. How to sort out and even integrated the information of these disciplines from the whole is a very difficult task. Medical staff still lack sufficient knowledge about systemic treatment of medical data, information and knowledge as well as the potential and limitations of information technology. They have not recognized the necessity and nature of teaching and researching of medical informatics sufficiently. Particularly, the leaders of hospitals still have a vague understanding of the importance, objectives and means of hospital information management, which has become an important factor that restrict healthy development of medical informatics. It is necessary for the academic circle of medical informatics to discuss the content and nature of medical informatics itself as well as the content of teaching and researching of medical informatics in order to clarify understanding and unify views.

3.2 Strengthen the Leadership Mechanisms of Research Work

Research work of medical informatics in China has a history of 20 years and the main research body is medical library and medical information institution. Although every field has made great achievements, but most research and development work is for the purpose of practical use, which lacks the necessary breadth and depth. Development of medical informatics in one country isn't the sum of various independent researches, but needs the preparation and accumulation of the whole society with the hardware, software, data, knowledge base, standardization of training and teaching, needs the overall planning and implementation steps, needs authoritative and effective academic institutions, academic bodies, laboratories and scientists. It is especially true for China, a large country which has more than one billion population. Therefore, we should vigorously strengthen the leadership of medical informatics research, effectively play the leadership role of the Chinese Medical Informatics Association, draw the development plan of medical informatics, establish research projects, coordinate co-operation between medical schools, medical institutions, institute of medical information and medical information technology companies to carry out major joint research projects of medical informatics.

3.3 Establish a Reasonable Teaching and Training System of Medical Informatics

We should set up "medical informatics" instead of "information management and information system" and "library and intelligence science" profession in medical schools, set the "information management and information system" and "library and intelligence science" as directions of medical informatics. The former focuses on training the personnel that is responsible for development and maintenance work of the hospital information system, while the latter focuses on training of analysis professionals of medical information. We should draw the curriculum system for medical informatics professionals characteristics as soon as possible, including establishing main courses and preparing appropriate professional textbooks. Meanwhile, train advanced medical informatics experts through the medical education of master's and doctoral levels, carry out in-service training to improve information management skills of medical staff. Strengthen international cooperation, select teachers and researchers to study abroad, introduce advanced medical information management concepts and technologies to narrow the gap with foreign countries.

3.4 Carry Out the Teaching and Research of Informatics of Traditional Chinese Medicine

Traditional Chinese medicine is a unique academic treasure that has made an indelible contribution to the prosperity of China. With the development of science, the scientific value of Chinese medicine is increasingly recognized by medical science circle. Chinese medicine has a highly condensed summary of information content and rich in tacit knowledge. It is a profound subject and an area waiting for further development, its information mechanism is quite different from western medicine. Education and research of traditional Chinese Medicine will greatly promote the

development of Chinese medicine, meanwhile, it can also establish the unique position of Chinese medical informatics in the development of the world medical informatics.

3.5 Application of Knowledge Management Theory and Techniques

Peter. Drucker once said: "The essence of management is not techniques and procedures, it is to make knowledges productive. "Knowledge management is the management ideas and technology that adapt to this concept, is the development and the sublimation of the theory of information management. In order to make the hospital information management more efficient, we should implement the concept of knowledge management into medical informatics teaching, research and practical work. On the one hand, we should attach importance to the role that information technology plays in hospital information management, at the same time, we should also attach importance to intellectual factors of medical staff in transformation of medical data, information, knowledge. As tacit knowledge-intensive organizations, how to play the role of tacit knowledge from a management point of view in hospitals, is an issue requires the medical information academic circle to study and resolve in depth.

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On How to Realize English Teacher Autonomy in the Web-Based Environment

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Abstract. Web-based teacher autonomy is one of the college English teaching ways. This paper describes the necessity and advantages of using the web-based autonomy teaching in college English teaching, analyzes the problems of the ongoing web-based English autonomy teaching, and discusses how the college English teachers use the network to achieve teacher autonomy.

Keywords: college English, teacher autonomy, web-based environment.

1 Introduction

The reform of teaching mode is an important part of College English teaching reform. It focuses the transfer from teacher-centered to student-centered pattern, the inspiration of the enthusiasm of both teachers and students, and the interaction between teaching and learning. College English Curriculum Requirements says, "The new model should be built on modern information technology, particularly network technology, so that English language teaching will be free from the constraints of time or place and geared towards students' individualized and autonomous learning." [1] Therefore, web-based college English teaching and autonomous learning have become the focus of college English teaching reform. In recent years, studies on autonomous learning of college English are very active. Whether it is introduction of the overseas research findings, their enlightments on national college English teaching, or the investigation and development of students' autonomous learning abilities, it has fully proved the necessity and feasibility of autonomous English learning. However, the most related studies are put on learner autonomy, without enough studies on teacher autonomy. In fact, the development of teacher professional autonomy is the precondition of the development of learner self-learning ability. [2] It's hard to imagine that a teacher, who doesn't know what is teacher autonomy and cannot build his/her autonomous teaching system, can promote the autonomous learning abilities of his/her students. This paper focuses on teacher autonomy in the web-based environment, with the purpose of helping the teachers change their traditional concepts, understand clearly their roles they need to play in the new teaching model and promote the autonomous learning of their students.

2 The Advantages of Web-Based College English Teaching

With the wide use of Internet in all aspects of people's life, more and more scholars begin to pay close attention to the assistance of multimedia and Internet to English teaching and learning on the basis of their advantages as follows:

2.1 Unparalleled Universality and Sharability of Network Resources

Network resources are characterized by their richness and diversity. From the content point of view, they include such aspects as culture, sports, health, entertainment, history, geography, business, technology, environmental protection, etc. Formally, they involve news reports, newspapers and magazines, original books, charts, pictures, analytical reasoning, video and audio data and so on. Network covers almost all the topics involved in the present English textbooks and concerned by English teachers and students. In addition, online resources are fast to search fast and easy to integrate. Some websites, such as google, can provide subject or keyword search for Chinese and English materials. The fast and efficient search engine greatly facilitate the material selection for teachers in that it is easy for them to find the required information only with a clear subject or material type. The combined information can also be shared with others.

2.2 Promotion of the Students' Autonomous Learning Abilities

In the traditional mode of classroom teaching, student initiative and autonomy is difficult to play, while by the use of Internet in English learning, teachers can set the different learning requirements for the students with different levels, mobilize the enthusiasm of students, and improve the teaching effectiveness. As an advantages of network, interaction makes it possible to meet the personalized and autonomous learning needs of the different students, with a more flexible way of English teaching method. If we let the students make their own learning objectives, we may make them find the clear direction, protect their self-esteem and self-confidence, stimulate and maintain a stable learning motivation for them, which can be regarded as the key to achieve the differences.

2.3 Leveled and Individualized Teaching

The traditional English teaching can only meet the needs of most students and can not take care of every student in this classroom. As a result, students have no their own individual characteristics, while the network can make the leveled and individualized teaching possible. Teachers can make the different teaching program and teaching objectives according to different situations of different students. They can also control the overall progress of teaching at any time in the learning process. Under the guidance of teachers, students can make full use of computer advantage that listening and speaking practice can be repeated, and choose their learning content according to their different learning level. Thus, their learning initiatives are stimulated and their abilities to use English in a well-rounded way can be promoted. And the leveled and individualized teaching can be realized.

2.4 Optimization of the Environment for Learning English

As a new teaching means, multimedia and network provide students with an excellent learning medium, change the abstract and boring learning content into dynamic visual and audible content and make the English learning from smaller classrooms to the wide outside of the classroom. Students can visit the English Web sites, read the English original materials, scan the lesson plans database of a certain course, and even refer to relevant information at foreign websites. They can learn on line at any time and anywhere, which completely changes and optimizes the environment for learning English. The new teaching model brings out a great change for the roles of teachers and students in the classroom. Teachers serve as organizers of classrooms and control the progress of teaching, while the students learn autonomously in the form of individual learning, group discussion, etc. In this way, the classroom becomes a free and enjoyable learning world for the students.

3 Problems of the Web-Based College English Teaching Mode

In spite of the above advantages of the web-based college English teaching, there are still some problems with English teaching and learning, which can be summarized as follows:

3.1 Poor Autonomy of Chinese College Students

In the web-based environment, many students don't get used to the autonomous classroom teaching activities. A student once wrote in his written report: "We struggled for 12 years in the mire of basic education in China, and have already formed a submissive character. We have been crammed by spoon-fed method, and never tried to find food to eat, so we are lost and confused in the teacher's open environment. We have no requirements of autonomous learning. I would rather suffer the kind of bitterness in high school, but please do not let my own." [3]

3.2 Limited Space for the Students' Autonomous Learning

Autonomous learning is a systematic project. It is closely related with such human and material resources as management, beliefs, attitudes, environment, materials, technology, activities, etc. The most prominent issue at present is to improve the education management system. The students need to learn more subjects, take more time and take more exams. In this case, they have not enough time to develop their autonomous learning abilities. We can imagine what will happen if English teaching is mainly web-based and autonomous learning-oriented, but schools can not provide appropriate space for the students. It may be hard for students to balance the time spent on all subjects. And naturally, it will be a very difficult thing to improve English teaching.

3.3 Weak Autonomy for English Teachers

Some Chinese scholars have conducted some surveys on autonomous learning of non-English majors, and the results show that Chinese university students' autonomous learning abilities are relatively lower. They are more accustomed to rely on teachers. Therefore, teachers play an important role in the smooth development of autonomous learning. The requirements for teachers' creation in the autonomous learning mode are higher than those for their teaching techniques and rich knowledge. Traditional teacher may be replaced, but the modern teacher who can help learners to improve autonomy cannot be replaced. In autonomous learning, teachers should help learners determine the learning objectives, select learning content and progress, choose learning methods and techniques, monitoring learning process and evaluation learning result. Therefore, in order to create the conditions for students' autonomous learning, we should take both human and material conditions into account.

4 How to Achieve Teacher Autonomy in Web-Based College English Teaching

Based on the analysis of the advantages and problems of the web-based college English teaching, we may come up with some useful and effective ways to promote and achieve teacher autonomy in web-based college English teaching.

4.1 To Integrate Online Resources and Enrich Teaching Content

There are very rich resources on Internet. teachers can use Internet to search all kinds of information and data to enrich the teaching content. They can download some information from the website and introduce to their students. They can also collect and organize a variety of materials from the web pages, and then make some exercises for the use of teaching. There are quite a lot of good websites about English learning on Internet. Take www.1woods.net for example. It has a large number of English learning materials including CET-4/6 item pools, forums, multimedia audio-visual, VOA hearing, TOFEL, GRE, *Family Album U.S.A.* etc. Some websites provide all aspects of information and materials for English listening, speaking, reading, writing, grammar, testing, background, etc. Despite the wealth of network resources, teachers should make a rational use of them and play the leading roles, avoiding the English class into a class of display of multimedia coursewares. In English class, network and multimedia are not necessary, but teachers are a must. If we put more than enough emphasis on the use of Internet and multimedia, English classes will become courseware show classes, and teachers will become "projectionists", which disagrees with the purpose of multimedia assisted English teaching. As a result, students cannot pay enough attention to what they should learn.

4.2 To Promote Collaboration and Interaction between Teachers and Students

For learner autonomy, learners should first accept responsibility for their own learning, and then achieve the transition from learning reliance to learning autonomy under the teachers' guidance and support. In this process, if there is not enough

communication, dialogue, consultation and cooperation between teachers and learners, it is hard for the learners to assume the responsibility of constructing knowledge by themselves. Learners need the help of others to be aware of their learning styles, and teachers plays an important role in helping learners to understand how to learn. In the new teaching mode, teacher autonomy is reflected in how teachers use the learning materials, set up, implement and assess learning tasks, and promote the active construction of knowledge of learners. In the web-based teaching environment, teachers may collect some reading materials from the Internet for students to study after class. They can give some controversial topics in the forum for discussion. Students can also show their problems encountered in the learning process for their teachers to answer, resulting in online discussions and teacher-student interaction. Students can be asked to enter some practical situations with the method by computer simulation and receive the same experience as in real life, which can not be done by other means. At the same time, teachers should provide a lot of information and resources for students to consult when they meet problems. In addition, teachers need to help students solve their difficulties in the learning process. But to offer help to the students doesn't mean to tell them the answers directly. Instead, proper inspiration and tips are necessary. Such teaching strategies completely change the state of students' passive acceptance in the traditional teaching process. Thus, students will always be in active status, which effectively stimulates their learning interest and creativity.

4.3 To Take the Initiative to Reflect upon Teaching and Learning

Reflection is an important component in the teaching system of teacher autonomy. In order to promote students' effective self-reflection on their own learning, teachers need to constantly reflect on their own role in the classroom and monitor the extent to which their thinking and behaviors constrain or support their students. An autonomous teacher should reflect continuously on his/her teaching practice, verify the feasibility of his/her teaching objectives, the applicability of the teaching theory and the effectiveness of his/her teaching strategies in order to make a new decision-making. Such a teacher should also learn how to think, feel, and have reflective teaching so that he/she can combine directly the theory with practice in the daily work. [4] Besides, by reflection, teachers can improve their self-reflective awareness, adjust and control their own teaching behaviors, observe, compare, analyze and assess the whole process of their teaching, which promotes their own career development. More importantly, teachers' self-awareness refers to their own teaching ideas and value systems realized by themselves by reflection. Beliefs of teachers have more influence than their knowledge on their opinions to their teaching tasks and problems, which can more accurately predict their classroom behaviors.

If a teacher regards his/her student as a container to acquire knowledge, his/her classroom will be teacher-centered and his/her teaching methods must be crammed. The relationship between the teachers and students will be the one between "give" and "be given". If a teacher considers his/her students as explorers, his/her classroom will be student-centered and he/she will position himself/herself in the role of facilitator to encourage students to explore and construct the meaning of their learning. Those teachers who pay much attention to developing students' learning autonomy take their

students as partners, participate equally in their learning tasks, and encourage them to independently complete the process of building knowledge of the language. Such view on teachers and students is the result that teachers consciously reflect on their teaching behaviors, self-examine and modify their teaching on the basis of students' feedback. English teachers should be based on their own classrooms, analyze the needs of their students, adopt a series of action research means, maximize the space to develop their own autonomous decision-making, and share the rights with their students to open door for their students to exercise the right of autonomous learning. The teacher autonomy after class includes making a variety of English self-assessment and peer assessment forms to complete the formative assessment and teaching reflection.

5 Conclusion

The network-assisted autonomous college English teaching combines the foreign language teaching theory with the modern educational technology, makes up for the shortcomings of traditional English teaching, and greatly improves the teaching efficiency and teaching quality. It is a useful attempt for the college English teaching reform. Although the network is widely used in the English teaching, it is not a panacea. It is also worth exploration and research in many ways. In the future teaching practice, we should make timely and appropriate use of online teaching, continue to explore the new fields and exchange the successful experience, and ultimately improve the overall quality and practical ability of our students.

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A Strategic Study on Classroom Monitoring of English Language Teaching

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Abstract. Teacher's capacity of classroom monitoring is decisive to the quality of classroom teaching and a key element of determining teacher's activity and effects as well. Effective classroom monitoring is an important approach to promoting the efficiency of teacher's teaching and student's leaning. This paper emphasizes classroom monitoring does not only monitor teacher's activity, but supervise student's learning process in order to achieve a harmonious atmosphere of teaching and learning.

Keywords: classroom monitoring, teaching, English language.

Introduction

Classroom teaching as the basis of the whole teaching procedures, is directly executed in the interaction between teachers and students, and will accordingly affect the teaching quality of the school. The effective monitoring and evaluation of classroom teaching is necessary to improve the teaching quality. As for the classroom monitoring, it is considered a whole active process of planning, supervising, evaluating, feedbacking and monitoring in order to guarantee the success of teaching. In general, classroom monitoring is mainly embodied in the three following aspects: the preliminary planning or organization of teaching; the intentional supervision, evaluation and feedback; the adjustment, revision and self-control. The core of classroom monitoring in English language teaching is based on the idea of target oriented for the student development, achieving the effective teaching while respecting students' language endowment, needs and substantive form.

1 Significance and Necessity of Classroom Monitoring in English Language Teaching

1.1 Classroom Monitoring in English Language Teaching Is the Demand of Improving the Effectiveness of Teaching

Study of educational psychology shows that an enormous gap remains between high-quality and ordinary teachers in terms of classroom monitoring according to the comparative research of their teaching effectiveness. For the high-quality teachers, they could fully take all the relative elements of teaching process into consideration and set a

scientific teaching plan according to the goal of teaching and the realities of students. Meanwhile, they continuously reflect and evaluate in the process of teaching and revise problems the moment they find them, improving the effectiveness and efficiency of teaching and showing the high capacity in controlling and monitoring classroom. On the contrary, teachers with low effectiveness is not as good as those high-quality teachers in classroom monitoring. Thus, the ability of classroom monitoring is key to improving the effectiveness of classroom teaching after accumulating a certain amount of knowledge.

1.2 Classroom Monitoring in English Language Teaching Is the Needs of Nurturing “Expert Teacher”

One characteristic of “expert teacher” is possessing abundant and well-organized framework of knowledge which includes professional knowledge, educational knowledge and practical education knowledge. In a word, “expert teacher” is capable in classroom monitoring. They will take into account the contents, process and needs of students in teaching, making a choice such as what is ought to be taught and how to teach students on purpose according to the background and experience of students. Essentially, the purpose of cultivating teachers’ ability in classroom monitoring is to cultivate teachers’ self-consciousness, self-evaluation and self-adjustment in the whole process of teaching. In general, teachers will organize and optimize teaching procedures and evaluate the problems to achieve the aim of teaching.

1.3 Classroom Monitoring Is Necessary of Promoting English Language Teaching into a Benign Development

A relative experiment concerning classroom monitoring shows that the improvement of the ability of classroom monitoring can directly promote both teaching and learning. That is, the effective classroom monitoring can promote teachers’ self-consciousness of teaching and the activity of teaching itself, dramatically improving student’s academic development. Researchers have found that the enhanced classroom monitoring will continuously optimize the whole teaching process, upgrading teacher’s ability of classroom teaching, promoting the effectiveness of teaching and nurturing student’s capacity of acquiring professional skills.

2 Analysis of the Influential Elements

The elements that influence classroom monitoring of English teaching can be described as two aspect: the internal and external factors.

2.1 Internal Factors

The quality of classroom monitoring is firstly subjected to the teachers which is taken to be the immanent cause. Researchers have studied the relationship between teacher’s ability of monitoring classroom and their educational concept and made an inevitable conclusion that teachers’ ability of classroom monitoring is closely linked with their educational concepts such as self-consciousness, perceived-self-efficiency and the

quality of their teaching as well. That is, perceived-self-efficiency in teaching has an apparent influence on teacher's ability of classroom monitoring.

To be concrete, teacher will not intentionally and spontaneously take teaching activity as the object of their knowledge unless they are confident with their teaching capacity. Only in this way, will teacher prepare, plan, evaluate and revise their teaching and reflect its effects after class in order to adjust to student's needs.

2.2 External Factors

English language teaching is a rather complicated system with many external factors influencing each other among which the environmental factors are one of the most important elements of influencing classroom monitoring. There are three aspects of directly determining classroom monitoring: whether teacher could realize and find their problems in teaching timely, correctly and wholly; whether teacher has the sufficient knowledge and experience in solving the above problems; whether teacher can relate their academic knowledge to those existing problems occurring in the process of teaching and reconstruct them in a more effective and reasonable way. The indirect factors of determining English teacher's capacity of classroom monitoring include teacher's mentality such as educational motivation, self-efficacy and teaching style; interpersonal relationship in teaching; social culture and value and the campus spirits. The situation and effects of any teaching activity is determined by the fact that if teacher could adjust the above elements actively, scientifically and correctly for classroom monitoring plays a role of "leader", "supervising" other elements during the teaching process.

3 Methods of Monitoring Strategies

3.1 Monitoring Strategies Applied in Classroom Teaching

- Linguistic monitoring: linguistic monitoring refers to the strategy performed by teachers in the course of organizing and managing teaching. The most significant principle of utilizing linguistic adjustment is how to use mother language and English appropriately. For English teachers, they are meant to use English to teach students, enlarging the input of English, increasing student's chances of comprehending and sensing language, besides, teachers are well advised to take advantage of the positive transfer of mother language, improving the efficiency of teaching.

- non-linguistics monitoring strategy: non-linguistics monitoring strategy refers to a series of methods of non-communicative language including body, facial expression and gestures in managing teaching process. In the course of teacher, teachers are supposed to remain energetic and elegant. The so-called "non-communicative language" involves three aspects. Firstly, the application of facial expression: the positive attitude such as smiling and nodding can increase students' confidence and help them establish active attitude to study, stimulating the class atmosphere. Secondly, eye contact: the classroom monitoring and the adjustment of students' mood is achieved in the eye contact between teachers and students. For example, teachers can use eye contact in a mild and friendly way which is considered a kind of love and encouragement, on the other hand, serious eye contact means warning, criticize and

condemnation. Thus, an appropriate application of eye contact can do a great to the control of classroom. Thirdly, the utilization of gestures: gestures could help teacher convey information as a way of compensating classroom teaching. Gestures can attract students attention, stimulate their interests and enhance the effectiveness of both teaching and learning.

- reinforce the monitoring of classroom interaction

In the process of teaching and learning, teacher and student are influenced with each other,so do teaching and learning. The method and contents of teaching are in a cause and effect relationship. The interaction between teacher and student is not only an indispensable part of the whole teaching system, but a natural reflection of interaction existing among human beings. As a course of language education, English is supposed to break the present block of “dumb English” to achieve its aim, teaching students to write and communicate with fluent English. Therefore, the effective interaction between teacher and student is extremely necessary. In class teaching, for instance, the participants and the role those participants take part is decided by the way the classroom activity is organized. Corresponding methods are suggested as follows: firstly, teachers should take measures to encourage students to take part, stimulating their interest of language learning, creating harmonious classroom atmosphere, and so on. Besides, teachers ought to impose effective monitoring and controlling at the same time in order to improve the whole effects. Secondly, linguistic art should be attached sufficient consideration. Language, as the main means of organizing and performing teaching in classroom and the major way of communicating with students as well, determines the quality of teaching and influences the development of their comprehension, capacity and emotion. Generally speaking, teacher is meant to use language of enlightenment, summary and flexibility rather than the language of lacking illumination and logic. Teachers are in charge of their language activity to create more chances of interaction and adjust it in time according to the various changes of class and students.

3.2 Strategies of Monitoring the Students’ Activity in the Course of Classroom Teaching

Psychological study shows the tendency of ascribing one’ s self-performance to the internal controllable factors is likely to cause more efforts and firmness compared with ascribing to the external uncontrollable factors. Thus, students will lose confidence if success is ascribed to factors which have nothing to do with their work. For teachers, they should make it clear that one’s success has something with capacity and appropriate learning strategy, helping students establish their confidence and a correct concept of success on purpose. In class, teachers should keep reminding students combine their capacity with efforts, their previous difficulty is only caused by the inappropriate way of learning and lack of hard work.

3.3 Approaches to Improving Teacher’s Ability of Classroom Monitoring

- strengthening English teachers’ sense of responsibility.

Teachers play a leading role of designing, managing and organizing the course of teaching. Whether teachers have responsibility or professional ethics is decisive to

fulfill their leading role and achieve monitoring. Compared with those who lack sense of responsibility and professional ethics, teachers with high sense of ethics are concerned with the quality of teaching effects and the effectiveness of classroom monitoring, in addition, they are willing to evaluate, reflect and judge their teaching activity itself and its effects to see if the goal of classroom monitoring has been achieved to promote students' over-all development.

- enhancing English teachers' self-efficacy

Self-efficacy as a major element of influencing classroom monitoring is an embodiment of teachers' subjectivity, enthusiasm and creativity. Effective teaching means to obtain as much teaching effects as possible while paying as less time as possible, realizing both social and personal value under the condition of abiding teaching principles. For classroom monitoring of English language teaching, it involves the following implications: English teaching is supposed to be effective, efficient and beneficial, in short, English teaching will have to fulfill its predetermined target, optimize its investment and realize both the individual and social value. Nowadays, the phenomenon of "dumb English" and "Higher Scores and Lower Ability" keep arising, it is admitted the cause of the above phenomenon lies in the unawareness of efficiency. So, the new idea and method should be given full consideration in order to change the present situation and improve teaching efficiency.

- cultivating students' awareness of self-monitoring

Self-monitoring in and out of class is both necessary for students to solve problems. Teacher's ability of improving classroom monitoring relies on student's cultivation of self-monitoring. Accordingly, the so-called self-monitoring is a process which takes practice as an object, continuously and actively plan, supervise, evaluate, adjust and control it. It is admitted the cultivation of self-monitoring is extremely significant for the ability and development of solving problems. Study concerning young people's self-monitoring shows individual needs to evaluate the significance of the source of stimulation, control or change the external environment, relieve the emotion caused by setbacks to cultivate students' capacity of self-monitoring. Therefore, in the training of developing students' capacity of self-monitoring, teachers should first design around the interpretation of knowledge and its strategy. Besides, teachers need to strengthen students' experiences of self-monitoring.

4 Conclusion

To sum up, the effective classroom monitoring will adjust and control the class activity to improve the efficiency of teaching. Classroom monitoring does not only emphasize the activity of monitoring teaching itself and the students, it also tries to shape a harmonious relationship between teachers and students. English teachers are meant to flexibly execute monitoring strategies according to students' instinctive personality and particular context of each class, helping students establish confidence and stimulating their interest of learning English. In short, Classroom monitoring is a double-winning strategy, which is aimed at improving the capacity of monitoring of both teachers and students to achieve the high quality and efficiency of English teaching.

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Problems and Countermeasures for the Education of Mongolia's Overseas Students in Inner Mongolia

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Abstract. The education of overseas students plays an important role in defending a country's political image and improving political position. Many countries make a great effort to develop the education of overseas students which has become the direction and strategy on the development of higher education. With the rapid development of the economy, Chinese language has become so popular that plenty of international students come to China to learn Chinese and Chinese culture. Because of geographic advantages and historical origins in Inner Mongolia Autonomous Region and Mongolia, the number of Mongolian students who study in the college and universities in Inner Mongolia is in greater amounts every year. Although the education of Mongolian overseas students plays an important role in promoting the cultural exchanges between the two countries, the current situations and achievements in education so far are not satisfactory and optimistic. Accordingly, it is urgent to solve the current problems.

Keywords: colleges and universities in Inner Mongolia, overseas students from Mongolia, higher education, educational development.

1 Introduction

The geological location and historical origins of Inner Mongolia Autonomous Region of China and Mongolia have created an absolute advantage for colleges and universities in Inner Mongolia in reception and education of overseas students from Mongolia. Along with Chinese rush worldwide and rapid economic development of Inner Mongolia, colleges and universities of the region have witnessed a year-on-year increase in the number of students from Mongolia, a unique scene which is not seen in other higher learning institutes of China. Despite the rapid development in the education of overseas students, there are still problems, the unique ones compared with those in other higher institutions of China, remaining to be settled.

2 Problems in the Education of Overseas Students

Compared with other provinces and regions of China, Inner Mongolia has the largest population of overseas students from Mongolian, most of them come to China to study Chinese. They currently fall into two categories: for a bachelor's, master's or doctor's degree and for a better command of the Chinese language. And the former

outnumbers the latter. Among the former most study for a bachelor's degree. There are many problems to be tackled together with the rapid increase in the number of overseas students from Mongolia.

2.1 Many Mongolian Students Lack Proper Concept of Learning

Many Mongolian students lack proper concept of learning for the following reasons. First, as Mongolia does not have solid basic education, its people did not start to receive education on a general basis until the victory of Mongolian people's revolution. According to statistics, in 1921 only 5164 were literate. Against such a historical background, many Mongolian students lack a clear concept of learning and are unable to study independently. Second, Mongolia has a relatively small population and thus small employment pressure. Those who received higher education can mostly find a satisfactory job. Consequently, students, lack of self-discipline and motivation, form a disorganized learning climate. Third, as a result of the differences in educational systems, educational concepts, ideology and living habits between Mongolia and China, some of the Mongolian students fail to adapt to Chinese education mode, which interrupts their learning enthusiasm.

2.2 Students Lack Sufficient Command of Chinese ---the Precondition for Studying Major Knowledge

Compared with the overseas students from other countries, Mongolian students make relatively slow progress in their Chinese study for the following two reasons. First, Chinese belongs to Sino-Tibetan family, while Mongolian is a member of Altaic family. The differences between the two languages make it harder for Mongolian students to learn Chinese. Besides, there are no teaching materials tailored for Mongolian students, which makes it hard to teach them accordingly. The textbooks that Mongolian students use are all specific to British and American students with notes in English. Many Mongolian students have to learn Chinese words by looking them up in a dictionary for their English meanings first, a complex process indeed. Second, the majority of overseas students in Inner Mongolian colleges and universities are Mongolians, who can speak Mongolian whenever they want without any barriers to communication, unlike those students from other countries (such as Japan, Korea and Germany), who have to rely on Chinese for basic communication. Third, Mongolian students seldom or hardly communicate with Chinese students, failing to enjoy the best Chinese learning environment and learn about cultural customs and habits of the Chinese people. Enclosed in their own small world, they hear limited Chinese spoken by their teachers at class and speak mostly Mongolian in their daily life, which accounts mainly for the standstill of their Chinese learning.

Language beginners of Mongolian students start their undergraduate or postgraduate study after only one year of language study with limited command of everyday Chinese expressions. As new teaching plans specific to Mongolian students have not come into being in Inner Mongolian colleges and universities, Mongolian students have to share textbooks, teachers and teaching method with their Chinese counterparts. Overwhelmed by difficult subject terms and theories, they gradually lose their interest in learning.

2.3 Imperfection of University Enrollment Management System

Most of Mongolian students, who study abroad for a degree, belong to the agreement between Inner Mongolia and Mongolia for cultivating students at public expense. In view of relations between two countries or the cause of economic development in Inner Mongolia, all of students abroad can obtain degree no matter how bad are their academic records at the end of studying. Because students' enrollment management is imperfect, it is nonsense to cultivate students abroad in a favorable atmosphere. And it makes students misunderstand that it is so easy to get a degree in China. In the education management of Mongolian students abroad, the colleges and universities are lack of effective supervision so as to damage their reputation. Gao Jianhua said, "The popularity and dignity of colleges and universities are invisible competitiveness and intangible resources which we should cherish to ensure sustainable development of the students abroad education".

3 Online Measures to Be Taken to Solve the Problem

Taking the present situation of higher education in Inner Mongolia Autonomous Region into consideration, we realize that the educational development should be oriented towards the education of foreign students, especially of the overseas students from Mongolia. The Mongolian government sends students to study in China with a purpose of educating and cultivating talents in scientific and technological spheres through relevant cultural communication between the two countries so as to meet its domestic need of talents and experts in related fields. Therefore, we are supposed to take feasible and effective measures to solve the problems mentioned above. In the colleges and universities of higher education in Inner Mongolia, only by doing so can education of overseas students from Mongolia be put on the right track.

3.1 Strengthen Ideological Education and Generate Students' Learning Enthusiasm

Ideological education forms an indispensable part in the education on overseas students. It plays a vital part in the administrating of the foreign students. According to Zhang Yi, a successful ideological education proves to be helpful in enabling foreign students to actively adapt to the new environment, willingly obey the rules and regulations for management, positively respond to the learning practice and voluntarily engage themselves in the new community. The following aspects are to be given special notice: first, the ideological education should have its basis on an understanding of and respect for the foreign students' cultural tradition and cultural differences. It should by no means be imposed on the students. Second, the ideological education should be combined with the college/university rules and regulations in order to acquaint the foreign students with a comprehensive knowledge of the relevant rules and regulations, particularly of those involving the teaching and learning practice. Third, while strengthening ideological education, proper guidance should be provided to the students with an intention to guard them against any slackening of efforts in their study and thus to transform their learning attitude and motivate their learning interest.

3.2 Enhance Foreign Students' Language Command and Lead Them to Be Adapted to Credential Education

Standard language test should be carried out among the overseas students from Mongolia before they are admitted as undergraduates or graduates. The college/university authority responsible may design and conduct the test, or there should be a regulation as for the levels of HSK that students are required to achieve before they are allowed to continue with a higher education in China. As a result, the current situation of receiving higher education when the students are “unable to understand, communicate in and apply the language” can be changed. To help accomplish this target, besides the in-class teaching practice, a diversity of extracurricular activities should be organized on campus so that the students from Mongolia may have more opportunities to use Chinese to communicate with the Chinese students. In the process of teaching Chinese to the overseas students, the author of this thesis gets to know that the foreign students studying in China are not reluctant to rub shoulders with their Chinese fellow students. The “mutual non-interference” is primarily caused more out of frustration and fear due to a crucial lack of knowledge of culture and customs of the counterparts. Moreover, students deepen their professional knowledge only when they have already had a full command of the language, thus paving way for a profound academic study and research on the related professional knowledge.

3.3 Maintain High Teaching Quality and Reinforce the Administration of Overseas Student Registration

As the language proficiency of the foreign students is not comparable to that of the native Chinese students over a short time span of learning, it is virtually impractical to “teach them the same way as their Chinese counterparts are taught.” The educational mode of “using similar ways to educate both the foreign students and the Chinese students” advocated in other colleges/universities can not be adopted because of the special characteristics of the students from Mongolia. Instead, a more flexible policy should be adopted while adhering to the fundamental principles. From Lu Xinxiang’s perspective, the core of education and cultivation of the overseas students is to maintain a high teaching quality, which centers on maintaining high-quality teaching and learning practice. Hence, the college/university authority concerned should assume responsibility in projecting workable teaching plans and syllabus designed to be suitable for the undergraduate and graduate students from Mongolia, and applicable textbooks and teaching materials should be carefully selected accordingly. Meanwhile, in line with the unique characteristics of the Mongolia students, they should be taught in a class of smaller size. Besides, teachers who are conscientious and rich in teaching experience should be assigned to teach them. Thus, these teachers are able to deal with the problem when the students slacken or neglect their learning activity and assist the students in adapting the new learning environment and methods in China in the shortest time possible. Furthermore, under the circumstance of taking a liberal polity, administration of student registration for foreign students should be emphasized; such systems as credit system, flexible length of schooling and mid-term elimination should be performed. Overall, a higher demand is set on the students from Mongolia when they are encouraged to learn and receive their education in a relaxing atmosphere.

Of course, it's far from enough to realize the development of the education of students abroad just by solving several problems with several measures. Both of the historical reasons and the geographical disadvantages in the colleges and universities in Inner Mongolia lead to the low level of the higher education, the inconspicuous discipline superiority and the poor innovation ability. How to narrow the gap of the students' educational level in colleges and universities between the Inner Mongolia and other regions in China is the problem that the former is facing in the work of TCFL(Teaching Chinese as a Foreign Language). We should perfect the quality of teachers, guarantee the quality of education, and strengthen the students' enrollment management. It also have to change the traditional Chinese teaching method which is the preaching way by developing proper multimedia and online education. The methods mentioned above are all the indispensable elements that contribute to the development of the education of students abroad.

4 Summary

Current period is of great importance in the history of the education of students abroad in Inner Mongolia. However, training students abroad in Mongolia is above all in the developing process. To the colleges and universities in Inner Mongolia, the education of students abroad in Mongolia is not only a way of training talents, but also an important way to promote regional economy and culture, and ensure the all-round development of the education in college and universities. While the cross-culture and the economic cooperation between Inner Mongolia and Mongolia make both of them to have the unique objective conditions. So, the colleges and universities in Inner Mongolia should follow the educational idea of "learn to know, learn to do, learn to be, learn to live together" that proposed by the UNESCO, and try to develop the education of overseas students in Inner Mongolia on the basis of multiculturalism.

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Exploration of Constructing “D+L · CDIO” Talent Cultivation Mode

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Abstract. This paper systematically discusses the basic idea and practice of the undergraduate education reform of electrical information categories in the college of electronic Information & automation in Chongqing University of Technology. The reform is guided by Conceive-Design-Implement-Operate (CDIO) educational philosophy. The full process to construct “D + L · CDIO” cultivation mode by “233” method is described in detail. Then taking the automation specialty as the example, the design-oriented integrated course system is described. The practice has proved the reform obtaining a good teaching effect and accumulated experience for engineering education reform.¹

Keywords: CDIO, engineering education, cultivation mode.

1 Introduction

Recently, the engineering education mode of Conceive-Design-Implement-Operate (CDIO) has been the latest achievement of engineering education reform [1] internationally. CDIO, based on the lifecycle from research and development to operation of practical engineering project (including product, production process and system), can let undergraduates study engineering in an active, practical and organically related manner between different courses. By far, tens of world-famous universities have already joined the CDIO international organization. In domestic, there are several higher technical universities which have started to attempt the engineering education reform of CDIO. Among them, the engineering education mode of EIP-CDIO [2], implemented by Institute of Technology of Shantou University, has gained the lead in domestic CDIO reform.

¹ This paper is sponsored by “research and practice of applied talent cultivation mode for electrical information categories” (101102), the major project of Chongqing higher education teaching reform, and is the stage achievement of “the innovation experimental area of applied talent cultivation mode for electrical information categories under Deep Foundation and Large-scale Engineering” (Chongqing 2010 innovation experimental area for talent cultivation mode).

2 Construction of “D+L · CDIO” Talents Cultivation Mode

Presently, in traditional engineering education mode there still are some problems urgent to be solved as follows: excess emphasis on academic knowledge, lack of technical innovation & practice, almost no humane art education. Therefore, in order to better realize the goal of engineering education reform, and to narrow the gap between employment requirements of modern international enterprises and the self-conditions of general engineering graduates, our research team, by thorough investigation of domestic engineering education and on the basis of CDIO, innovatively put forward to the talents cultivation mode of “D+L · CDIO”. The D+L·CDIO, an advanced CDIO mode based on “Deep Foundation +Large-scale Engineering”, means the deeper engineering foundation and the stronger engineering practice. In practice, referring to CDIO mode, and corresponding to different specialty characteristics of electrical information categories in our college, we have constructed the effective “D + L · CDIO” cultivation mode by adopting “233” method. The term “233” means two cores, three levels, and three grades.

2.1 The Two Cores: Deep Foundation and Large-Scale Engineering

The term of “Deep Foundation” means that: from the standpoint of quality-oriented education and lifelong education, it’s of great importance to strengthen foundation, broaden specialty knowledge, and struggle to construct a deep foundation education organically integrating science foundation, engineering foundation and basic techniques. “Deep”, emphasizing fundamentality and universality of engineering education, requires undergraduates to lay a solid foundation of all of the below: mathematic and natural science, social science and humanity, engineering technology needed in modern science. Academic foundation should focus on liberal education, emphasize basic academic education, arrange courses with strong systematization and high correlation, and expand specialty caliber, and establish a platform for the penetration, intersection, and fusion of different disciplines. Therefore, the disadvantage existed in traditional education that the specialty is divided too narrowly, too carefully, and too early, could be avoided.

The term of “Large-scale Engineering” means that: aiming at the cultivation of application-oriented talents, on the basis of practical engineering, it’s significant to focus on the training of undergraduates’ engineering thoughts, engineering quality and engineering practical ability. Course arrangement and teaching reform is the key of the educational idea reform of “Large-scale”. “Large-scale” pays more attentions to the comprehensiveness, systematization and integrality of engineering training. In the respect of knowledge constitution, “Large-scale” not only emphasizes the knowledge units in the professional knowledge system, but also focuses on the correlation and integrality between different knowledge units, which exhibiting the unification of “width” and “expert”. In the respect of engineering ability, “Large-scale” emphasizes not only the ability of management and design of engineering unit, but also the engineering unit’s correlations with the whole system and environment. In a word, “Large-scale” requires the undergraduates’ diversified knowledge and various abilities.

The “D+L · CDIO” talents cultivation mode constructed by our college is the deep explanation to CDIO engineering education mode. It not only follows the cultivation ideas of the universal mode of CDIO, but also can solve the following questions: the too narrow and careful specialty dividing in traditional higher education, the weak engineering base of undergraduates, and the serious lack of engineering training. Therefore, the “D+L · CDIO” mode is more suitable for the actual situation of engineering college like us.

2.2 The Construction of Three Levels

The construction of three levels is to construct the engineering teaching system of “D+L·CDIO” according to the three levels of macro Level, medium-level, and micro level.

- The macro level is to construct the macro architecture of “D+L·CDIO” from the standpoint of college. In order to fulfill the target of “the deeper engineering foundation, and the stronger engineering practice”, our college started to carry on the reform of “2+1+1” phase by phase training mode, which was the first attempt among the Chongqing’s Universities. Our “innovation experimental area of applied talent cultivation mode for electrical information categories under Deep Foundation and Large-scale Engineering” has been listed on “Chongqing 2010 innovation experimental area for talent cultivation mode”. “2+1+1” is the macro architecture of “D+L·CDIO” talent cultivation mode. In the first two academic years, the basic theoretic teaching for the deeper engineering foundation is set facing the whole electrical information categories, which is able to guarantee talent’s basic specification and common requirement for integrated development. Then, in the third academic year, the undergraduates will be divided and cultivated in different specifies according to their own aspirations, so the individualized instruction in terms of each specialty can help undergraduate become skilled in a technical field, satisfying individual needs. Finally, in the fourth academic year, we focus on training undergraduates’ engineering ability according the market demand and employment status.
- The medium level is the construction of “professional talent cultivation project and course system” from the aspect of specialty, i.e., establishing the integrated teaching program on the basis of “D+L·CDIO” mode. It is the implementing project and platform provided for the “D+L·CDIO” talent cultivation mode for electrical information categories. It’s important to implement the CDIO cultivation plan and course syllabus further, to analyze which course should be set from the aspect of professional ability demand, to demonstrate the rationality of the project, and to form integrated course plan finally
- The micro level includes the specialized course group with different grade based on “D+L·CDIO” mode, concrete course structure, and the organization of teaching activity. And it is the final teaching activity to implement the “D+L·CDIO” mode.

2.3 The Implementation of Three Grades

Finally, the teaching idea of CDIO is concretely implemented by different courses. When carrying out the CDIO idea, there also are different requirements for course (item) in different grade. The concrete applications are as follows:

- The first-order project is required to be run through the whole undergraduate education stage fully and continuously, and to let undergraduates have systematic training of conception, design, implementation, and operation. The first-order project should contain the key specialized courses and important ability-requiring items, establish the basic structure of professional knowledge and ability. In the first and second academic years, by the introductory basic course, help undergraduates contact the conception of engineering project as early as possible, know the composition of engineering project, learn the relationship between the key professional knowledge and real product, stimulate undergraduates' study interest, and clarify learning purpose. Then, in the period of practical training and graduation project, and on the basis of professional knowledge studied in the past three years, each undergraduate should experience a completed engineering practice, completing the conception, design, implementation, and operation of a real engineering item. The first-order project, such as graduation practice and graduation project, aims to train undergraduates' abilities of engineering design, innovation, collaboration, and integration of theory with practice.
- The second-order project is a project group including related key courses and ability requirement, and needs the support of course group. It synthesizes the related course group, and mainly aims to cultivate undergraduates' abilities of comprehensive application, creative thinking and life-long studying. The second-order project is on the basis of course group, and each course group sets a project including design, manufacture, control and detection. These projects, equivalent to comprehensive course design, combine the knowledge of related courses organically, and let undergraduates understand the organic and correlative knowledge rather than isolated knowledge point. Effectively combing the construction of course group with practice can eliminate repeated contents and reduce study hours.
- The third-order project (primary project) is set to strengthen undergraduates' ability and understanding in a single course, and usually is done in the teaching process of this course. The knowledge of each teaching subject should be carefully chosen by joint combining teaching syllabus with course plan. Whether or not to set a third-order project or what form to adopt is decided by the characteristic and requirement of each course.

3 The Example of “D+L•CDIO” Talent Cultivation Mode

In this section, the automation specialty of our college is taken as an example to introduce the integrated course system designed by the “D+L•CDIO” talent cultivation mode. The fish-bone diagram of the “D+L•CDIO” talent cultivation mode guided by

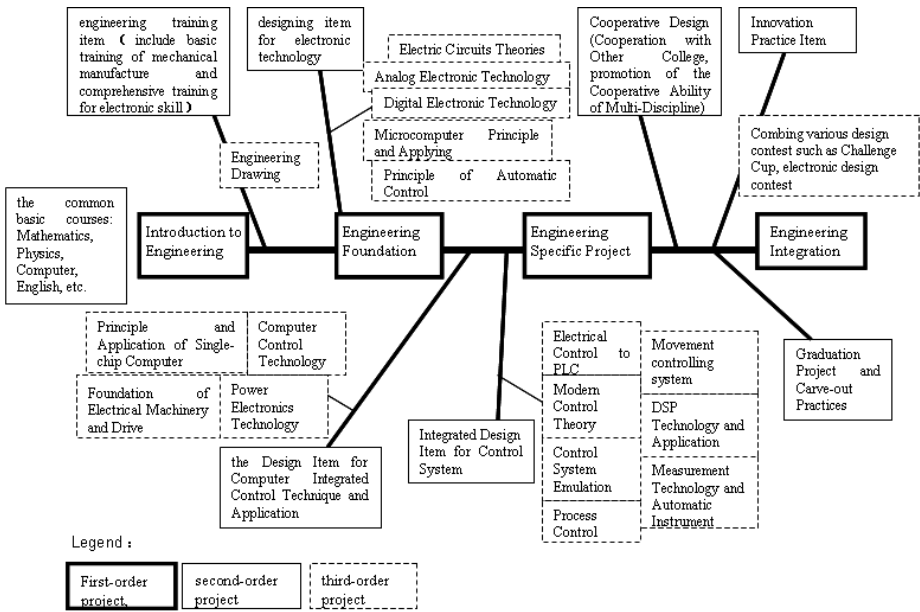


Fig. 1. The fish-bone diagram of the “D+L·CDIO” talent cultivation mode of automation specialty

our automation specialty design is shown in figure.1. The whole cultivation plan regards the project design as the mainline, which continuously runs through the whole undergraduate teaching period and let undergraduate have the systematic and integrated training of “Conceive-Design-Implement-Operate: CDIO”. The whole course system is integrated in an organic and systematic way by project design. This cultivation mode’s feature is that all the contents needing to be studied and mastered are focus on this core (project design) [3] and fused together to be a whole with this core.

The “D+L·CDIO” cultivation mode in automation specialty, aiming at the training of undergraduates’ engineering ability, is carried out by the following way: Level-Based Cultivation, step by step, gradual improvement. By ladder engineering project, a certain kind of ability is trained in a stage, which could improve undergraduates’ engineering ability of cognition, experiment, design, and implementation, and exhibits the gradualness of ability training.

4 Conclusions

At present, by following the international higher engineering education mode of CDIO, the “D+L·CDIO” talent cultivation mode, proposed by college of Electronic information and automation, Chongqing University of Technology, has taken achievements in the following aspects, course system optimization, practical teaching reform, teaching staff construction, practice training inside and outside college, web construction, etc. It’s proven that the “D+L·CDIO” mode can effectively improve

undergraduates' comprehensive quality and engineering ability. And consequently, the improvement in talent cultivating quality has been continually expanding our college's social influence and increasing the acceptance degree for talent cultivation. In the recent years, both the enrollment quality and employment rate of our college have been among the best of colleges in our university.

In the process of exploration and reform, there still exist some problems needed to be studied and solved, such as how to enhance the engineering ability of teaching staff, how to perfect management and operation mechanism, etc. We hope that the research proposed in this paper can help to explore new talent cultivation mode further, summarize historical experiences, put forward to solution, and provide reference for engineering talent cultivation at home.

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The Construction of Systemetic Project of “Educating People by All Staff” in the Background of Mass Higher Education

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Abstract. This paper explores the nature and features of “educating people by all staff”, the necessity and importance of the implementation of “educating people by all staff” in the background of the popularization of higher education. Based on the problems and drawbacks founded, it is proposed that the “educating people by all staff” work should be carried out as a systemic project by which an “educating people by all staff” atmosphere will be formed and an “educating people by all staff” framework will be constructed. By means of making fully use of the educational functions of professional teachers, constructing a high-quality team of student work, improving the working style of administrative authorities, advancing the reform of university logistics and enhancing the education of students’ self-education and self-administration, a good management model of “educating people by means of teaching, management and service” will be created.

Keywords: mass higher education, educating people by all staff, new philosophy, administrative model.

1 Introduction

According to *The suggestion about strengthening and improving the college students’ education of ideology politics* given by The State Council Of The Central Committee Of The CPC, we should follow the principle of taking all-around development of student as our target as well as sticking to the combination of education and management in order to strengthen and improve the college students’ education of ideology politics. It calls for higher request on the underway reform of construction of cultivation mode of talented people. Facing with the challenges brought by economic globalization, we should take it as our top priority on how to implement the party and country’s education policy, build an all-round education environment and form a perfect figuration of educating people by all staff to guarantee the development of student so that to adapt to the demand of market economy and social development.

2 The Origin and Contents of Educating People by All Staff

Over recent twenty years, with the emerging of some social issues such as the inflating size of single-child population, people begin to switch their attention to joint efforts on

students' development and education. People tend to care more about student's pragmatic skills and comprehensive ability rather than high score in the process of the implementation of popular education, the emerging of quality-oriented education and the change of job market for graduate students. Based on this, many colleges begin to pay more attention to their all-staff and all-round education work. This is the inevitable demand to thoroughly implement the party and country's education policy, and it reflects the scientific outlook on adhering to student-oriented education.

All teaching staff in colleges is supposed to begin their teaching, research, management and service work as well as study, practice and innovation activities based on the growing of students about college all-staff and all-round education. The colleges should take talent training the center of their work to the organization structuring, position creating, and personnel selection, segregation of duties, system construction and implementation. At the same time, we should set up the concept of people-oriented education, stick to the principle of all for students, for all students and for students' all need, so that we can completely change the one sided practice of valuing the knowledge instead of skill, techniques instead of morality to deal with the relationship among morality, intelligence, physique and virtue scientifically. What's more, stick to the people-oriented principle to help the forming of all-staff education environment, which includes the fixation of guiding ideology, updating of teaching concept, major setting up, design of talent training scheme, process of teaching and development of campus culture.

3 Why We Need an “Educating People by All Staff” Work

With the expanding scale of enrollment, rapid development of information technology, and newly sprouted quality-oriented education, student work in college are facing more complicated and burdensome tasks. Besides that, many problems are emerging such as the mental status of student, internet addiction and the growing make-up examination students' size and these have become the killer of negative study atmosphere, poor practical ability on study, innovation and research, which obviously will affect the education results. So the governing panel should try to seek a more effective education mechanism and mode.

Over recent years, the work of educating students in college has gradually stepped onto a scientific and standard way. Concepts of all-staff education have been forming and made some achievements. However, such concepts in many universities just remain on the surface without any concrete plans and measures and well-run system to tap the superiority of all-staff education. Consequently, we need to enhance research on this problem and explore the student management model and operational mechanism of all-staff education to put it into effect.

4 The Problems of Student Work in College

For a long time, student work division conducts most of the work without effective and close cooperation among divisions. Here are the problems:

4.1 To the Student Work Department

Their core work is to insure the smooth running of daily work to keep students safe. It will directly affect the result of education if we can't ensure certain further communication with students. Other than that, old fashioned and limited teaching method, insufficient study about students' mental state is adverse to bear fruit.

4.2 To the Logistics Department

Their ability to provide better management and service is far from the students' satisfaction and can't meet the demand of students' various needs.

4.3 To the Colleges

They meet their bottlenecks on providing them stage to extinguish themselves due to their limited ability to supply sufficient resources of study, research activities can't meet the demand of plentiful student activities.

4.4 To the Professional Teachers

They couldn't fully play their role on student education, they failed to teach them the philosophy of behaviors, socializing, and knowledge, because they pay much attention on theoretical guiding, knowledge transmission and post-class research & experiment activities which will kill the chance to mental communication with student.

4.5 To Student Themselves

They have a laggard sense of self management, self service and self education, namely not fully practice their initiative. They lack a clear goal for their career planning and a clear study motive, which leads to the passive reaction to the problems they meet, so they feel confused about their future job.

The above-mentioned problems show that it's emergent and necessary to strengthen the ideological and political education work on students. It requires that colleges should build the all-staff education sense to guarantee the cooperative work among divisions under official lead. Divisions should clearly see their specific duty and strengthen it based on the work student first, so they can have efficient dialogue to work coordinately and fully play to their advantages and functions to promote their comprehensive ability and the balanced development on morality, intelligence and physique.

5 Suggestions on College's “Educating People by All Staff” Work under New Situation

Former education minister Chen Zhili pointed out on the 11th national college and university's conference on the party's construction that, college should take further actions to strengthen and improve the students' ideology politics, we should integrate the work of teachers and students' ideology politics and the construction of study, school spirit and teaching practice to meet the guideline of all-staff education in colleges. In order to put this guideline into practice, we suggest that:

5.1 To Build a “Educating People by All Staff” Mechanism

The leaders of college value the construction of practical and feasible all-staff education regulatory rules and assessment index system. The students work division, teaching affair division, personnel division and logistics division should joint hand to create the all-staff education environment and framework through the construction of all-staff education mechanism. Students work division is responsible to the students’ daily ideology education together with their behavior supervision and growing to be a useful people. The teaching division is dedicated to the daily ideological education, behavior management and growing service work; personnel and organization department is committed to produce policy on rewards and punishments, coordination and inspection; the logistics department is expected to provide smooth service to the teachers and students. In all, all divisions should work cooperatively to the creation the all-staff education environment.

5.2 Make Full Use of the Educational Work of Professional Teacher

Students come to school mainly to acquire knowledge, so professional teachers must educate students consciously while teaching. Just as three aspects stressed by an academician of the Chinese Academy of Sciences named Shuzi Yang when talking about what college students should do in college, Learn to conduct them, learn to think and learn to master necessary knowledge and utilize knowledge. These three aspects are inseparable, support each other and permeate each other. They must be carried out during the whole process of school ideological education. Thus, the educational work of professional teachers is quite important. The specialty knowledge of professional teachers is much appreciated by students. So the ideological education in specialized courses is much easier to be accepted, and the effect is much better than that of the work done by cadres specializing in student management.

In order to enhance the education of teaching ethics and make full use of the educational work of professional teacher, we need to do three things. First, improve teacher's professional skills through on-the-job training. Second, strength teachers’ consciousness of setting a good example with one own conducts. Teachers needs to accept education first, discipline themselves, then set a good example. There are no trifles in the eyes of teachers, they should be models everywhere. The last one is encouraging actively specialized teachers to participate in students’ education and management work, improve the system of the assessment, evaluation and rewards and penalties of teachers' educational work, and enhance the activeness and initiative of teachers' taking part in students' education and management work.

5.3 Promote the Logistics Reform to Serve the Formation of a Service-Education Environment

Workers in logistics department should arm their mind with the service comes first sense to help the students in need. We should try to activate students’ initiative, improve their social morality, and teach them the philosophy of living in harmony together with team spirit, and bound them together. We hope that through our

people-oriented management and considerate service to students, home feeling can spark in their mind and our management can target a new level to realize the transition from bare management education to management education with service.

5.4 Build a Capable Work Group on Student Education

The building of a balanced work group integrating age, education degree, title, and high political and work quality is the basic source of work staff on students' ideological and political education. We need to carry out different trainings combining other forms such as lecture, report, talk and self-education to reassure each one's duty, to improve our work efficiency with more flexible ideas.

5.5 Enhance the Education of Students' Self-education and Self-administration

More work need be done to strengthen the guiding work on student self education and management by making motivating the students who serve as the pillar force, namely we need to make full use of our power to regulate various students communities and stress the cultivation of student cadres in the process of our service towards the growing of students. Meanwhile, we should value the work on the access of ideology and politics work to student departments, communities and the internet. Most students turn to the internet for more useful information, so every division should build an own website and make it a key role in the work of student education with timely maintenance and fresh contents.

5.6 Improve the Working Style to Realize the Education Function

We need to develop it into a service agency based on research and study through the construction of a practical and feasible regulation and restriction mechanism. The spirit of people-oriented should take root in the heart of our staff by providing better service to every teacher and student with enduring, considerate, careful attitude. This will create a favorable image for all staff to influence and educate students.

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Design of Adaptive Web Interfaces with Respect to Student Cognitive Styles

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Abstract. One of the obstacles for incorporating student cognitive styles into web-based learning systems is the adaptive representation of learning material in web-based environments. This study designed adaptive web interfaces with respect to students' cognitive styles by investigating the relationships between students' cognitive styles and browsing patterns of content and interactive components. The system then adaptively recommended learning content presented with a variety of students' preferred content and interactive components based on the students' cognitive styles. The cognitive style instrument applied in this study was the Myers-Briggs Type Indicator which is based on Jung's theory of cognitive styles. It is based on two fundamental cognitive functions, perception and judgment whose combinations form four cognitive styles, Interpersonal, Mastery, Understanding, and Self-expressive. An experiment was conducted to examine the impact of the proposed adaptive web-based system on students' engagement in learning. Two classes of college freshmen participated in the experiment. One class was assigned as the control group using the conventional web-based system without adaptive web interfaces. The other class was assigned as the experimental group using the designed adaptive web interfaces. The experimental results revealed Interpersonal and Mastery students in the control group lost their patience more quickly than students of the other styles. Furthermore, the results showed the proposed adaptive learning system could effectively enhance students' engagement in learning for Interpersonal and Mastery students especially. The results provided evidence of the effectiveness of the adaptive web-based learning system focusing on student cognitive styles.

Keywords: adaptive web-based system, cognitive style, adaptive interface, browsing behavior.

1 Introduction

Web-based learning systems provide students a high level of user control and rich material. However, they are not free of problems. Students usually fail to effectively grasp important information. The structure of the web-based courseware is an important in web-based learning and designers need to pay close attention to how web-based courseware is constructed as well as how students navigate through it [1]. Students learn with not only different needs but also different characteristics. The

variation in student characteristics therefore is one of the important concerns for crafting a web site presence. An adaptive web-based learning system provides personalized information through automatically improving organization and presentation of the web page by learning from students' browsing patterns to achieve personalized services [2]. Therefore it can be beneficial to learning systems with students having a variety of characteristics including cognitive styles.

Students have different cognitive styles that influence how they organize and process information therefore influence their learning performances [3][4]. Researchers have developed a variety of cognitive style models. The cognitive style model applied in this study was the Myers-Briggs Type Indicator which is based on Jung's theory of cognitive styles. It was selected according to the criteria suggested by [5]: based on a two-dimensional model of information processing, sufficient validity and reliability data, and appropriate for use with adults. This instrument has been widely applied for adults with sufficient validity and reliability data [6]. It is based on the idea of opposite sets of two fundamental cognitive dimensions, perception and judgment. Perception indicates how people find out or absorb information. It is the process of becoming aware of information. The perception dimension is divided into the opposite preferences of sensing and intuitive. The sensing person prefers to be made aware of things directly from the five senses, whereas, the intuitive person prefers the less obvious way of perceptions. Judgment indicates how people process or make judgment about the absorbed information. It is the process of coming-to-conclusions about what is perceived. The judgment dimension is divided into the opposite preferences of thinking and feeling. The thinking person impersonally discriminated between true and false, whereas, the feeling person personally discriminates between what is valued and not-valued. The preference for sensing or intuitive is independent of the preference for thinking or feeling. As a result, four distinct cognitive styles, Interpersonal, Mastery, Understanding, and Self-expressive, were discussed. Each style is a basic orientation toward the world based upon functional (sensing vs. intuitive, thinking vs. feeling) preferences characterized by particular interests, habits of mind, and personal behaviors [5][6].

Though it is generally agreed that coupling information presentation with student cognitive styles can increase the effectiveness and efficiency of learning, however, while developing adaptive web-based systems, less attention has been paid to the fact that students perceive and process information in different way in learning [4]. One of the obstacles for incorporating student cognitive styles into web-based learning systems is the adaptive representation of learning materials in web-based environments. Designing adaptive web interfaces intuitively might not authentically reflect students' information organization and processing preferences. Few studies are conducted to investigate the relationships between student psychological traits and browsing behaviors [4]. Therefore, designing adaptive web interfaces fitted to student psychological traits would be one key concern for designing web-based learning systems. It is suggested that browsing behavior offers the potential to extract some psychological information about the user, which may in turn be used to tailor the hypermedia towards the user [3][7]. To this end, this study designed adaptive web interfaces with respect to student cognitive styles by investigating their browsing behavior towards an experimental web-based learning system.

Based on the above concerns, the purpose of this study is two-fold. First, this study would develop an adaptive web-based learning system with respect to student cognitive styles. The system presented adaptive interfaces, designed by investigating the relationships between student cognitive styles and the way how students interacted with a web-based learning system, to students based on their cognitive styles. Second, an experiment was conducted to evaluate the effect of the system.

2 Adaptive Web Interface Design

This study designed adaptive web interfaces for students with different cognitive styles by investigating the relationships between students' cognitive styles and the way they interact with a web-based learning system in a previous study [8]. In that study, an experimental web-based learning system with fifteen content and interactive components was built (Table 1). A content and interactive component is an object which is usable, sensible, and of practical value to the information processing process for students to access learning content and interact with others.

Table 1. Content and interactive components in the experimental system

| No. | Component | Description |
|-----|-----------------------|--|
| 1 | Pretest | Tests to assess students' understanding about the prerequisite knowledge of the learning content |
| 2 | Table of content | List of the learning content |
| 3 | Introduction | Overview of the learning content |
| 4 | Learning objectives | Outlines of what student can learn from the system |
| 5 | Opening case | Practical applications provided before studying the learning content |
| 6 | Closing case | Practical applications provided after studying the learning content |
| 7 | Chapter review | Summary of the learning content in accordance with the learning objectives |
| 8 | Glossary | List of key terms related to the learning content with definition |
| 9 | Reference material | Extended readings related to the learning content |
| 10 | Popular current event | Related practical attention-getting examples happened recently |
| 11 | Self evaluation | Tests to assess the learning effectiveness on students' new knowledge |
| 12 | Discussion forum | Component allowing students to seek peer interactions |
| 13 | E-mail to teacher | The channel for students to communicate with the teacher |
| 14 | Keyword | In-text hyperlinked texts embedded within the learning content to explain key terms |
| 15 | Graphic | In-text hyperlinked graphics embedded within the learning content to help students learn |

One hundred and seventy six college sophomore students in a northern Taiwan university were selected to participate for investigating the relationships between students' cognitive styles and their browsing behaviors. Participants were asked to complete a cognitive style evaluation questionnaire introduced in [6] to identify their cognitive styles before the experiment. Then they were asked to browse the experimental web-based learning system for 30 minutes in the computer lab. Before the experiment, the learning content had not been introduced in the class. In other words, participants had not read the content before the experiment. Participants' browsing behaviors were collected in the log file by the system for analysis. After deleting fourteen abnormal browsing data, browsing data from one hundred and sixty two participants was analyzed.

Students' selection behavior of content and interactive components could be used to reflect their preference of these components with respect to different cognitive styles. [8] investigated the relationships between students' cognitive styles and their interactions with a web-based learning system. Two types of browsing data were investigated: selection ratios of content and interactive components and average staying time on content and interactive components (Fig. 1 and Fig. 2). Please refer to Table 1 for component description.

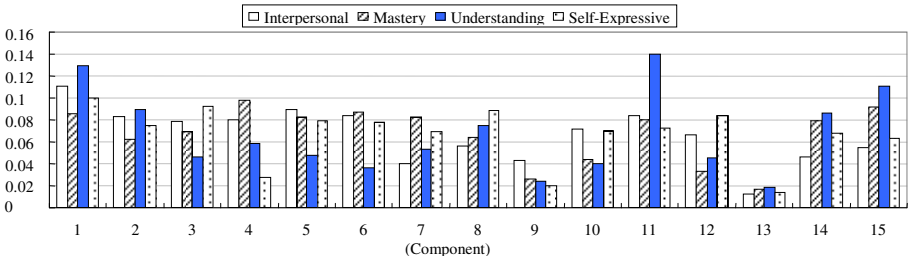


Fig. 1. Distribution of selection ratios of content and interactive components [8]

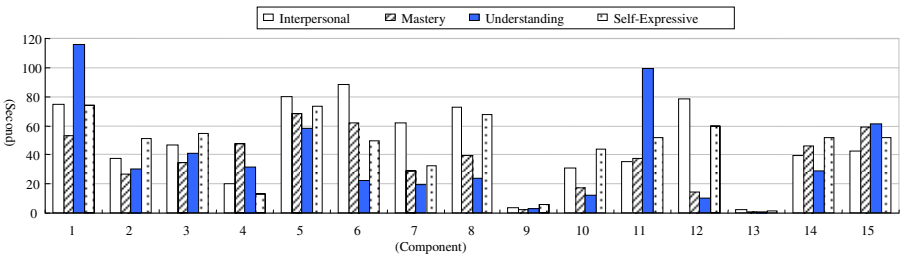


Fig. 2. Distribution of average staying time on content and interactive components [8]

The results showed that both selection ratios and average staying time had similar trends. For most components, if the selection ratio is high, it also accompanied with long staying time and if the selection ratio is low, it also accompanied with short staying time. The results also revealed that there were significant different preferences

in selecting components among different cognitive style students [8] which could be, in turn, applied to design adaptive web interfaces for different cognitive style students accordingly. Table 2 summarizes students' preferences of content and interactive components. Based on the preferences of students, adaptive web interfaces for different cognitive style students were developed. Screenshots of the learning material for different cognitive styles are illustrated in Fig. 3. In web interfaces for each cognitive style, students' preferred content and interactive components were shown in the web page and the buttons of preferred components were shaded at the top of the window.

Table 2. Preferences of content and interactive components

| Style | Preferred components |
|-----------------|--|
| Interpersonal | Pretest, Opening case, Closing case, Glossary, Discussion forum |
| Mastery | Learning objectives, Opening Case, Closing case, Chapter review, Graphic |
| Understanding | Pretest, Table of content, Opening case, Self evaluation, Keyword, Graphic |
| Self-expressive | Pretest, Introduction, Opening case, Glossary, Discussion forum |



(a) Interpersonal style



(b) Mastery style



(c) Understanding style



(d) Self-expressive style

Fig. 3. Screenshots of the interfaces for different styles

3 The Experiment

An experiment was conducted to examine the impact of the proposed adaptive web interfaces on students' learning. Two classes of college freshmen were selected to

evaluate the adaptive web interfaces. They all have not participated for designing the adaptive web interfaces and have not studied the learning content introduced in the experimental system before the experiment. One class was assigned as the control group and the other class was assigned as the experimental group. For the control group, the conventional web-based learning system was employed. Students' cognitive styles were unknown and no adaptive web interfaces were provided. For the experimental group, students' cognitive styles were known before browsing by completing the cognitive style evaluation questionnaire included in [6] and web interfaces adapted to their cognitive styles would be applied. The average staying time of web pages, calculated as total staying time of web pages/total number of visited web pages, was used to evaluate the system [8]. It was used to reflect students' degree of engagement in learning. In this study, every five minutes, the average staying time of web pages was calculated. Fig. 4 and Fig. 5 show the average staying time of web pages for different cognitive style students in the experiment. In Fig. 4, for the control group using the conventional system, during 0 to 20 minutes, the average staying time of web pages were within a reasonable range approximately from 25 seconds to 100 seconds and there were no significant differences about the average staying time among the four styles. However, during the last five minutes (20-25 minutes), while Understanding and Self-expressive students remained approximately the same staying time, obviously, Interpersonal and Mastery students stayed much longer than former 20 minutes. Especially, Interpersonal students almost stopped navigating web pages during the last five minutes (the average staying time was about 225 seconds, close to 5 minutes). It implied Interpersonal and Mastery students had pay attention on the learning content for former 20 minutes and lost their patience afterward. On the other hand, in Fig. 5, for the experimental group using the adaptive web-based learning system, during the whole experiment (0-25 minutes), the average staying time of web pages remained stable within a reasonable range approximately from 50 seconds to 125 seconds and there were no significant differences about the average staying time among the four styles.

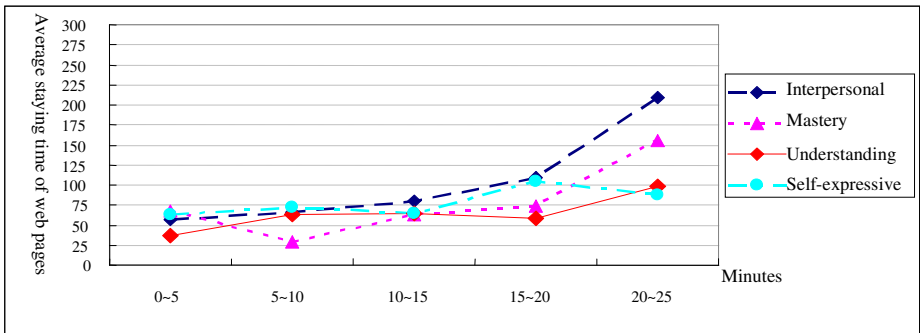


Fig. 4. Average staying time of web pages for the control group

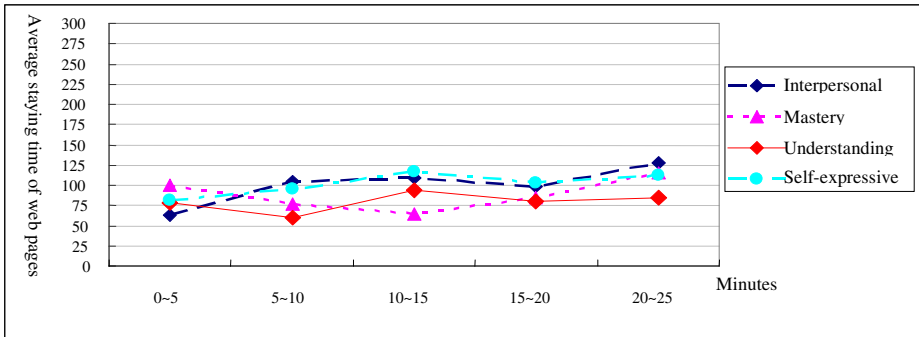


Fig. 5. Average staying time of web pages for the experimental group

4 Conclusions

This study designed adaptive web interfaces for students with different cognitive styles by investigating the relationships between their cognitive styles and the way they interact with a web-based learning system [8]. An experiment was conducted to examine the impact of the proposed adaptive web-based system on students' engagement in learning. The experimental results revealed the adaptive web-based learning system could have significant impacts on temporal effects on students' engagement in learning. For students using the conventional system, though the average staying time of web pages were within a reasonable range and there were no significant differences about the average staying time for the four styles from the beginning. Interpersonal and Mastery students stayed much longer during the last five minutes (20-25 minutes). The reason behind it might be due to the "sensing" preference of the cognitive function "perception". Interpersonal and Mastery styles both rely on sensing as a mode of perception. Perception indicates how people find out or absorb information hence affect students' patience on browsing web pages [6]. The nature that the sensing people prefer to be made aware of things directly from the five senses might be the reason that Interpersonal and Mastery students lost their patience more quickly as they browsed the same web pages for a period of time than the other styles. On the other hand, for students using the adaptive web-based learning system with known student cognitive styles, the average staying time of web pages kept stable within a reasonable range and there were no significant differences about the average staying time among the four styles from the beginning to the end of the experiment. It revealed the proposed adaptive web-based learning system with respect to students' cognitive styles can create more attractive interfaces than conventional systems do to enhance students' engagement in learning.

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Research and Practice of Integration of Information Technology with “Principle of Automatic Control”*

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Abstract. On the basis of discussing the necessity of integration of information technology with the course “Principle of Automatic Control”, this paper discusses the practice of integration of information technology with this course, and then puts forwards some scientific and effective methods for integration and course building. The study will push the teaching reform and course practice of this course and play an active role in improving teaching quality.

Keywords: information technology, principle of automatic control, integration.

“Integration of information technology with curriculum” is the latest idea in the reform of basic education and teaching facing 21 century [1]. It heritages the advantages of traditional academic teaching, and is relatively independent to some extent as well. Nowadays, the higher education has been in an unprecedented and deep development, and the higher education reform driven by information technology has become the common trend internationally.

Aiming at the problem of how to better and favorably implement teaching and cultivate talent with innovative spirit and innovative ability, “Integration of information technology with curriculum” provides effective way to it [2]. On the basis of discussions on the characteristics of the course “Principle of Automatic Control” and the current teaching situations, this paper studies the practice of integration of information technology with “Principle of Automatic Control”, and has exploration and practice in some aspects such as textbook choosing, course lecturing, experiment arranging, and etc., with desirable teaching effect already obtained.

1 The Necessity of Integration of Information Technology into Curriculum

The “Principle of Automatic Control” is a course integrating theory with practice and is constructed on the multi-discipline development of automatic control, electrical engineering, information engineering, and computer technology[3]. It introduces the theory

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and techniques of automatic control system including the following: basic ideas of automatic control, mathematic models, system analysis and design. It is not only a cornerstone for establishing engineering idea and training problem-solving ability, but also an inevitable theoretic tool for studying the successive courses, so it plays an important role in the undergraduates' future development. Especially for automation specialty, this course links the other professional courses and plays a key role of connection. This course has the following features: very strong theoretic character, abstract concept, a lot of analyzing methods, intimate connection with mathematics, strong engineering practicality. All of these bring about the situation of "difficult to teach, and difficult to study" in teaching process, which is mainly reflected in the following aspects.

- There are abundant content and information needed to teach in this course. It's difficult for undergraduates to absorb and digest the teaching content in time, which impairs the teaching effect to some extent.
- The very inveterate traditional teaching mode of "transfer--accept" has been widely accepted for many years. The traditional teaching can not effectively stimulate undergraduates' study interest, and makes them be negative listeners to accept knowledge passively, and lack of enthusiasm and active participation. The teaching idea of "teacher-oriented" class-oriented, textbook-oriented" has been formed for many years, so in teaching course, undergraduates seldom take part in class discussion actively
- The simple teaching method of using blackboard is generally existed in theoretic teaching. The undergraduates could only rely on doing exercises to understand and consolidate the knowledge studied in class, but don't have the chance to master the applicable contents by practical designing, adjusting and analyzing. In the duration of "blackboard teaching", there is a lack of visual effects for the mass results of system analyzing and processing. So, it takes the undergraduates a lot of time and energy in complex mathematical operation by hand, but in fact, they fail to truly understand the practical application, which makes the negative teaching effects become an increasingly serious problem.

In traditional practice teaching, the experiments were done through building hardware circuit by analogue instruments [4]. The limitation in hardware and component performance makes the real-timing and flexibility of experiments unsatisfactory. Because of the insufficiency of teaching staff and experimental place and the limitation in laboratory opening time, the openness of experiments haven't been realized entirely.

From the above, it's of great significance for applying information technology with "Principle of Automatic Control" to overcoming the disadvantages in traditional teaching, to improve the teaching efficiency, and to cultivate the undergraduates' abilities of information technology and problem solving.

2 The Concrete Implementation of Integration of Information Technology with "Principle of Automatic Control"

2.1 Integrating Course Contents, Underlining Textbook Construction

The textbook is the important guarantee of implementing teaching, and the compiling, choosing and quality of textbook decides the teaching effect directly. So, to integrate

information technology with curriculum requires a textbook suitable for the environment of information technology.

“Principle of Automatic Control” focuses on the mature classic theory, so in the previous textbook compiling, a traditional mode is often adopted in the following order: basic concept of automatic control system, establishing of mathematical model, three analyzing methods including time-domain, root locus and frequency characteristics, correction of linear constant control system, non-linear system, and discrete control system at last. From our teaching practice, the above content plan and sequence is reasonable by arranging the study from the simple to complex, easy to difficult. So the undergraduates could master the analyzing and designing methods and apply them to application. But sometimes it’s difficult for these methods to solve some complex practical engineering problems, so applying Computer Aided Design of control system to solving practical engineering problems has become the requirement of this time. It’s important to optimize teaching system and integrate teaching content, so we have written a textbook “Principle of Automatic Control” that is listed on “Eleventh Five-Year Plan” official textbooks of national level.

According to the curriculum design [5] of this discipline field at home and the actual situation of teaching reform, this textbook pays attention to the connection between “Principle of Automatic Control” and “Signal and System”, and forms its own course system by appropriate selection. Because automatic control system is a certain feedback system, this textbook highlights control system’s self characteristic and corresponding method for analysis and design, with emphasis on cultivation of designing and comprehensive abilities. Moreover, this textbook also introduces the application of MATLAB in automatic control, and how to use the method of Computer Aided Design to solve practical problems of system analyzing and designing. Besides, a certain amount of excises for theory analysis and experiment are given with each chapter to help readers understand the basic conceptions and master the method of analysis and design.

2.2 Utilizing Technology to Optimize Classroom Teaching

In order to change the traditional teaching mode of “teacher-blackboard-undergraduate” or “teacher-electronic teaching plan-undergraduate”, a diversified teaching mode is fully applied to improve teaching efficiency and strengthen undergraduates’ subjective activity. Not only the diversified teaching mode fusing “Heuristics teaching”, “infiltrative teaching”, and “discussional teaching” is adopted, but also a teaching demonstration software for “Principle of Automatic Control” has been developed by us. All of the above could help undergraduates accurately understand the important concepts of control system such as: mathematical models, time-domain response, stability, root-locus, frequency characteristics, and system correction.

For example, in the chapter of time-domain response, we focus on the construction of mathematical model and analysis of dynamic performances of first-order and second-order system. But for the higher-order system, its dynamic performance is studied mainly by aids of MATLAB software. Similarly, in the chapter of root locus,

we highlight the drawing rule and how to use root locus to analyze system performance. Only the simple root locus is required to be drawn by undergraduates themselves, but with the graphs of complex system drawn by using MATLAB functions. In this way, not only the scientificity, accuracy and completeness of the course contents could be guaranteed, but the undergraduates are also promoted to master the important theory, method and conclusion more easily, with trained skill in information technology as well.

2.3 Integration of Traditional Teaching Method with Modern Method

Nowadays, multimedia technique has played a more and more important role in teaching process. But the multimedia courseware also brings about the following problems: large class capacity, writing being replaced by explaining, courseware switching quickly, all of the above result in that the undergraduates don't have enough time to think and explore, and consequently, they may have superficial understanding of knowledge but can't digest the teaching content timely and effectively. Aiming at these, we developed a special courseware for "Principle of Automatic Control", and reasonably combining traditional blackboard writing with modern teaching ware in teaching process of this course.

For the important analysis and derivation, the traditional blackboard writing method is adopted in order to strengthen undergraduates' understanding of related knowledge. And for the complex graph drawing and conclusion, the multimedia courseware is adopted to improve teaching efficiency. Especially in the drawing of root locus and frequency characteristic, the animation is made to display the every process of graph drawing, and this teaching course is not only similar to the hand drawing in traditional teaching, but also more clear and aesthetic. Our courseware makes it easy to teach for teacher and easy to study for undergraduates, and leave most undergraduates enough thinking time when switching pages. So all theses can let undergraduates actively take part in the teaching process, and as a result, promote the diversity of teaching mode, optimization of teaching process and improvement of teaching quality.

2.4 The Openness of Practical Teaching

After many years' research, a fully open comprehensive management experimental system based on web platform for "Principle of Automatic Control" has been developed by us, in order to supplement classroom teaching and expand studying space. The independent network experimental platform is an interactive digital environment for experimental teaching and management through the completely new construction of teaching mode, management mode and interactive mode.

The experimental teaching of "Principle of Automatic Control" is classified in three modules: verification experiment, comprehensive experiment, and designing experiment, with the detail shown in Table 1.

Table 1. The open experimental teaching platform

| Network experimental platform | |
|-------------------------------|---|
| Verification experiment | Emphasize on undergraduates' understanding and digesting of theory, and let them integrate theoretic system with different practical control systems. |
| Comprehensive experiment | Taking typical control system as the object, apply the knowledge studied in class to analyzing system's physical structure, establishing mathematic model, recording operating characteristic, and comprehensively analyzing and integrating this system's performance. This kind of experiment aims to make undergraduates freely use the studied knowledge and skill to analyze and integrate .system |
| Designing experiment | The highly integrated experiment: it requires the undergraduates have the certain experimental ability at first, then integrate the knowledge including analog electronic, digital electronic, control element, automatic control, simulation, computer, and etc., and finally, could analyze and solve the practical problems by scientific method and technique. |

According to experiments in the above modules, the undergraduates could preview each experiment through the virtual network experimental platform. After landing the experimental platform, firstly, click the related experiment item (classified in simulative experiment and real physical experiment). After answering the question for preview and obtaining a certain score, then the undergraduates could begin the simulative experiment. After completing the simulative experiment, transferring the related result to teacher, and passing the on-line teacher's evaluation, then the graduate could reserve the real physical experiment of that item. So, this experimental platform, thanks to its shared resources, open contents and interactive experiments, could give the real-time evaluation to the undergraduates' experimental level and preview quality. Moreover, through the virtual network experimental platform and according their own needs, the talented undergraduate could quickly construct a large-scale virtual experimental environment beyond real environment, understand the latest technique and knowledge, verify their ideas about some experimental methods and circuits. In a word, the undergraduates could understand the unification of real system and virtual system, strengthen the understanding of theory from different aspects, and increase their study interest and initiative.

2.5 The Resources Provided by Information Technology

Using information technology to provide resources environment is to break through the limitation of taking textbook as the most main knowledge source, to enrich the closed and isolated classroom teaching environment with abundant relevant knowledge, to greatly supplement teaching contents, and all of these could let undergraduates not only contact textbook, but also could widen their thoughts and contact different ideas. Studying in an environment full of abundant resources could cultivate undergraduates' abilities of information acquiring and analyzing, and let them have deep understanding for things by the selection process from massive information.

Therefore, we have constructed a teaching website, with all the teaching plans and electronic lecture notes displayed on it; maintaining the continuous, tridimensional and

omnidirectional teaching activities. The network resources will be updated timely according to the teaching contents, and now the teaching resources on our website include the following: (1) introduction to this course; (2) teaching staff; (3) achievements exhibition; (4) teaching syllabus and practice plan; (5) teaching calendar; (7) excises and experiments; (8) teaching focus and difficulty; (9) teaching method and studying instruction; (10) requirement and type of test; (11) experimental instruction; (12) related website; (13) video service; (14) pictures of real control components; (15) on-line communication.

The abundant resources create a digital studying environment for the undergraduates outside the classroom, and the study will not be limited by time and space. According to his/her own situation and interest, every undergraduate could freely decide the studying content, time and schedule. Therefore, the goal of individual teaching and digital studying could be realized. Meanwhile, the undergraduates are given the right to freely set up special subject and chatting room, which produces convenience for the discussion and communication between teacher and undergraduates. The development of network technique provides technical supports for the construction of reasonable web teaching resources platform, and freedom for undergraduates to obtain abundant teaching resources and to have individualized learning methods.

3 Conclusions

Presently, we have obtained some achievements in integration practice of Information Technology with “Principle of Automatic Control”. But strictly speaking, this research is still in the process of experiment and exploration, and needs continuously improving. With the deep integration of information technology with this course, the teacher should face the challenge of modern information to the course construction, study modern education technique, set up new teaching idea, master modern education means, continuously explore the integration method of information technology with “principle of automatic control”, form course characteristics of our own, and push the education reform of our university.

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Integral Optimization Methods for the Data Structure Course Theory and Practice

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Abstract. "Data structure" is an important compulsory course in computer course group, which is quite difficult and abstract. In this paper, according to the characteristics of data structure, those of students, and the current problems in teaching, we propose a method to set up a course group based on data structure, and design an experimental teaching with incremental development thought, so as to integrally optimize theory and practice course, achieve the teaching goal and gain a better teaching effect.

Keywords: Data Structure, Teaching Methods, Level Teaching, Increment Model, Course Group.

1 Characteristics of the Data Structure Course

"Data structure" is an important basic course of computer and relevant professional, mainly to cultivate students programming skills. Its teaching aims not only to enable students to grasp the basic theory of data structures, but also cultivate students the ability to find that the problem, analyze and solve problems, provide a solid theoretical foundation of future research and application in theory development, technology management.

At the same time data structure course is quite difficult and abstract. It is a combination of theory and practice, the course includes theoretical lectures and experiments. To make the course fully reflects the teaching goals, achieves the good teaching effect, we must continue to reform the traditional teaching methods, integrated optimization theory and practice course.

2 The Main Problem of Traditional Data Structure Course Teaching Methods

At present in our country, "data structure" is not only the core foundation of computer science courses, but also the other major professional elective course. However, this course is difficult to learn for the following reasons:

2.1 Cannot Grasp the Knowledge of Pre-course

As the student just gets started with programming languages course, furthermore the course has more content, the majority of students lack a thorough understanding of the

language itself. It is impossible to establish programming thought. Especially the pointer part of the c language, it used more in the data structure, if students is not good at pointer, they will certainly have difficulties in the design of algorithms and debugging.

2.2 Course Content Highly Abstract

"Data structure" requires the use of mathematical logic, graph theory, linear lists and sort that are not mentioned in many other pre-courses, knowledge has great jumping. The study of "Data structure" is not only related to computer hardware (compiler theory, storage devices and access method), but also have very close relationships with computer software.

2.3 Poor Experimental Teaching Effect

A lot of teachers only pay attention to the theoretical study, ignore the practice teaching , so students have little opportunity to practice. In the experiments, students must do it by themselves, if they do not understand the data structures, they will have difficult to do programming. Furthermore, with the deepening of theoretical teaching content, the difficulty and complexity of the code has become more and more. It is difficult to complete the experiment course, and eventually the experiment course slowed down the progress of theoretical teaching, the effect of experimental teaching cannot be guaranteed. Finally, the practical subjects in the past, are mostly abstract, boring and lack of contact with each other, it is easy to let student forget previous knowledge.

3 Integral Optimization of the Theory of Teaching

3.1 Level Teaching about Individual

The definition of the level teaching is in the teaching process, according to students with different personality characteristics and psychological tendencies, knowledge base and capacity, the teacher design of multi-level teaching objectives, and use of different methods of teaching [1]. So that all the students will know clearly what they know and gain, and meet the courses' requirements.

The level teaching is a kind of strategy that emphasizes on adapting the difference of every student individual; make every student get a good development. Teachers must pay attention to the differences between students, and design to a reasonable goal of teaching in the teaching process. American psychologist Gardner noted that: everyone has a variety of wisdom; one of the differences is that someone dominant in these areas, others are dominant in other areas [2]. So teachers should change the traditional concept of "value knowledge teaching and underestimate the ability". On the basis of respect for students' personality, teachers should develop students' potential from various aspects and fully find each student's merits.

First, teachers tell the different levels of students based on student's knowledge structure and knowledge levels, enable teachers to intervene and help students to learn. But this is not put a label to students, it should be an internal behavior of teachers. In this way, students can avoid some of the potential of psychological factors, and

protecting students' self-esteem from harm. Of course, such leveled is not the same thing, but a dynamic division. Teachers should make an appropriate adjustment on all levels of students, based on the changes of students' levels of cognitive development, to encourage students to challenge the higher level goal.

3.2 Level Teaching about Content

The goal of teaching is main basis to evaluate, measure the teaching effect. The traditional teaching goal is fully dependent on the established syllabus; the requirements and purpose are broad. It lacks of flexibility, and specificity of the different levels of students.

Clearly established a level of teaching goal is to guarantee the implementation of level teaching. When teachers set teaching goals of every levels, they should be based on syllabus and course standards, and they carefully analysis of the structure of knowledge and fully understand the cognitive differences of students. Based on these, the teachers made a reasonable division, refined of teaching requirements, established the most appropriate teaching goals in every level student.

Universities generally divided into research universities, teaching universities, vocational technology colleges and ordinary colleges. According to the development strategy research report of China's computer undergraduate course published by the computer science and technology Steering Committee in the Ministry of education[3], at least we can consider: because of the difference of school, the training goals , the location and the need of surrounding areas ,these computer professional teaching contents should be different.

In my view: for most students who major in computer science and IT related, especially the non-research college students should learn data structures located in understanding, familiar with and can flexible use of knowledge . If students want to become graduates, they can put those who need a deeper theoretical content on the elective or the review stage to resolve.

3.3 Set Up a Course Group with Data Structures as the Core

Data structure is a basic course for the undergraduate computer major , which is relevant to its pre-courses and successive courses in content , teaching model , teaching method , etc.The teaching of data structure course group is a strong boost to computer integrated quality education. The systematic teaching of the course group can train students' good logical thinking ability, creative thinking ability and formal expression ability [4]. When we are teaching, we emphasize close relationship between data structure and other related courses, and put the main points of "software design and practice" scattered, thrust deep into the data structure teaching, and optimize the architecture of the whole courses.

The core of the course construction is the construction of teaching staff. In order to grasp the knowledge of course group, the teacher of data structure had better finish other course teaching work in the course group. From course group's perspective, on the premise of guaranteed data structures course itself knowledge comprehensive, the select and edit of course materials should take full account of systematic and natural coherence of pre-courses and successive courses. According to this principle, we

should focus on excellent textbook series including of corresponding courses structure systems, such as the most representative data structure course teaching material of series of Tsinghua university computer series materials [5].

4 Integral Optimization of the Practical Teaching

4.1 Design of Experimental Teaching with Incremental Development Thought

Incremental model is non-integrated development model, which delayed some of the stages or the details of all stages, and produced the earlier work software [6]. Incremental methods include incremental development and incremental submitted. Incremental development is a project within the development cycle, developed some working software at the certain time interval. Incremental submitted is a project within the development cycle, submitted work and the corresponding software documentation at the certain time interval.

As a teacher, need to re-think and understand the various parts of knowledge points, find some ideas and examples of knowledge points. In practice, the process of experimental structure and the implementation is divided into the following steps:

Guiding students to the approach of self-sorting out and self-test of data structure knowledge. The data structure is the data object, and the various relationships between the examples and the data elements. The main data structures including linear lists, trees, maps, collections, etc, each type of data structure also includes a number of specific data models, such as the linear lists includes sequence lists, stacks, queues and so on. Therefore, the first experimental design is to find out the characteristics of each of data structures, their own properties and data operation methods.

The design of the experiment should include the planning of the knowledge. We hope that a project framework can include more knowledge points, but at the same time don't expect an experiment project can involve all data models, as long as an experimental framework can be include one or several typical data models in each data structures or sections.

How to descript of experiment project and the divide functional modules? The design of the experimental subject is important to stimulate students' interest, therefore subject must closer to the students' real life, and make students feel the experimental subject is realistic significance, is the common things in their own life. So students have confidence to achieve it through the computer programming. The Experimental teachers need refinement problems, and constitute incremental function modules according to the relationship between the requirements of transaction and data structure.

Pay attention to the release of incremental functional and the interface of modules. The model of incremental development is gradually added a functional module to the project incrementally. In experiment teaching, we will release function modules one by one to students, it can stimulate students' learning enthusiasm and maintain the interest in solving the problem. The purpose of we design the experiment project is service teaching, so it is a major consideration that how to release of the incremental modules to the students. We need to find the most convenient incremental modules, with the closest features in the transaction and data structures.

4.2 Systematic Practice Teaching of Course Group

The design of practice subject should as far as possible connect knowledge points with other related courses in the same group. When the students finish homework, they can review related pre-courses. If they are familiar with and master the current course content, they can preview successive courses through the homework. More importantly, in this mode of practice teaching, students can clearly understand the context of the entire body of knowledge system.

A feasible method is to divide the practice of teaching content into three modules including basic knowledge, algorithm design and comprehensive homework. According to the difference focus of modules, students can gradually training according to own actual situation. On the comprehensive homework's setting fully consider the fusion of course group, penetrating computer science knowledge in the course.

Practice Course requires teachers who have rich teaching experiences of the data structure course group, and can accurately grasp the main points of the course. The teachers set comprehensive homework that related courses in this semester and leading teach students according to analysis of the specific conditions of everyone. So students can clearly understand the composition of the knowledge system, and also strengthening the cultivation of comprehensive qualities.

5 Conclusion

"Data structure" is a basic course in computer and another relevant major. On the base of the reform in the traditional didactics, we proposed integral optimization method for the data structure course theory and practice to achieve the teaching goal and gain a better teaching effect.

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The Cultivation of Students' Capabilities through Reforming Laboratory Synthetic Course

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Abstract. The synthetic laboratory course has been reformed by integrating professional resources, rearranging the teaching system of synthetic experiment, and adopting synthetic course in metal material engineering. By means of making laboratories as open facilities, broadening students' prospective, enhancing interaction between lecturers and students, a platform is built up to promote students' creativity.

Keywords: Teaching reform, Laboratory synthetic course, Practical ability.

1 The Necessity of the Reformation of Synthetic Laboratory Course

It is an era of booming science and technology, with even higher requirements for professional training, which therefore, it is required by both technological and social development, to cultivate multidisciplinary talents who are with solid-foundation, all-round, strong-capability and high-quality.

The defects in cultivating material professionals in engineering academy nowadays, are mainly regarding to limit specialized subject, monolithic structure, inadequate engineering practical ability and creativity. Consequently, it still takes tremendous work to satisfy the requirements of technology development on the professional qualities, which are also unqualified for competition and challenge in world economy and technology. Therefore, it is extremely urgent to conduct a reformation of content and management system of current experiment teaching system.

The discipline of Metal Material Engineering in our university is a combination of two original subjects, Metal Material and Heat Treatment, as well as Corrosion and Protection. Started from 2001 and inspired by other peer universities, laboratory teaching, as a significant phase in teaching practice, was chosen as the key point in teaching reformation. Based on a cross-discipline consideration, this novel synthetic

^{*} [Introduction of author] Ya Zhou (1956 -) professor in Material Science and Engineering Institute, researching on material corrosion and protection.

laboratory course was designed to develop the creativity of students. The expected result has been achieved through years of work.

Based on developing practical ability of students, and profoundly rethinking the previous laboratory course on Metal Material Engineering, a teaching reforming approach is utilized by means of integrating disciplinary resource, restructuring the system of laboratory synthetic course, and adopting engineering synthetic laboratory course. The synthetic experiments were designed for practical requirements. By selecting material, analyzing process to achieve product performance, the reformed experiments can encourage the creativity of students, make laboratories as open facilities for them, broaden their prospective, enhance interaction between lecturers and students, and inspire them to design experiment scenarios by studying technical specifications from instructions. In this case, students are able to complete the systematic training by synthetically utilizing disciplinary theory as well as experiment skills, with creativity, personal quality and ability to adapt the comprehensively developed environment.

2 Integrate Specialized Source, Rearrange Synthetic Experiment System

2.1 Establish the Teaching Format of Engineering Synthetic Experiment Course

In order to efficiently manage the engineering laboratory synthetic course, the material science department broaden the direction, which was isolated in 'metal engineering and heat processing', and 'corrosion and protection'. Based on encouraging the creativity, this project optimized the cross-disciplinary, enhanced practical education, and developed novel synthetic, designable, and creative experiment program. To achieve the curriculum of the experiment course related to material science, this reformation scheme was considering the quantity of investigation of students and the course arrangement as well. Our group kept refining the experiment instructions, guaranteed a comprehensive record of teaching plan, evaluating material, assignment book, transcript analysis, etc. From the view of education management, the teaching group conducted guidance to teaching method in an organized way, continued summarizing the education experience, perfected the experience induction, organized the open class occasionally, prepared the lesson in group, corrected the education report, and reserved a historical collection of laboratory synthetic course, including teaching summary, examine material, teaching plan and experiment report. After the integration, the topics of experiments can link to practical and illustrate the latest result of contemporary science technology, emphasize the relationship between each topics and variety of measuring, and stress the integration of different specialized direction. Our reformation system made the experiment method become more scientific and spread to a more systematic and comprehensive field. The content of the course has been enlarged and updated by encouraging the experiment activity, organizing a series of special seminars, visiting laboratories and equipments, arranging tutorials, conducting the students selecting the topics and literature [1].

2.2 Closely Relate to Engineering, Open Synthetic Experiment

The laboratory courses used to be arranged as an appendix to theoretical course, which caused a gap between theory and practice to students as short of specialized trial experience. Meanwhile, the previous experiment material followed the experience experiment models, used the experiments to prove current conclusion, which lacked the engineering and modern ideas, and narrowed the knowledge scope of students. Such arrangement was not efficient for developing students' creativity, and led rare adaptability after graduation. The low capability of experiment couldn't adapt to the society development, either the requirement of new environment.

According to the new objects proposed by teaching reforming system, the relationship between the laboratory synthetic course and reality from material engineering became stronger and reflected latest progress in the contemporary science technology as well. Based on the general guideline of laboratory synthetic course in material science, our group widely collected the teaching material from specialized engineering background, formulated a personalized teaching outline, and edited a practical experimental instruction. This synthetic experiment emphasized the integrity of varies major direction and covered multi-craft and multi-discipline. We put the synthetic experiment after respective basic theory course and before the specialized courses, in order to train and develop the inter-disciplinary knowledge for students, let them master the principle method technique and process of synthetic experiment, develop their personal research ability from the basic knowledge in each of two disciplines. Therefore, the synthetic experiment is a novel method to apply theoretical knowledge creatively [2].

2.3 Build Up Platform, Cultivate the General Practical Ability

Firstly, by designing the experiment scenarios independently in this synthetic experiment, students were able to apply the knowledge from basic course to discuss a topic from different view of cross multi-discipline with varies angle which proved the reasonability and creatively of experiments scenarios. Secondly, from comprehensive specification requirement of the experiment material, students could collect, learn and choice experiment methods individually for specifically object. As each member in the same group held the different opinion of the object, finally all the reports were collected and sorted to the finalized report of this experiment. Thirdly, students were assigned to draw a comprehensive conclusion for analyzing experiment result, analyzed essential from phenomena, and highly developed their ability of thinking and hands-on ability in science research. Fourthly, through writing the experiment report, students could understand the expression and characteristics of symbols, figures and formulas from both two disciplines which also polished their reporting skill.

3 Based on the Projects, Create the Experiment Teaching System

3.1 The Change of Laboratory Works from Passive to Active

Through conducting engineering laboratory synthetic course, the attention of students would be attracted by ever changing commercial market as well as their motivation of

studying. The previous experiment course was designed as assigning the topics which couldn't match current teaching objectives and contents. However, during the new synthetic experiment, students were only provided the assignment requirements. Thus, they had to think about their own topic as well as how to realize the scenario. By doing these, students were required to broaden their scope of knowledge, improve their ability of conducting and analyzing, acquire knowledge independently as well as practice and creativity in engineering field, which will build up a foundation for their competitiveness in the future. The synthetic experiment was carried out as following: Organized a kickoff conference regarding to the characteristic of this course. Arranged a visiting of the laboratories and equipments of both two research groups for students getting familiar with the experiment environment. Scheduled relative tutorials on how to search related literature, design experiment scenario property, prepare rehearsal reports efficiently, familiar special terms involved in each technology, objectives, functions, determine technology specifications and the influence to product quality, and provide reference literature, etc. During the rehearsal, tutors from both researching groups were appointed to help students with any possible questions related to the experiments. Furthermore, researching groups also produced multimedia lecture notes for synthetic experiment in material science, sufficiently explained the detail of complete production process [3].

3.2 From 'Spoon-Feed' to 'Sponge'

The overall design of synthetic experiment was a subject based education, which focused on the students and encourage their personal activity. One month was allocated to students for literature review through self study and attending tutorial. In each group, students could choose experiment topic, propose experiment scheme themselves, and arrange experiment schedule all by themselves. All the laboratories were open to students five days a week eight hours a day. The tutors only provided principle guidance, as such open labs were led by the students rather than the tutors which ensured the main subject position of students and stimulated their enthusiasm to participate in the experiments. The study progress was not negative 'spoon-feed' like "wait, rely, follow and reside". On the contrary, it was a process like sponge that widely collect the relative knowledge and information. Compared with the previous validating experiment, this type of teaching method resulted as a more participate and activity from students as they were willing to discuss experiment scenario with lab tutor or lectures. They even required to reconduct the experiment when the result was not satisfied. The students also preformed a great curiosity to the experiment phenomenon, then this strong feeling of lack of knowledge would encourage their potential in the respective study.

During the result assessment, the final score was given to the experiment group rather than an individual student. On one hand, it could encourage a spirit of team work as every team member eagerly participated in discussion to refine the final report. On the other hand, this method could also give each student an opportunity to have an objective judging for himself as well as for others. Through a sub-topic report from every group member, an individual score was generated for each student, combined the performance on experiments progress, a synthetic and objective assessment procedure will be executed for the final result. In this way, students could

refine their personal ability and develop a scene of team cooperation. The teaching reforming group established a scientific assessment system which relied on the reasonability, reactivity, and attitude towards the experiment scheme. Therefore, the result turned out to be greatly improved, as emphasis was put on the performance of student on each experiment session.

3.3 From 'Following' to 'Question'

One of the most important purposes of conducting synthetic experiment was to develop comprehensive qualities from students. First step was to develop the creativity of students. The students acquired the specialized knowledge related to this synthetic experiment by positive study method such as self-studying, discussion and questioning, with the knowledge of specialized course they had learned and the specification offered by the experiment topic and instruction. From the questionnaire after the experiment, most students gave positive responses. As the students had no specialized courses so far, they would search the information from up to 46 reference books offered by the experiment instruction, or even studied the specialized course by themselves like discussion with group members or lecturers. Because this method emphasized the synthetic of knowledge, it encouraged the students to learn by thinking, understanding and creating. Second is to develop the sense of teamwork of students. During the assessment procedure, the score of each individual group member was bounded together, therefore, each of them would thoroughly take the responsibility and think hard in the experiment progress. Thirdly, students arranged the experiment schedule by themselves. The whole experiment procedure was a responsibility system, as the team leader took in charge of the experiment plan and progress, which improved the engineering managing ability of students. By participate experiment-designing, method-selecting, technology-applying and scientific-experiment-executing, the students achieved a more comprehensive understanding of their major and its future develop trend. Their personal ability of conducting a scientific research has been well developed during this synthetic experiment at the same time.

4 Double Benefit, Refine the Management

4.1 Teachers: 'Navigator' Not 'Pilot'

The cross-disciplinary laboratory synthetic course was carried out for the first time in Nanchang Hangkong University. Although lacked of experience, both two teaching group treated it seriously, and guaranteed eleven teachers were involved, including head of laboratory. All the members of teaching reforming group and laboratory technicians were participating in the experiment instructing work. Besides enhanced academic exchange and advantage-sharing among teachers, a bi-directional interactive teaching scheme was preliminarily created between teachers and students. The initiative from teachers was to guide and inspire students, and that from students was to think actively and respond to teachers. Both sides should take initiative from respective role. During the experiment, the teachers were acting as a "navigator", while the students were actually a "pilot" by doing everything

independently. In synthetic experiment, the instructors only provided principle guidance. If there was knowledge required by experiment yet been covered in previous studies, and considering their knowledge structure, students had to search for reference book and associated material, studied by themselves or in tutorials, which also assured the systematic process of learning. Besides, students were required to think actively, deeply understood and carried out the whole experiment process according to different topic, without hand-by-hand assisting, knowledge-feeding through the courses, presenting and validating. Meanwhile, through answering various questions from students which covers a wide range of subjects, teachers could think about their knowledge database, study and improve it continuously. They were also required to work on cross-disciplinary principles and theories, not just their own discipline. In a word, a mutual improvement and development was achieved between teachers and students.

4.2 Students: ‘Creator’ Not ‘Observer’

The experiment project lounged as soon as the students attended the laboratory synthetic course. Students could form topic group freely, according to their teaching class, administration class or even dormitory (five to six students in a group). A group firstly chose a topic complying to the topic direction, and designed experiment scenarios, conducted experiment and reported it as detailed as possible in the following three to four months. This whole experiment process was created by students and reflected the integration, engineering and modernization of the experiment project, which could completely change the previous experiment scheme that teachers conduct the project with students observing. For students, without learning related knowledge from specialized course, they studied course material, designed process route by themselves from the reference in the experiment instructions. Through comparing reference books and discussing with teachers, students would be informed how to gain practical experience from hands-on practice, and therefore their self-study ability was highly developed. Comparing with previous validating experiment, students shown stronger motivation of participating the synthetic experiment. They actively took part in the tutorial, and discussing experiment schemes with instructors and specialized course teachers. Some group even reconductd the experiment when the result was not satisfied. Students carried out experiment with their own schemes, got familiar with respective equipment and operation process involved. The synthetic experiment provided the condition which did not exist in the validating experiment, that facilitate a combination of theoretical knowledge and practical knowledge for most students, and much more effective than extra theoretical course.

4.3 Technicians: ‘Service Staff’ Not ‘Warehouse Keeper’

Developing students’ ability of carrying experiment was always put in the first place, labs were opened as long as possible, and students were encouraged to prepare and study the experiment in laboratory, with instant access to experiment equipment. Also, students were allowed to use various measuring equipment, processing tools, components, raw material etc. Such open management greatly increased the

utilization of laboratory equipment, and ensured students had enough time to study in the laboratory independently. Though, this brought laboratory with noticeable difficulties, like the workload of laboratory technicians' management work had been increased tremendously from short of additional equipment, laboratories, and increased quantity of laboratory technicians. In this case, teaching group pointed out that the laboratory technician should have a sense of "service personnel" during the experiment process rather than "warehouse keeper" as used to be. Meanwhile, to motivate technicians, each of them was partly assessed according to the utilization rate of equipment under his/her control. Students were required to book a timeslot with respective teacher one day in advance, and the experiment could only be started when all the group members were on site. The teachers were required to sign after each session of the experiment, and assessed every student's performance during the experiment, which formed one of the criteria to give the final mark. The open management in laboratory, made it more convenient to develop students' experiment ability, and improved the qualities of respective teachers, and speeded up the transformation process of experiment from traditional singular type to cross-disciplinary compound type.

5 Conclusion

Based on developing students' practical abilities, rethinking current method of arranging courses in metal material engineering experiment, this article explained a teaching-reforming method of integrating professional resources, rearranging the management system of synthetic course and applying the scheme of engineering laboratory synthetic courses. During the process of reformation with open laboratory, student-supervisor interactive, students had gained more new ideas through selecting material, analyzing process and performance, to achieve product performance, and complete the systematic training by synthetically utilizing disciplinary theory as well as experiment skills. Students could also benefit a lot from experiment which was conducted to be focus on practicability and integrity, as their creativity, comprehensive quality and adaptability to work had been remarkably developed. With further steps taken in researching, exploring and improving the quality of laboratory synthetic course, the requirements of talents training for developing technology and society will be neatly satisfied in Chinese universities.

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Discussion on Research-Oriented Teaching Method for Student-Centered Construction Laws and Regulations Course

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Abstract. “Construction Laws and Regulations” course is a required course for civil engineering specialty in institutions for higher learning. Through years’ exploration, the author, guided by the concept to “Implement elite education and cultivate elite talents” advocated by Academician Ou Jinping, puts forward the teaching method for Construction Laws and Regulations course centering on “student-centered” and “interactive teaching”, which achieves rather desirable teaching effects. The thesis expounds systematically from the aspects of the meaning of interactive teaching, the construction of supporting textbooks, lecturing methods in classroom, simulated training in law enforcement, case teaching, the construction of supporting courseware, performance evaluation, teaching effects and others. It discusses matters needing attention concerning interactive teaching method in teaching implementation. Through years’ practice, the method achieves favorable teaching effects and is of high promotion value.

Keywords: construction laws and regulations, research-oriented teaching, interactive teaching, multimedia technology.

1 Introduction

Along with the development of national construction forms and the demand by the 21st century national construction of professional talents, our country makes substantial adjustment to the setting of specialties for higher education. According to the arrangements of national education departments, all institutes of higher learning nationwide have modified teaching activities according to the new specialty catalog. Construction Laws and Regulations course becomes a new required course for each specialty of civil engineering. The setting of the course has important realistic significance in enhancing the legal construction level of our country, in improving graduates’ quality and in ensuring project quality. Our innovative teaching attempt on “student-centered” “interactive teaching method and practice” from a high starting point achieves favorable teaching effects and gains high compliment from all students, as well as relevant experts from all educational institutions and educators involved in constructional engineering [1][2].

In 2008, Dalian University of Technology held the 14th Seminar on Teaching and Education, and issued the document “Several opinions on implementing elite education

and cultivating elite talents of Dalian University of Technology” [3]. To promote research-oriented teaching mode requires changing the traditional unidirectional transmission teaching mode in classroom and creating a teaching environment and teaching atmosphere for scientific research in classroom teaching, so as to guide students to take the initiative in study, think actively and practice actively, find problems, analyze problems and solve problems independently. In this way, the teaching targets of accumulating knowledge, fostering competence and enhancing quality will be achieved. Based on the nature of courses, discussion type, situation type, case type and other teaching methods are flexibly adopted in “question-discussion”, “reading-debate”, “experience accumulation” and other teaching methods to carry out research-oriented or discussion-oriented teaching. Schools set pilot reformation projects of “research-oriented teaching mode” each year to guide and encourage teachers to develop the exploration and research of research-oriented teaching mode.

This thesis elaborates the teaching of “Construction Laws and Regulations” course from the aspects of teaching system, teaching effects, teaching suggestions and others.

1.1 Teaching System and Means for Course

It is not easy for a course to achieve ideal teaching effects. Lecturing is a systemic program, involving many aspects: quality of textbooks, teachers’ level, lecturing method, lecturing conditions (denoting lecturing environments, such as multimedia, etc.), student source (not to be discussed in this thesis) are all important factors affecting teaching effects.

The meaning of interactive teaching. Traditional teaching methods don’t lay stress on students’ consciousness of participation, personal education or teaching in accordance with students’ aptitude, which hardly bring students’ positivity, initiative and innovativeness into play. The so-called interactive teaching is relative to the traditional teaching mode where teacher gives lectures and students listen to the teacher. It denotes that the interaction between students and teachers are realized by adopting certain teaching means in the whole teaching and learning process that emphasizes actual operation and micro instruction so as to allow students to participate in teaching activities initiatively. Interaction can never be independent of individual’s participation in collective activities. In a broad sense, the major contents included in the interactive teaching method system for this course involve thoughts about the compilation of textbooks, thought about lecturing, simulated training in engineering law enforcement, multimedia assistant teaching, etc.

Thought about textbooks. As to the compilation of lecture notes for Construction Laws and Regulations course, to choose proper textbooks is the basis and premise of desired course teaching. The contents compiled and system of textbooks shall comply with the requirements of interactive teaching methods. When Construction Laws and Regulations course was set in the beginning, there is no satisfactory textbook at home for undergraduates. Therefore, the author has started the compilation of lecture notes four years ago. Professor Zhao Guofan, academician from Chinese Academy of

Sciences spoke highly of the author's innovation in compilation thought (based on construction laws and centering on basic construction program) and wrote a preface to the notes. The book was especially financed for publication and was published by China Building Material Industry Publishing House as one of the "Serial textbooks for civil engineering specialty in institutions for higher learning". It becomes the first batch of textbooks on "Construction Laws and Regulations" for undergraduates at home.

Thought about lecturing. The overall structure of teaching contents is made scientific and reasonable. Compared with other courses, Construction Laws and Regulations course involves more varieties of laws, regulations and ordinances, about several dozens. It is rather difficult to get key points explained clearly and mastered properly within a short time and students may also take an aversion to the mere enumeration of clauses. Aiming at this characteristic, we, in the process of teaching, give lectures based on basic construction laws and centering on "basic construction program", which solve the problem appropriately. In line with the legal basic construction program of actual engineering, the laws and regulations involved in each stage of construction program are made integrated with the actual engineering so that teachers' teaching and students' absorption of knowledge are greatly enhanced. It lays a solid foundation for interactive teaching and enhances students' consciousness of "law enforcement" and "law observation" during engineering practice. Therefore, the whole structure of teaching contents is made clear and fluent in structure and level.

Simulated training in law enforcement. This is one of the important contents and major characteristics of this teaching and is also a significant embodiment of "interactive" teaching. Construction Laws and Regulations course is a very practical one. In the process of teaching, teachers' unilateral pure lecture on theories of law and clauses of laws and regulations will make students feel "dull" and teaching effects will be poor. Aiming at this condition, interactive teaching is applied alternately in the whole teaching process, achieving remarkable effects. The major characteristic of this activity is to enhance students' participation and enhance the interaction between students and teachers. The specific practice is as follows: when teaching proceeds to a certain construction program, teacher firstly explains the relevant laws and regulations at this stage clearly; then, based on an actual work, students follow teacher's guide to carry out investigation on engineering personally and collect relevant materials; at last, the whole class are grouped according to the owners, design, construction, supervision and governmental competent departments relating to relevant laws and regulations for students' law enforcement practice in class. This method greatly enhances students' positivity and initiative.

Case teaching. The very practical case teaching is introduced into classroom. According to basic construction program, when teaching activity proceeds to a certain stage, teacher introduces cases relating to this stage into classroom. The choice and operation of cases shall apply the principle of "Authenticity in content, representativeness in characteristics, pertinence in operation and progressiveness in teaching". It objectively requires teachers lecturing Construction Laws and Regulations to possess rather high theoretical level and rich practical experience. As the leading teacher of the course has taken charge of or participated in many engineering detection jobs and engineering accident arbitration jobs and is thus very experienced in practice.

The teacher has also established a multimedia case bank for assistance teaching and introduced rather typical engineering cases, such as the event that “Chongqing Caihong Bridge collapses”, into teaching. Theory and practice integrate with each other and lays a solid foundation for students to take up post of duty. Furthermore, in case teaching, teacher only provides train of thought, prompt and comment so as to place students in the central position of problems.

Multimedia assistant teaching. Through years’ exploration, the author adopts Dreamwaver, Flash and other multimedia tools to successfully make network multimedia courseware for Construction Laws and Regulations course. The courseware emphasizes “interactive” characteristic and successfully integrates the four functions of network, teaching assistance, learning assistance and test. The multimedia teaching system fully considers interaction requirements and realizes the interaction between teachers and students through network, such as answering questions on line and releasing examination results on line, etc. The establishment of case bank and test bank enables students to carry out self-study and self-test functions. Teachers and students may communicate with each other through the internet and teachers may master students’ views or suggestions timely. Students exchange opinions with teachers anonymously, so the communication may reflect actual conditions objectively and thus provide basis for teachers to further improve teaching.

Examination methods. It shall be explained to students before lecturing that practice lesson—simulated training in law enforcement will be included in the final results so that students may attach importance to practice teaching from the very beginning. The specific practice is as follows: students’ performance in simulated training in law enforcement will be classified into different grades and will be included in final results which fully embodies students’ participation.

2 Teaching Effects

2.1 Summarization of Effects

Construction Laws and Regulations course has been set for three years. During this period, we have been abiding by the methods of “based on construction laws and centering on basic construction program”, “interactive teaching” and “case teaching”, which achieves favorable effects and arouses strong response among students. Many students wrote their feelings after the course that they had not only learned knowledge but also improved their consciousness of practice and innovation. The teaching method has gained Excellent Teaching Effect Award of the school and teaching effect awards of the province and Ministry of Education are actively applied for it.

2.2 Investigation and Analysis

See Table 1 for students’ main feedbacks before and after interactive teaching is implemented.

Table 1. Main feedbacks from students

| Before implementing interactive teaching | After implementing interactive teaching |
|--|---|
| 1. Dull or not interested | 1. Interested, willing to participate in interactive activities |
| 2. It is hard to master actual cases relating to construction laws | 2. The mastering of actual cases is quite accurate |
| | 3. Expect the rate of interactive activities may increase |

2.3 Analysis of Score Obtained from Case Analysis Questions in Theory Examination Papers

In theory examination papers, case analysis questions may better test students' mastering of basic knowledge of laws and regulations and the ability to apply knowledge comprehensively and flexibly. From the statistics and analysis of marks obtained from the each 400 sample case questions respectively before and after interactive teaching is carried out, we can see that after interactive teaching method is implemented, marks obtained improve much. It illustrates that interactive teaching indeed boosts students' ability to apply knowledge of construction laws and regulations comprehensively and achieves ideal teaching effects. See Table 2.

Table 2. Score analysis

| Heading level | Passing rate | Excellence rate |
|--------------------|--------------|-----------------|
| Before interaction | 42 | 6 |
| After interaction | 74 | 19 |

Note: pass means the score obtained reaches 60% of the standard marks of the examination; excellence means the score obtained reaches 90% of the standard marks of the examination.

3 Matters Needing Attention in Teaching Implementation

3.1 The Requirements of Teacher for the Course

The teachers teaching Construction Laws and Regulations shall reach high theoretical level and possess rich practical experience. Firstly, they shall acquire the basic theoretical knowledge of law, which is the basis and premise to master professional knowledge of laws and regulations. Secondly, they shall be familiar with law and regulation knowledge and trends of construction trade. As our country has joined the WTO, many laws and regulations for construction trade are subject to modification and it objectively requires mastering relevant international rules. Moreover, they shall have

rich practical experience. Young teachers may accumulate experience through participating indirectly in the investigation of engineering accidents, sitting in on the trial of relevant cases, consulting relevant lawyers and law enforcement officials.

3.2 Evaluation Links with Participation

The evaluation of students' performance shall better be linked with interactive teaching activities. That is to the benefit of improving students' enthusiasm in teaching activities and may represent students' comprehensive ability to master the course well.

3.3 Grade for Providing the Course

Construction Laws and Regulations are these for the trade and are naturally based on professional knowledge. Construction Laws and Regulations course shall be set in high grades (such as the 3rd grade) when major specialized courses have been finished, because students can avoid learning and applying professional law knowledge empty only after mastering and knowing specialized knowledge well. If it is hard to set the course so late, it may be set in the 2nd grade after "Introduction to Civil Engineering" ends.

3.4 Courage and Trust

In the process of developing interactive activities, students are given proper encouragement and confidence through helping students in summarization by way of evaluation, which is conducive to enhancing activity effect.

4 Conclusion

The combination of "interactive" teaching method and "case teaching" method, based on construction laws and centering on basic construction program, is oriented towards students and quite innovative. It is widely welcomed by students and receives favorable teaching effects. "Compilation committee for the serial textbooks of civil engineering specialty in institutions for higher learning" speaks highly of it. The author considers it has enormous promotion value and enlightenment significance in relevant teaching domains.

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A Study into Training Application-Oriented Undergraduate Academy Students' Scientific Research Ability

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Abstract. Application-oriented undergraduate academy students need to have high ability to solve practical problems and to have innovation ability. To fulfill this need, their participation in technological innovation activities is critical. The paper attempts to analyze the problems with undergraduates' participation in science research activities and to propose some solutions such as strengthen the efforts of construct teaching staff, help teachers build their own research platform, and set up students science and technology funds. Those can provide reference for the ways of training application-oriented undergraduates' abilities in technological innovation.

Keywords: Application-oriented undergraduate academy, Academy student, Scientific research ability, Technological innovation.

1 Introduction

The training target of application-oriented undergraduate institutes is to train college students to solve industry and engineering practical problems in the fields of manufacture, construction, management, service, and so on. Academy students are accordingly supposed to acquire academic capabilities and abilities to solve practical problems. It is a challenging task to efficiently encourage them to participate in technology innovation and to improve their practical abilities in a short time[1].

Nanjing Institute of Technology is an application-oriented undergraduate institute. Its ten-year development enables this college to gain considerable experience with regard to improving students' scientific research abilities, developing new products, and entrepreneurial designs. At this college, I am a teacher and supervisor responsible for students' technological innovations. My supervision and guidance concerning students' 15 projects of technological innovations provide me with some experience dealing with students' scientific and technical innovation problems[2].

2 The Main Problems Existing in College Students' Technological Innovation Activities

2.1 Conflicts between First-Class Activities and Extracurricular Activities

In the first year and second year, undergraduates are predominately engaged in their basic courses such as College English, Computer, Advanced Mathematics, Advanced Physics, and the like. More importantly, they are required to pass College English Test 4 and 6, together with examination of computer. As a result, they can find no time for scientific research. In the remaining two years, students begin to study specialty courses. To ease their burden and broaden their knowledge, it is critical to strike a balance between specialty courses and research and to combine them reasonably. In this respect, the department of vehicle engineering, Nanjing Institute of Technology, has carried out some critical exploration.

In the first semester of year three, courses such as Protel 2004 on electron circuit drawing, Embedded Microcontroller Design and Application, and Fundamentals of Electric Machinery are offered. After studying these courses, no extra time is needed for them to do research when students design control system, draw printed circuit board, compile program.

2.2 Focus on the Differences between Theories and Practice

The big problem with students' science research is that they fail to connect theories with practice. For example, how to choose the right value resistance, capacitance, inductance, how to control the flow of power line to the digital ground and analog ground in order to have little interferences, how width the line can get in the actual production on PCB, what's the best width for various lines on PCB, what is the smallest width of the line that the manufacturers can reach in the production of PCB, how can they decide the various holes' aperture in boards, how to weld various components so as to prevent failures.

2.3 Lack of Professional Supervisors

It is a common problem that professional supervisors responsible for directing students' research are inadequate at application-oriented college. This results partly from the fact that teachers are supposed to do both research supervision and teaching at the same time. Furthermore, most of professional teachers hesitate to undertake such supervising activities, because they don't think students' research is highly innovative, they just think that it is repetitive and have not financially reward.

2.4 Teachers Lack Their Own Science Research Platforms

Most application-oriented undergraduate colleges evolve from specialist institutes. Most of application-oriented undergraduate academies don't have graduate education and some teachers coach students as a part-time job. They lack the platforms to train graduate students.

2.5 College Students Are Passionate Enough Rather Than Highly Motivated

Every year, over 10 passionate students enroll in each project. However, most of them are more likely refuse to do the job for varying excuses when they are asked to draw electric control system, to weld electronic components on PCB, to debug program and some other dull work. The remaining students will decline to do the work required by teachers once they get the hang of it. In their eyes, repeating the task is a waste of time.

On the other hand, others are keen to do this job for the sake of awards and certificates.

3 Approaches to Improve College Students' Ability of Science and Technology Creativity

3.1 Strengthen the Construction of Instructive Teacher Groups

To improve university students' science and research level, a large number of capable instructive teachers must be built. A university with a low level of teaching and researching can hardly educate high level students. Application-oriented undergraduate institutes should spend money on training teachers' creativity ability.

3.2 Encourage Instructive Teachers Build Their Own Research Platforms

Every instructive teacher who engages himself in instructive science and technology creativity is supposed to build his own development platform, so that he can impart his ideas to his students easily.

Various competitions, such as science and technology competition, challenge cup, intellectual cars competition, can function as platforms for instructive teachers.

3.3 Establish Funds for University Students to Do Research

To develop engineering students' research and creativity ability, it is far from enough to teach students textbook knowledge. The best way is to teach them how to make control board and control electric circuit. Thus, money is necessary. Youth League Committee and Teaching Affairs Office of Nanjing Institute of Technology allocate over 500 thousand yuan each year for students to make material objects.

3.4 Establish Open Science and Technology Innovation Laboratories

In the course of doing research, students need a regular place in which they can make electric circuits, analyze electric circuits at any time. Hence, open laboratories are of great significance. In open laboratories, omnipotent meter, oscilloscope and related equipments are accessible to students.

3.5 Propagate Students Approaches to Participate Science and Technology Activities

A number of students don't know how to engage in research activities, and they may feel afraid once science and technology creativity is mentioned. Professional teachers

can make propagation in classroom. Campus broadcast and campus website can also open up special columns. Instructive teachers are able to assess some works made by former students, to introduce what professional knowledge the work involves, and to remove fears many students have. Every year, Nanjing Institute of Technology may hold a student science and technology festival. In the festival, students reach the aim of propagating the university students' science and technology creativity activities by showing their achievement.

3.6 Encourage Students to Publish Their Own Scientific Achievements in the Form of Paper or Patent

Student scientific innovations are usually small and practical. When students finish their job, instructors can encourage them to put the methods and theories into practice or in the form of paper or patent. By writing paper or patents, students can improve their theory level on science innovation.

3.7 Build College Student Scientific Achievement Award Systems

Once college student scientific achievement award system is built, it can ensure student's scientific achievements which are rewarded by a school after their hard work.

The student scientific achievement award system at Nanjing Institute of Technology awards students as follows: different awards are equal to different scholarships, different classes of awards carry different weights. If students have the same marks in the exams, those who take part in scientific creation will be given top-priority. By doing so, students are highly enthusiastic about research.

3.8 Build Efficient Valuation System for Instructive Teachers

To instructive teachers, more classes bring more income. As a matter of fact, instructing students at some colleges are not rewarded at all. Fortunately, Nanjing Institute of Technology draws up some rules in this regard.

4 Conclusions

Our education aim is to improve application-oriented undergraduate academy students' innovation abilities for solving practice problems. Only if these students' science research ability is improved can they serve the society better in the coming future. To fulfill this demand, it is necessary to encourage more teachers to coach students, to inspire teachers to build their own research platforms, and to draw up student science and technology funds.

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A Study into the Experimental Teaching Reform of Vehicle Engineering Automobile Electronic Specialty in Application-Oriented Undergraduate Academy

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Abstract. By analyzing the automotive electronic combination characteristics of vehicle engineering automotive electronic specialty in application-oriented undergraduate academy, it concludes the optimization content of theoretical teaching and existing problems in experimental teaching. The best ways to improve students' experimental level are adjusting experiment teaching content patterns, reforming experiment teaching methods, optimization experiment teaching. It becomes the subject role to push students in experimental teaching, to improve students' comprehensive application ability and innovative consciousness.

Keywords: Application-oriented undergraduate academy, Vehicle engineering, Automobile electronic specialty, Experimental teaching reform.

1 Introduction

Automotive electronic specialty involves multiple disciplines and theories. Its theoretical and experimental teaching need a high requirement. A single mode of teaching is very difficult to adapt to the modern automobile industry need for compound talents. Reforming the experimental teaching of vehicle engineering automobile electronic specialty is to cultivate students' comprehensive application ability. Our experimental reform is to improve the students' theory and practical skill training, to inspire students' initiative and innovative consciousness in experiment [1].

2 Teaching Condition Analysis of Vehicle Engineering Specialty in Application-Oriented Undergraduate Academy

The vehicle engineering specialties in application-oriented undergraduate academy mainly divided into three directions: automotive manufacture, automotive application service and automotive electronics. The three directions respectively focus on the machine, the application, the electronic control of the automobile. Automotive manufacture and automotive application service focus on traditional automobile

technology, so their theoretical and experimental teaching contents are mature. Automotive electronics specialty comes from modern vehicles technology, and now it has become a new specialty. Vehicle engineering automotive electronic specialty curriculum's theory and comprehension are strong, and the specialty mainly involves machinery, electronics, hydraulic, control, microcomputer, and information and sensor technology areas. Its theoretical and experimental teaching needs a high requirement [2].

2.1 Characteristics of Vehicle Engineering Automotive Electronic Specialty Theoretical Teaching

Vehicle engineering automotive electronic specialty of Nanjing Institute of Technology has characteristics as the following:

① Major basis courses stress at both electron and machine. Electron courses cover circuit principle, digital-to-analog electronics, control principle and testing techniques, etc. Machine courses cover machine design, automobile structure and application, hydraulic and pneumatic transmission, electro mechanical transmission control and so on.

② Major courses emphasize electron and automobile combination. Courses cover microcomputer principle and application, single-chip microcomputer interface technology, electronic design EDA technology, embedded system design and application, electrical control and PLC, automobile electronic electrical, automotive electronic control system detection and fault diagnosis.

③ Offer new automobile technology courses. It reflects the firm combination of electron and automobile. Courses cover automobile leading technology, new energy automobile technology, auto network technology.

2.2 The Problems Exist in the Experimental Teaching of Vehicle Engineering Automotive Electronic Specialty

The problems existing in the experimental teaching of vehicle engineering automotive electronic specialty are as following:

① The experiment of each course is self-sustaining. Because the specialty originates from the mechanical and automation platform, the experiment of each course is self-sustaining. Similar experiments between different lessons are offered. It wastes limited teaching resources and have not conducive to stimulate students' study enthusiasm.

② Lack teachers and experiment equipments. Limited by specific condition such as teachers, experiment equipments and so on, the experimental teaching contents can't closely connect between electricity and automobile, so it can't highlight the characters of major direction.

③ Lack of enough new experiments. As we use much of the primary experimental teaching model, there are lots of new experiments while comprehensive and design experiments are limited by current situation. Experimental teaching contents are old-fashioned. The content of experiment instructor is too detailed. Students rely much on instructors along experiments lacking the ability to analyses problems alone and work

out them. It weakens students' study initiative, expression of innovative thinking and improvement of practice ability.

④ Limited by traditional teaching model and course system, experimental teaching can not break the limits among courses, class hours and laboratory organizational system. It is very useful for students to improve their ability by offering design and research experiments, which are knowledge combination of several courses.

3 Study and Practice of the Experimental Teaching Reform of Vehicle Engineering Automobile Electronic Specialty in Application-Oriented Academy

In the past two years, we have adjusted and optimized talent training scheme for automobile electronic professional direction, on the other hand we study and practice experimental teaching reform.

3.1 Adjust Experiment Teaching Content

Vehicle engineering professional automotive electronic specialty experiments content the demonstration experiments, the verification experiments, the comprehensive experiments, design and research experiments.

Professional basic electronic course's experimental teaching contents automation specialty. But machine course's experimental teaching should have the difference with traditional experimental teaching content. Because of different class hours and requirements, teaching model, content emphasize to the structure, principle, understanding and mastering of experimental projects are different.

We have designed some new experiments for vehicle engineering professional automotive electronic specialty. These new experiments are ABS system testing, electric automatic transmission system detection, airbag system detection, the automatic air conditioning system detection, electric air suspension, automobile circuit simulation and test, automobile sensor detection, electronic-control fuel injection system detection, system detection, automatic cruise system detection, waste gas recirculation system test, the vehicle electronic control system fault diagnosis experiment, CAN-bus system. By doing these experiments, students can master the specialty firmly.

3.2 Reform Experiment Teaching Methods

Automotive electronic specialty curriculum involves multiple disciplines, comprehensive strong theoretical and experimental teaching contents, the depth and breadth of the demand is higher. Automotive electronic specialty experimental teaching method should be changed as follows.

In the verification experiment such as engine disassembling and chassis disassembling experiments, students are required to preview explanation of the experiment report.

In the designed experiments, students are required to comprehend the experiments. We provide some designed experiments such as automotive electronic and electrical testing system experiments, auto network CAN-bus system and so on.

In the design and research experiments, students are required to do the experiments themselves. Design and research experiments are as automotive MCU system design experiments, hybrid electric vehicle structure and experimental conditions. By doing so, students can solve practical engineering problems, enable students to master the knowledge and understand scientific laws.

3.3 Optimize Experiment Teaching Methods

Experiment teaching includes five basic aspects: lesson preparation, class, work, and counseling and performance evaluation. To achieve optimal experimental teaching result, teachers need to have a solid theoretical knowledge and practical experience. Teachers can enhance the level of theory and practice only through scientific research and engineering practice.

Teachers are required to do good preparation for class planning. Teachers should try to do lecture experiment, testing instruments and equipment to the optimum condition, the reasons for testing facilities to minimize the impact of the experiment. Class stage base on the actual situation, the usage of integrated implementation of different teaching methods, experiments to strengthen the guidance, providing students with the necessary technical support. Experimental report should be a scientific and impartial evaluation. Experimental performance evaluation results should be timely feedback to students to let them know their own inadequacies.

4 Conclusions

We have done a variety of experiment reforms mentioned above on automotive electronic specialty for about 2 years. The students' comprehensive application ability and innovative consciousness have been raised greatly. All the experiment reforms can be act as a good example for other application-oriented undergraduate academies.

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Individual Differences in Pragmatic Development

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Abstract. Conventionally, L2 learners are assumed to be able to absorb both linguistic and pragmatic competences simultaneously. Then, researchers find out the importance of an authentic environment for L2 learners and assume that the learners will learn the pragmatic rules of the L2 automatically under an authentic setting. However, even this informed point of view discounts a number of other factors such as “individual factors” and “societal factors.” As a result, several different learner characteristics, including age, gender, motivation, proficiency, and social identity/learner subjectivity, in L2 pragmatic development are scrutinized in this paper. With the advancement of technology, it is suggested that individual difference factors should be incorporated into different genres of research on second language acquisition, especially on computer-assisted language learning since many different social network websites and web 2.0 studies are here to stay in this 21st century.

Keywords: pragmatics, second language acquisition, individual difference.

1 Introduction

The study of individual differences has been a subfield of second language acquisition (SLA) research for a long time, but in pragmatics, there are only a few studies focusing on the L2 pragmatic individual differences (IDs) [1].

Conventionally, L2 learners are assumed to be able to absorb both linguistic and pragmatic competences after their L2 proficiency reaches a certain adequate level [2]. Then, researchers find out the importance of an authentic environment for L2 learners and assume that the learners will learn the pragmatic rules of the L2 automatically simply by being exposed to an authentic setting [2]. However, even this informed point of view discounts a number of other factors such as *individual factors* and *societal factors* [3]. In other words, pragmatics competences are not only closely related to sociocultural aspects but also IDs, such as age, gender, language proficiency, learning style, personal view, and motivation [1].

This theoretical based research focuses on the relationship between IDs and the development of L2 pragmatics, and a number of different learner characteristics—age, gender, motivation, proficiency, and social identity/learner subjectivity—in L2 pragmatic development are discussed respectively.

2 Methodology

This theoretical based research investigates the relationships between L2 learners' individual characters, including age, gender, language proficiency, motivation, and social identity/learner subjectivity, and their pragmatic development. Each factor is discussed respectively in the next session.

3 Discussions

As stated earlier, since individual difference (ID) factors are fairly complex and only a few studies have been done in this area, it is necessary to look at each specific factor individually in order to unveil the complexities of the relationship between ID and second language learners' pragmatic development.

3.1 Age

In second language acquisition (SLA), age is a critical issue on whether L2 learners can completely achieve language proficiency as native speakers of that target language [1]. However, the findings of this field have been mixed. For example, some contended that full language proficiency can only attained before puberty, but others critically argued that adults were able to learn new languages under a various of different learning conditions as well, just like the way children learn their L2 [4]. The issue remains debatable. Even though there is a lot of SLA literature on the issue of age, Kim's study is the only one investigating the effect of age on pragmatics.

Kim [4] inspected if the adult Korean ESL learners' different starting ages, informal language input, and cultural identity could cause the differences between their pragmatic and grammatical competence. The results with regard to the issue of age showed (1) there was a statistically significant correlation between the age of arrival in the U.S. and speech act performance, indicating that the earlier the participants arrived in the U.S., the better they were equipped with pragmatic competence; and (2) a strong correlation was found between the "age of arrival in the U.S." and "cultural identity," implying that the earlier they came to the States, the closer they identified themselves as Americans. These findings were consistent with previous research findings in which a positive correlation was found between learners' starting ages of SLA and their grammatical and speaking abilities.

Almost all of the studies so far have adult language learners as their participants [5]. However, younger learners may require different instructional measures to support their learning of second language pragmatics because L2 learners in different ages would engage in different activities, and a native speaker of English may react differently according to these L2 learners' ages [1].

Even though research on the effect of age in L2 pragmatic development is limited, it strongly suggests that age may have an impact on the acquisition of pragmatic norms [1]. Therefore, the influence of age on pragmatic development deserves much further investigation.

3.2 Gender

The reasons that women and men use and learn language differently are not because of their natural characteristics, but because they engage in different social activities; however, besides gender, individuals' social status and race are also potential factors that may influence their choices on what kinds of activities to take part in [1].

With respect to individual differences in factors such as age, gender, and proficiency level, Rintell [6] conducted a study about English as a second language (ESL) learners' perception of emotion in speech. The results showed that females' performance were slightly better than that of males,' but not statistically significant. Then, Rintell [6] concluded that "non-linguistic variables were of less influence than predicted.

Only a small body of research investigates the role that gender plays in pragmatic development so far [1]. Therefore, much work is needed to address this issue further.

3.3 Motivation

In SLA, the most influential theory of language learning motivation is Gardner's socioeducational model [1]. Although much of the work on motivation has focused on L2 proficiency such as grammatical competence and pronunciation, more recently, SLA researchers are interested in pragmatic competence because it has been deemed as another vital sociolinguistic factor in L2 learning [2]. Undoubtedly, it is necessary to explore correlations between attitudes and motivation on second language learning and pragmatic competence development with regard to individual differences.

Many studies suggest that motivation and proficiency are two important ID variables that may highly affect pragmatic attention and awareness [7]. In her study, she explored 80 Japanese EFL learners' pragmalinguistic awareness in processing six types of L2 implicit input and to what extent their awareness of the target features is related to motivation and proficiency. The results were: (1) The three motivation factors, "intrinsic motivation, attitudes to TL community, and affiliative motive," showed higher degree of relationship to Japanese EFL learners' pragmatic awareness, and among them, intrinsic motivation was the most significant factor, which implied that they learned L2 because of their personal interest instead of external motivation, such as acquiring a good job or passing an exam; (2) With regard to the relationship with L2 proficiency, no significant correlation coefficients were obtained between the learners' pragmalinguistic awareness and their proficiency; in other words, learners with higher L2 proficiency didn't necessarily mean they were able to notice the L2 pragmatic features better.

However, the result in proficiency was not consistent with some earlier studies, which demonstrated that L2 learners with more proficiency were able to notice pragmatic features better than less proficient learners [7].

Along the same line, Kasper and Rose [1] maintained that Takahashi's study was noteworthy because the study examined how motivation affects students' attention in processing specific pragmalinguistic features rather than asking how motivation may directly affect individual differences in acquiring L2 pragmatics, such as in Kim's [4] study. Unquestionably, it is not convincing to generalize from one sophisticatedly designed study to different learner groups and contexts, but Takahashi gives us an

excellent blueprint for future studies on motivation as an individual difference variable in pragmatic learning [1].

In sum, motivation may be one big factor to explain the differences between noticing input, acquiring the knowledge base of L2 pragmatic norms, and making dynamic use of L2 pragmatics in various contexts.

3.4 Proficiency

Various studies have demonstrated that pragmatics can be taught both explicitly and implicitly to learners with different L2 proficiency levels. For beginning L2 learners, some studies have showed examples of how to raise novice learners' pragmatic awareness successfully. The majority of studies have included learners of immediate proficiency level, and these results are mixed. As for more advanced learners, Kim [4] argued that advanced learners showed imbalanced between their grammatical and pragmatic competence.

In Matsumura's [8] study, he argued that few studies have made causal inferences on the relationship between L2 proficiency and pragmatic development, and he designed a three-wave latent longitudinal study to examine the cause-effect relationships among pragmatic development, levels of L2 proficiency, and amount of exposure to L2. The result showed: (1) Amount of exposure was partly affected by levels of proficiency; and (2) Both the direct and indirect effects of *proficiency* and *the amount of exposure* did not show a lasting effect on pragmatic competence. In sum, Matsumura concluded that it could be said that Japanese students with a high level of proficiency did not necessarily develop their pragmatic competence in the target speech community and that those with a low level of proficiency might have developed their pragmatic competence; however, it was not to suggest that proficiency had nothing to do with pragmatic development. It is worth noting that since the participants, both native and non-native speakers of English were not randomly selected, the results of this study could not be referred to the whole population of Japanese' EFL learners.

Matsumura's [8] finding about proficiency was consistent with Takahashi's [7]. However, his contention about 'the amount of exposure' as a factor in pragmatic development might differ from other research findings, which argued that simple exposure to the target language was insufficient because pragmatic functions and relevant contextual factors were often not salient to learners, and it was very difficult for L2 learners to notice or even pick up the pragmatic norms by themselves without any instructions.

3.5 Social Identity/Learner Subjectivity

More and more SLA studies nowadays have focused on the learner's self-identity or the presentation of self, based on the assumption that the learner's identity is implicated in their pragmatic performance [9].

For L2 learners, Kim [4] found that the more strongly Korean ESL learners identified themselves as "very American," the higher the ratings of their apology and request performances. However, in Kim's study, cultural identity did not have an independent effect on learners' speech act performance but interacted with informal

input and age of arrival. It would be particularly important to investigate in future research how L2 learners, who have bi-cultural or multicultural identities, perform in various speech act realization.

Siegal [3, 10] analyzed specifically occasioned speech events and genres by engaging subjectivity theory to interpret her participants' use and learning of Japanese. Siegal [3] carried out a case study of an American white woman learning Japanese in Japan. The position of women in Japanese society played an important role in what interactions she could participate in, how she was expected to use language, and how she was viewed. Siegal [3] further argued that learners might actually be creating a 'face' that was outside the guidelines of appropriate behavior in the society because they are not proficient enough to use the target language properly, or they might not accept certain societal rules of the target culture. If learners learn a target language or live in the L2 community for a substantial period of time, their life experiences are likely to cause effects on their subjectivities, language use, and language awareness.

In a similar vein, one of the participants, Arina, in Siegal's [10] case study stated that she didn't accept the way Japanese women talk because it was way too humble, and she didn't want to talk like that. However, through various social events she participated in, Siegal [10] found that Arina gradually changed her *self* and switched to humble honorific forms to suit some particular *foreign-only* social contexts.

In short, it is a socialized process for a learner to create his/her own desired social identity. In this process, how much a L2 learner can assimilate to the target sociolinguistic and pragmatic norm is various from one person to another. Some L2 learners may not be willing to devote themselves to the target cultural norms because of some distasteful experiences, such as being discriminated, marginalized, or simply refusing to de-value their L1 cultural identity..

4 Conclusion

We began this literature review by mentioning the differences in the amount of research that has been done in SLA and L2 pragmatic development. Although there are only a limited number of studies inspecting the various ID factors, such as age, gender, motivation, proficiency, and social identity or learners' subjectivity, these studies did help us understand more and stimulate our desire to experiment more research on individual differences in pragmatic development.

5 Suggestions for Future Research

More studies in the relationship between individual differences and L2 pragmatics development is certainly needed. With the advancement of technology, it is suggested that individual difference factors should be incorporated into different genres of research on second language acquisition, especially on computer-assisted language learning (CALL) since many different social network websites and web 2.0 research are here to stay in this 21st century.

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Educational and Learning Technologies for “Data Structure” Course

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Abstract. “Data Structure” course is an important knowledge area in computer science, especially in software engineering. The educational and learning effect of this course is of crucial importance for computer software design and development. But, some students find it is hard to understand the data structure knowledge and skills. Thus, after many years of our teaching practice, the educational and learning technologies for Data Structure are summarized in this paper. They include understanding the nature of data structure, using appropriate methods, summary and induction, programming on the computer, and noting the newest development tendency. In our educational practice, we find the enthusiasm of the students is aroused and the quality and the efficiency of studying are improved greatly.

Keywords: Data structure, algorithm, educational technologies.

1 Introduction

Data, as the basic object for computer programs to process and deal with, has a certain organizational structure. To learn computer programming is not only to learn about some special computer language, but also to master the general methods used to organize, store, and operate data, which is more important actually. These are just what this Data Structure course would learn and research [1].

Specifically, the contents researched by Data Structure include: discussing some basic concepts such as data, data structures, abstract data types (ADT), and so on; from the perspective of abstract data types, respectively, discussing the data structures and their applications of the basic types like linear list, stack, queue, string, array, general list, tree and binary tree, graph, and so on; discussing various implementation methods of search and sort, and making a qualitative or quantitative comparison and analysis in computing time; offering a comprehensive description of the basic dynamic memory management skills involved in the operating system and compiler program; discussing common file structures.

Data Structure is the backbone in computer science, and meanwhile, is one of the required courses. The purpose of this course is to teach students to learn how to analyze

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and study the properties of data object processed by computer. After mastering ADT and its application of the common data structure, the students can choose appropriate logical structure, storage structure, and related operations of data. Then, they transform problems in real world into representation and processing inside computers. By learning this course of Data Structure, it is benefit to further train students to design and analysis algorithms to improve the quality of program design [2].

As an important foundation course of computer science in university, Data Structure offers necessary knowledge and skills preparing for other courses of computer science. For instance, structures such as queue, memory management table, and directory tree would be used in Operating System; structures such as stack, Hash, and syntax tree would be used in Compiler Principle; structures such as linear list, multilinked list, and index tree would be used in Database System.

This course generally is offered for lower grade students in college. The authors have taught this course many years. During the teaching, we have found the main reason that students are generally relatively easy to grasp and understand principle knowledge in books, is that they can find prototypes in real life, such as linear list, queue, and several basic search and sort algorithms. However, for students with only basic knowledge of computer programming, they are often deficient in algorithm design, making good use of basic knowledge and methods in books to design corresponding data structures.

After many years of teaching practice, the educational and learning technologies for Data Structure can be simply summarized as follows.

2 Understanding the Nature of Data Structure

There should be a deep understanding of the nature of data structure. During the process of learning Data Structure, it should associate with programming language and program designing idea.

What is data structure on earth? To give a simple example in programming languages, we can see:

```
int i;
```

Here, “int” is a basic data type, and what abstracts the basic data type is the data structure. Furthermore, what is abstract data type?

If defines:

```
ADT R{ };
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the particular case of R should be discussed. If R is a list, the next step is to consider realizing various operations on it. Of course, to realize this, basic data types, such as int, float, char, and so on, will be relied on. This process is to abstract data types.

Once defined types, the rest is to design algorithms to complete the process flows control.

So:

$$\text{data structures} + \text{algorithms} = \text{programs.} \quad (1)$$

When the learning of data structure is combined with programming languages and programming ideas, the data structure itself will be more profound understanding. Any kind of data structure has its common and special characteristics, and each data structure is achieved for some fields.

3 Using Appropriate Methods

In the learning process, more attention should be paid to using appropriate methods.

3.1 Pay Attention to “Hands-On”

“Hands-on” is most important in the process of learning Data Structure. It is not just to read textbooks, but always to pick up a pen to write and draw while scanning. For example, during the process of learning linear linked list, it is difficult to understand how to insert or delete a node in a list only by taking a direct look at it, but if you take a hands-on approach to simulate tracking the real movement of pointer with diagrams and graphs, your thinking will be much clearer.

Just as other courses, if you ask more “why” when you are learning, and do more yourself, you will truly understand each algorithm and conclusion.

3.2 Pay Attention to “Flexible Study”

The so-called “flexible study” means that corresponding models about any algorithm cited in the book should be built in mind, rather than just rigidly remembering the algorithm. For instance, students learn tree traversal with non-recursive algorithm. In order to truly master this algorithm, in the process of pushing or popping, the process of accessing any nodes of a tree needs to be formulated in mind. In this way, an integrated model concept of the whole data structure will be in mind.

4 Summary and Induction

4.1 Make a Summary

In this progress, there needs a deeper thought, summarizing and inducing the commonness of an algorithm after learning the tactics referred above. For example, it is available to compare preorder traversal of a tree using non-recursive algorithm with depth-first traversal of a graph, trying to find the difference between them, the sameness, or why they could be same. Forest transferred into a binary tree algorithm and spanning tree of a graph can also be compared like this, and so forth. As long as all kinds of commonness and characteristics have been summarized, it could be easy to correctly and effectively memorize the algorithm.

With regard to making a summary, we give a general example: tree traversal. Indeed, it is a progress of searching for the first node to be visited, then searching for its successor node, no matter what approaches are used to implement, incursively or non-incursively, no matter what kind of tree is considered, thread tree or special tree with head node containing parents’ information. While inducing here, we can try to

summarize what is the successor node of the three traversals. There are three conditions.

(1) With regard to preorder traversal, the successor node of some node may be:

- (i) if left child exists, the successor node is the left child.
- (ii) if left child does not exist and right child exists, the successor node is the right child.
- (iii) if neither left child nor right child exists, the successor node is a leaf. There are more discussions:
 - if it is its parents' left child, and parents have right child, the successor node is the parents' right child.
 - if it is its parents' left child, and parents do not have right child, or it is its parents' right child, it means that it is the last node of preorder traversal of left subtree of some node. Here, it needs to find a "left ancestor" with right subtree. ("left ancestor" means the first node locating on the left subtree of this ancestor). Meanwhile, this node's successor node is this ancestor's right child.

(2) With regard to inorder traversal, the successor node of some node may be:

- (i) if right child exists, the successor node is the most left node of right child.
- (ii) if right child does not exist and it is parents' left child, the successor node is parents.
- (iii) if right child does not exist and it is parents' right child, it needs to backtrack to the first "left ancestor" (defined as above), the successor node is this ancestor. If no such ancestor exists, it means that traversal is finished.

(3) With regard to postorder traversal, the successor node of some node may be:

- (i) if it is parents' right child, the successor node is parents.
- (ii) if it is parents' left child and parents do not have right subtree, the successor node is parents.
- (iii) if it is parents' left child and parents have right subtree, the successor node is the node which is visited first by parents' right subtree (walking along the parents right subtree, straightforward to left, if fails, move one step to the right till the leaf).

While finishing the summary, we can encourage students to think about other clues? We often meet this kind of questions: determine the precursor of some node. Actually determining the precursor of preorder traversal and determining the successor of postorder traversal are identical, the only difference is to replace the left to the right. Determining the successor of preorder traversal and determining the precursor of postorder traversal have the symmetric relationship, the same as determining the precursor of inorder traversal and determining the successor of inorder traversal. Therefore, through summarizing the commonness, many problems can be solved more easily.

4.2 Draw Inferences

The focus on “draw inferences” referred here is slightly different from that on “summary and induction” discussed above. Here it especially accentuates a progress of extension, which means that we obtain a clue in the progress of solving a program, and then we extend the progress into solving a more complicated similar problem. For instance, in the application of stack, the book cites the solution of “labyrinth” problem. To solve this practical problem, the students can learn how to use stack. In this problem, the design of data structure is relatively simple and easy to understand. However, this problem may be further explicated and extended. The “labyrinth” problem in the book is settled by just putting forward one possible path, and it could not ensure that the path is optimal. Does it mean that we are able to modify the previous algorithm and then find an optimal path? The typical “draw inferences” idea is that progress.

5 Programming on the Computer

Learning in course must integrate with programming on the computer after course. Some students hold the opinion that data structure is a course with strong theory. Relatively speaking, implementation and debugging are less important, as long as we master the elementary content. In fact, this kind of idea needs further consideration. By doing experiments on the computer, on one hand, students are able to enhance their understanding of theory study; on the other hand, students are trained to finish practical operation and deal with the problems, which establish a solid foundation for their careers [3].

Generally, experiments on the computer are divided into two major types:

(1) “Practice and Validation”

This type starts after academic course. The principal objective of this type is to deepen the impression and comprehension. The comprehension of basic knowledge should be taken priority.

(2) “Integrated Design”

This type mainly integrates with major to design small programs or small software [4]. Here we stress that they must finish it individually. If the software design work is too big, some students may compose a group, but the division of work must be clear. It must be certain that everyone participate in the design and has some workload. This type should be arranged after finishing all the courses. It should be finished within a week.

6 Noting the Newest Development Tendency

Pay attention to tracking and note the newest development tendency of data structure. While learning and using data structure, we properly can keep an eye on its latest trend. Currently, one of the mainstream trends is the learning and application of data structure, import STL, and the idea of generic programming.

Generic Programming (GP) is a new idea of programming design, which differs from the known OO, OB, and PO. GP has a more abstraction. The components based on GP design between them have a low coupling. There is no inheritance in it, so the interactivity and the extensibility between components are extremely high. Generic idea has abstracted data structure and the basic thoughts of algorithm into an unprecedented altitude [5]. Now much programming language supports generic design, such as Java, C++, and C#, etc.

Generally, any algorithms are based on a special data structure. One simple example is Quicksort algorithm. The basic condition of implementing this algorithm is to store the objects into the array. Quicksort will use the property of random storage of the array (i.e. two objects can be swapped in a certain time, no matter they are adjacent or not). However, if we use Linklist to store the object, it will make Quicksort impossible to hold its attribute due to that the time to store the object in the Linklist is linear (i.e. $O(n)$). From this example, we can draw a conclusion that data structure should be taken priority while designing an algorithm. For example, the core of those algorithms (Array search, Linklist search, Tree search, and Graph search) is search. Because of the different data structure, the manifestation is diverse, which is the close relationship between data structure and algorithm.

Generic design overthrows the basic idea above. Its basic idea is to split algorithm and the corresponding data structure. In other words, while designing an algorithm, what data structure will use the algorithm is not necessary to be taken into consideration. Take the example referred above, the ideal state of genetic design is a search algorithm which can be used on all kinds of data structure such as Array, Linklist, Tree, and Graph, etc. It makes it become a general and generic algorithm.

What generic programming brings is the unprecedented elasticity and abstraction with no efficiency loss. GP is different from OO, which calls function not through extra indirect layers. Therefore, completely generalized and repeatedly used algorithms can be written. The efficiency is the same as the algorithms towards specific data structure. Generally, data structure in C++ can be denoted using types defined by users. While achieving the idea of GP may use STL. The technique of template in C++ is parameterized by type, namely a template function can be used on all types of parameters passed in. These types are all predefined data structure.

Generic algorithm is detached out from specific type and specific data structure, which is fit for possible generalized types. Generic algorithm will not be disturbed by all details of the implementation of all kinds of data structure during the process of algorithm design.

To sum up, the idea of generic programming based on STL will have a far-reaching effect on study and application of data structure, which is bound to accelerate the development of data structure.

7 Conclusions

“Data Structure” course plays very important role in the studying of computer science and technology major. However, some students find it is hard to understand and use the data structure knowledge and skills. Thus, after many years of teaching practice, the educational and learning technologies for Data Structure are summarized in this

paper. They include understanding the nature of data structure, using appropriate methods, summary and induction, programming on the computer, and noting the newest development tendency. In so doing, we find the students’ study positivity is stimulated and the quality and the efficiency of studying are improved greatly.

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Discussion on the Value Orientation of General Education in Art College

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Abstract. Through the analysis of the selection of general education and investigation of education concept in Art College, this article comes up with the idea that “New Humanism” is the value orientation of General Education in art school. In this idea, this paper introduces the basic curriculum models of the specified general education in art school and the further research ideas.

Keywords: Art Categories, General Education, New Humanism.

1 Introduction

Complete college education system in higher art education is consisted of Professional education and general education. Higher art education will be welcomed a new period of development when the art upgraded to categories, there will be some regulation and expansion in Professional education system, correspondingly, and there will be thinking and adjustment in general education. This paper do some research in basic Value orientation of General curriculum system structure in Higher art education, regard the “new humanism ”as the Basic concept of general education, and also, proposed related method in Teaching system construction.

The academic education system of advanced art education is consisted of the professional education and general education. Higher art education will welcome a new period of development in the time that the art upgraded as a category, which will cause some regulation and expansion in professional education system, correspondingly, it also will generate some thinking and adjustment in general education. The research area of this paper is in basic value orientation of general curriculum system structure in higher art education. This paper regards the “new humanism” as the basic concept of general education, and also, it proposed related method in teaching system construction.

2 Concept Analysis

Except the professional education, it has four calls on Public course in higher art education as follows: Education for All-round Development, Humanities Education, Liberal Arts Education and General Education.

It shows that each name implied different historical background, cultural connotation and target appeal through the analysis of Etymology and literature.

2.1 Education for All-Round Development

Education for All-round Development from English semantics, it has the meaning of "dedicated to the overall development of education". But literature retrieval showed that there is no certain word "quality education" in the western education, it is actually a Chinese usage of concept advocated from ministry of education and relevant administrative system in 1990s.

The corresponding concept to the quality education is the exam-oriented education, which is the product of education extremism. In order to cure persistent ailment of the exam-oriented education, most schools concentrate on aesthetics and labor education which are minor educational subjects in the past in the implementation of quality education, therefore, this concept is often used in the level of junior high school and primary school.

2.2 Humanities Education

Humanities Education on the basic meaning and routine usage of the humanity or humanism, it is often related to the European Renaissance period, but the research suggests that there is no such two words used at that time, and no direct corresponding word. Strictly speaking, "humanities" or "humanism" and related words were firstly introduced at the end of eighteenth century and the beginning of nineteenth century.

So the original meaning of the western humanities education, from the semantics, is an education in the sense of sciences corresponding to natural science and social science instead of the general education or quality education. If the general education or quality education launched with knowledge education of humanities sciences as starting point, it will be generally understandable. but in all, humanities education and general education or quality education are quite different in semantics and etymology.

2.3 Liberal Education

Liberal Education (Liberal Arts or Liberal Arts Education). It's a popular education term in Hong Kong. The corresponding word in English is from Liberal Arts, which originally means the art of the honored freemen. It refers to the skills of ancient Greek and Roman freemen engaged in different activities in their spare time and public affairs. The initial main content is "Four Arts" using "numeral" as its core, that is, arithmetic, geometry, music (and acoustics), astronomy, and "Three Arts" based on the "language", namely rhetoric, grammar and logic (dialectics).

And its relative concept is "the mechanical art" belongs to the physical labor. Initially, the core curriculum system in western university is formed by these "Seven Arts" plus theology, philosophy and medicine. Modern western university stress the liberal education in its education, meanwhile it loosened its original social class attribute and knowledge classification function. Instead of this, modern western university tries to advocate the awareness to the students with the classical tradition and freedom and critical spirit of internalization.

2.4 General Education

General Education. It also can be literally translated as "comprehensive education", to extend to the "whole education". First used in Taiwan, General education is widely used in recent years in the mainland. The concept of general education corresponds to the idea of specification of the sciences and professional education, it directly faces two difficulties that the survival and development of modern people. That is the spiritual fulfillment and life skills.

The general education of the universities all around the world focuses on only but the human in reality. It also concerns about personal and social practice and the solution of practical problems based on the pragmatism assumption, the existing conditions for students, and educational psychology as a method. The curriculum is designed by concerning the reality and the future, with the openness and tolerance, which strives to make the educated people fully participate in social practice and commit to social improvement.

Although different experts discuss the general education by different angles, there is a census that the individual shall be trained into a skillful person through the general education.

The above four concepts relate to each other, and show different importance. But according to the current situation of our country's higher education, especially in the Arts education, it should not only care for history inheritance but also the actual innovation to realize social responsibility. "General education" is undoubtedly one of the most appropriate choices for it.

In the above, it has the following several reasons: firstly, the concept of "general education" has certain extent without many language ambiguity and additional history. Secondly, it's original content that directly reflects the complementary with professional education. Applying "general education" concept to formulate the whole teaching system, metaphysical concept explanation and physical curriculum will be achieved in the education. In the concept of metaphysical, it emphasizes man's all-round education, pursuing the fulfillment of the personality of human nature, combining with art professional education into an organic union. In the operation of physical, it provides the basic method for core curriculum planning in series of humanities sciences.

3 Genre Analysis of General Education

Due to the different ideas of education, many countries and schools tend to have obvious differences in general education practice especially in the theory model, the organization structure and the actual operation. But some famous universities have gradually formed their tradition into unique genres. Generally they can be divided into three groups.

3.1 Elite Liberal

The first is "elite liberal". Yale university, United States, is a model of the kind. The "elite" shows a strong tonal in western university history. Followed the guidance in this thought, the confinement of the education object is clear. It is the goal for the

university that cultivates the intellectual elite, political leaders, and academic star, to complete the mission of supplement social elite. Through the systematic academic training, the academy encourages the students to inhabit the spirit of freedom and criticism, and inspires the academic creativity and team governance of the students to become social top. It is the proud for Yale University to bring up many political elite from time to time, and it is with certain reasons.

3.2 Modern Functionalism

The second is "modern functionalism". Harvard University has been very effective in this area. This is a realistic choice that shows the motivation of university education to fit for the social lives. By the ideal of maximizing social functions, the guidance of the university is to train the students with quick adaptability to the needs of the community. As evaluation core, it will provide talents meeting the need to the current social development. According to the development trend of all sorts of professional knowledge and requirements, to set up the courses, adjust the professionals and open up new areas, the university will help students following the social changes and needs and problems even in the whole learning process. Therefore, Harvard students can made achievement in the many social fields, and make it effectiveness.

3.1 Traditional Humanism

The third is "traditional humanism". University of Chicago has such tradition. This is a thinking "ideal man" as the origin of education idea and the teaching principle. In this education philosophy, the responsibility of university is to educate the students into the qualified social members. University tends to train the students with system of knowledge, comprehensive accomplishment and ability, and eventually as a qualified social role to participate in all kinds of social activities. The school's "Classics Teaching" embodies the thought. Through a series interpretation of human civilization milestone, at least it can make the interpreter of an "elegant".

The above three schools the formation of the complicated history, but belong to cause a classic example. However, there are limitations of above three traditions from the contemporary view to analyses China's higher art education. "Elite liberal" has hidden spirit of noble flavor and make it a problem to connect with art education in public education stage. If only "Modern functionalism" goes extremes, it may change into pragmatism. So higher education's output will be only the efficient parts of society. It is against the spirit of the university as the lead of the society; "Traditional humanism" has a sort of pedantry. It must change its roles in several aspects to make academic students to be positive and effective adapted with social development. So, these three universities are in a continuous introspection and adjustments trying to be compatible with others advantages.

It is still necessary for us to formulate a mature educational idea when China's higher art education is planning its own development and integrating general education. In recent years, "general education" became a more and more popular issue in education circles. There are two problems troubled China's educations. That is exam-oriented education and the humanities education lacking. Purpose of the exam-oriented education comes down to pass to the next level exam. It turns out that

educated becomes the machine to deal with all kinds of test. When through the examination be students to learn the ultimate goal, humanistic ideals, the humanities, and humanistic appeal will be ignored or natural contempt. Deviation of Education idea has caused serious social consequences, and become the fetter of social art development. One consequence is that the art students with low creativity and humanism awareness not only restricted the development of the individual, but also directly affect national culture inheritance and development. The purpose of higher art education is to cultivate the qualified spiritual civilization creator. It is difficult to think of a person without spiritual awareness continuing to create spiritual products.

Whether the general education of higher art education can take "new humanism" as the basic idea is worth further research. The "new humanism" is different form "elite liberal". It faces up to the fact that increasingly popular art education requires the general promotion of the comprehensive abilities of the educated; Compare to "modern functionalism" , "new humanism" pay more attention to relations between education and the development of the society, it also concerns higher art education features and the traditional reservation; In the contrast of "traditional humanism", it combines the teaching of traditional humanistic knowledge with the cultivation of faith and ability.

"New humanism" rooted in China's profound humanistic culture of soil. It absorbs the education ideas both at home and abroad. It emphasizes the inheritance of the branches in knowledge system. It also advocates to form the sense of history and social responsibility. In addition, Referring to the state of "classical elitism", It looks into the "sky" for the feeling of eternal wise; Possessing the vision from "modern functionalism", It roots in "down-to-earth" as basic tenets of life; Absorbing the pedigree of "traditional humanism", Its identify "our inheritance" to be the responsibility of the students. "New humanism" includes different thought essence; it holds the same process for cultivation and individual success, which directly faces the existing shortcomings in higher art education. By the main line developed to the humanities for teaching, it has actual good correspondence and guidance in our high art education.

4 Conclusion: Concise in the Multiple Values—New Humanism

After the Arts becomes an independent science, some of the basic questions of Art education come into focus once again. "How is the students training" and "how to train the students", again become a higher art schools "ultimate proposition".

Besides the devotion to the society, including fine works and the fine services, the most important mission of high art education is to cultivate a large number of students with artistic ideal, social responsibility and professional skills. The educational spirit of "New humanism" is concerned about the spirit of the students, the development of knowledge structure and comprehensive professional ability. According to this training target, it is the most basic social responsibility for art colleges to carry out a systematic planning for the professional education and general education.

Basic content of general education in the art colleges includes the art and adjacent, related sciences, but it gives priority to the humanities and social science. The direct purpose of general education is that to give the art student a practical environment

with knowledge, thereby, the students will seek solid and wide theoretical support to the context of their professional thinking and professional practice. The deep pursue of the general education is make a number of art field high-end compound talents with mission of national innovation, consciousness of contemporary peak and vision of international research. General education of art colleges emphasizes the comprehensive education to the people, instead of comprehensive education of knowledge. Trying to realize the latter must be difficult during the college education with limited time. But the essential to the all thoughts of art creation are humanistic spirit, rational spirit, the spirit of freedom and critical spirit, which is also the spirit supporting all professional education to a further development. From the teaching idea of "new humanism", construction of general education system in art college should be of higher argument basis, more spiritual ambition, and without only ideal that it will serve the art knowledge and skills of students or to make colorful campus culture life.

Core course of general education is about man's spirit, and the basic knowledge of relevant humanities science related to the art spirit. On this basis, the general education should provide options for students. Art college general education need to construct two sets of course catalog according to different students' professional characteristics, thinking characteristics, practice and development characteristics. To set a series of mainly courses for students on the height of the knowledge, depth and precision of pursuit. Reference to "elite liberal" part of the idea can be used to increase various intellectual history, culture history, and Chinese and foreign classic introduction. it will continue to provide theory support for part of the students to high-level academic research or become "free artist". The other one is the main service to the understanding of students to the actual society and to set course up correspondingly, and the conduct methods of "modern function functionalism" can be used in the certain way. In a series of social problems relates to the reality, it demands most students to enter the career and undertake their social role. After the confirmation in setting up the art categories, it is very urgent to start relative researches. So in that purpose, it requires joint efforts from art universities across the nation to reach consensus on the development of general education. It should be avoided that the lacking of general education idea and the practice will drag down the pace of development for whole art education in our country.

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The Exploration of the Automatic Control System Course Design Which Depend on Cross Major Operating Mode

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Abstract. Proposed a kind of course design operating model which done by automation major and major in mechanical design combined and depended on engineering project, and discussion on the process of this cross major operatingmode in detail.

Keywords: engineering project, course design, automation major, major in mechanical design.

1 Introduction

In the society, the ability of talents is increasingly demanded. In addition to a broad theoretical foundation in university education, students should have ability to solve the practical engineering problems. Automatic control system curriculum project is important to the students who major in automation. Because it can help students build the engineering consciousness. Meanwhile, the knowledge in engineering practice of students can be added. It also plays a very important role in developing the practical ability of students and innovation [1-3].

Students in the course design require not only designing their own control circuitry and control software, but also the controlled object. Therefore, students often meet with some mechanical structure problems in curriculum design, such as the designing of elevator model, car, parking and other simple models. Without a good model for mechanical structure, we can not make a good system. It is a bottleneck for the students who major in automation to make out a good work in the curriculum project. On the one hand, after the teacher of mechanical design communicating with students, they find that in their basic design courses they also meet the similar problem when they design control circuitry or control software. Based on this, we can develop a course to combine automation with mechanical design. Then a good solution will be got when meet with the course of two professional issues. Students are able to design more good works; while this means allow two different majors to strengthen communication and development. This is good for students to develop communication skills and build team spirit of collaboration.

On the other hand, introducing a "small project" which base on the practical projects in the automatic control system fully mobilize the enthusiasm of students in curriculum

design, even this can greatly improve the ability of students to solve practical engineering problems [4-5].

2 The Joint Training Mode between Automation Professional and Mechanical Design Professional

The general thought of curriculum reform is that though the design we try our best to improve students' engineering practical ability, innovation skills and build team spirit. To achieve this goal, reforms can be displayed in the following four ideas:

(1). when the two specialties work on the curriculum design, teachers must help students communicate and solve problems. The problems may be scheduling and so on.

(2). Curriculum design should have engineering background with a certain "small project". The content also have an engineering background, "engineering project". No matter how small it is, the project should include the same steps as the real engineering project which is the whole processing. Based on the goal "combining with real engineering projects, to do integrated training", aims to provide students with a real engineering practical space. To complete the course design projects through team work, students can gain a more completely experience of real projects. From this the students can learn self-learning method, develop their engineering consciousness, innovation and teamwork spirit. In the process, teachers play a role in guiding and assessing "project" feasibility. And the students hold the initiative, teachers work as "technical adviser".

(3). We should establish and perfect the "small project library". Because the course is designed for all students, students abilities and levels may be differences. A packet mode can reduce this difference, but the establishment and improvement of the "small project library" have a very important role in guiding in the students.

(4). Building network forum for communicating can combine teachers with students and realize the information sharing.

3 The Establishment of a Small Project Library

The so-called small projects are referring to: the difficulty and complexity of the project is adapted to students for automatic control system course. The small project is extracted from the actual project or simplified project. A small project library is a professional database covering all directions, the different types, and a number of small projects. It guides students in the curriculum design. We need consider some aspects for building a small project library: (1) the difficulty and complexity of the project should be moderate. Generally, the real curriculum is only three weeks. (2) We should consider fund for project implementation. Full use of the laboratory and the training center of school could be coming first. Then, full use of the school allocated funds, as rational as possible, can be considered.(3) the small projects should cover all project types as far as possible.(4) small project library should be open and often updated.

The establishment of a small project library gives students a better curriculum design direction. Meanwhile, in the specific implementation process, it encourages students to

make their own the project that is higher feasibility. Finally, the students can fully develop their innovation.

4 The Management and Implementation of Curriculum Design

Since the curriculum will use most of the professional knowledge, the automatic control system curriculum design is always arranged in the seventh semester. Because of studying, employment and other issues, logical groupings, schedule and task allocation is the key to make course design success.

Generally, curriculum design is divided into three stages: options and selection, project implementation, the final reply.

(1) Group

Based on the real project, the curriculum design need arrange project management, project establishment, the theoretical analysis and design, equipment procurement and parts processing and so on. Therefore, the students in group should have ability as the ability of project management, hands-on, strong theoretical analysis or social skills. Beginning in the seventh semester, according to the above requirements, the students are in groups. The number of students should adapt to the actual complexity of the project. Each group assign about six people. The leader of the research group is responsible for co-ordination and allocating. So the leader is the key to the final success at end of the curriculum design. The leader is selected by the students in group. Meanwhile, the instructor should consider the student's management skills and sense of responsibility.

(2) Option and project

At the first three weeks of the seventh semester, the instructors assign the project tasks to each team. Options are available from the instructor, which are chose from a small project library. They can also project from the group by themselves. Then, each group begin to work on the program design, feasibility analysis, project cost accounting and other matters based on the selected projects. Particularly, every group need do some research about the parts that are required for the project. The parts may be models, specifications, quantity, price and other details. Students in this step require strict control [7]. After the preparation, the project organized by the instructor will be demonstrated, did a preliminary screening, and then, the project reply. In the project reply, the students must function on the orientation of the objectives, performance requirements, expected results and other questions. Then, the expert group selects a project that is creative, valuable and enforceable as the final issue. According to the workload, the instructors finalize the number of the project. If some students don't participate in the final project, the teacher must designate the project and reply two weeks later. Options and project always start before the Design Week. In addition, instructors need check them regularly.

(3) Implementation

First, each group must modify their scheme based on the guiding opinions, the teacher proposed on the project reply. Then, the need for the project components and

related materials will be purchased. Some parts which need a longer processing period (such as some complex mechanical parts, circuit board production), according to the design plans, should be processed early. The work involved in the front need be over before the first week. We should complete the installation of the project based on preparatory work. In the eighteenth and nineteenth weeks, we should start to debug, test and analysis.

(4) Reply

After the step (3), we start the reply. In the process, each student is responsible for providing a summary report. Leader needs to provide all materials used in the project implementation and a summary of the whole subject. In this engineering design courses, students themselves practice engineering design, general procedures of manufacturing, so that they can complete the report better based on the preliminary engineering training. Instructors check the job for each member of the team on the subject of the technical difficulties, such as technology solutions.

5 The Conclusion

In curriculum design based on the engineering project and the cooperation between the students major in automation and the students major in mechanical design, each student are involved in the project, including program design, market research, parts processing, system assembly and debugging, project reply and so on. Each student is responsible for a part of the project. In this way, students not only improved their ability of solving practical engineering problems, but also the team spirit. After three curriculum designs, each time has some good results. From the final report of the students, we can see that projects based on the actual background are recognized by the vast majority of students.

Through the certain exploration and practice, we believe that joint curriculum projects designed for engineering project is feasible. It is good for the students to develop team spirit, engineering quality, innovative and the ability of the integrated use of knowledge is very favorable[6-7].

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Explore of the Construction of Post-graduate Courses Concerning Modern Testing Techniques in Mechanical Engineering Disciplines^{*}

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Abstract. In this paper ,the construction and teaching models of post-graduate courses concerning modern testing technology in mechanical engineering disciplines were discussed. For the obvious military characteristics of the school's mechanical engineering disciplines, rational planning for teaching materials and teaching content has been made, which is allowed for the characteristics of postgraduate studies. Meanwhile, independent learning ability was introduced which can stimulate interest in learning and foster innovation; In the last, network courseware construction has been carried out and measures to improve the learning efficiency were proposed. Through years of implementation, the work has been welcomed by graduate students and achieved good results.

Modern testing technology is a very important course for the graduate students majoring in mechanical engineering, which involves sensors, instrumentation circuit design, signal analysis and processing theory, and many other contents[1,2],the theory and methods taught can become effective tools to solve practical problems for the graduate students when doing researches. Since this course involves a wide range of knowledge, and graduate students come from different professions and schools with different backgrounds, many students feel it difficult to learn. For the same reason, the teaching progress is tough to grasp. To solve the above problems, adjustments and improvements are made in the following aspects.

1 Modular Design, Optimize Teaching Content

According to the contents of modern testing techniques, it can be divided into two parts: "signal" and "system". Both of the two parts are closely related to the research of graduates in this field. The two parts have both connections and differences, the former is the basis, emphasizing on the theory, the latter relates closely to the testing assignments in mechanical engineering, focusing on engineering application. In the teaching process, teachers should illustrate the connections and differences to make

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sure students can grasp the overall of context. In order to satisfy different requirements in teaching, the course would be given by two expertise. For the first part, system of theoretical basis and tightness will be highlighted and attention should be paid to the connection with the knowledge learned before; In order to improve efficiency, easy parts should be given in brief and difficult ones in detail; For the other part, connections with the major should be paid great attention to, examples should be given frequently to ensure students can understand it.

Generally speaking, few materials and references concerning testing technology for domestic postgraduate is content-rich or can provide postgraduate research guidance, most of which either emphasizes on introductions of sensors, or descriptions of signal theory. In order to help the graduate students accompanies the course, we organize our own teaching materials in the very beginning, which are closely related to the professional features of the field of mechanical engineering in our school, covering signal theory ,static and dynamic performance analysis of the testing systems, vibration testing methods and so on. The teaching materials have been well received by previous students for its wide applicability and obvious characteristics of military testing.

2 Unify the Specialized Features, Combine Theory with Practice

Since students of the graduate school of mechanical engineering come mainly from majors of mechanical manufacturing and automation, vehicle engineering, ground weapons and mobile engineering, mechanical electronics, aerospace manufacturing, and other aviation professionals, examples must be made in combination with all the majors. For example, using differential method to detect the tolerance of the motor shaft [3]. Through the analysis and explanation of the example, students get a better understand of the theory and advantage of differential method, which can help to understand the abstract content and difficult understanding; piezoelectric acceleration sensor is a widely used sensor in vehicle engineering, ground weapons and mobility engineering professionals, which has a strong military background, many graduate students will use it in conducting researches, so teachers should explain it in details consciously from the following aspects: the mathematical model of the type of sensor, frequency domain characteristics, how to ensure no distortion of the test , dynamic performance calibration with the use of fundamental tube method, calibration of frequency domain using the sine sweep method and so on. Since the using background is clear, the graduates' learning attitude is positive, good teaching effectiveness has been achieved.

3 Encourage Independent Learning, Stimulate Interest in Learning

Postgraduate studies and undergraduate studies are different. Since the late stages of graduate studies will be carried out in the laboratory, which will be conducted under the guidance of the instructors, the training of learning and research capacity is so urgent and important that it should be taken as the priority in the learning of the course. In order to simulate graduates' interest and initiative in learning and foster the spirit of

innovation in learning the course, and change the monotonous atmosphere of traditional teaching model which is simply taught by teachers, students are supposed to give lectures in class. Each of the lecture can last range from 10 min to 30 min, and the content of the lecture can be organized by students themselves, either relate to their research or not; such as theory of signal, sensors or testing, new method of testing and so on. The final score will take into account of literature review, summarize, PPT production and others, which are all strictly required.

Graduate students can either select report or paper according to their own interests. The report should be hold in class, and the requirements of PPT should be as follows: the content should be refined and logical; the layout color must be coordination and beautiful; the PPT should be arranged carefully, animation and video should be embedded in the content; time should be around 20 minutes. Research paper should be not less than 3,500 characters, literature references must be rigorous, plagiarism is forbidden, and references papers can not be less than 15 ~ 20, including at least one-third foreign literatures.

According to the above requirements, the work of each student will be rated and included in the total score of the final examination; for special reports, the teacher should give comments and questions. Through the independent study mentioned above, graduate students foster strong interest in learning, getting the initial academic training, making a good start for the future research phase's opening report writing, question raising and problem solving.

4 Design Network Lesson Plans, Improve Learning Efficiency

Comparing the traditional way of teaching, network teaching has greater freedom in both time and space[4]. Graduate students can also learn independently through network courseware to figure out the difficult problems in class, which can be done at any leisure time in any place with access to the Internet. In this way, the learning efficiency is significantly improved.

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Study about Integration of Information Technology and Primary Mathematics Teaching

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Abstract. Information technology has been used into an integration stage in educational field. The integration shows a unique advantage due to its strong features like various styles, information carrying, strong manipulation functions, human-computer interaction that offered by the information technology. In reality, there are still some problems remaining in the process of using the information technology in primary mathematic teaching, and the problems includes improper attitudes, low levels of operation and unilateral action in primary teachers' class in China. Based on this situation, we can make some progresses in primary teachers' cultivation, training, evaluation and support conditions to improve the teachers' abilities in the integration stage.

Keywords: information technology, primary mathematics, human-computer interaction, exchange platform, cultivation, training.

1 Research Background

In 1959, International Business Machine Corp in USA produced a first system of computer assisted instruction. Till now, the application of information technology to education field has experienced three stages:(1)CAI stage(Computer Assisted Instruction, from 1950s -1980s);(2)CAL stage(Computer Assisted Learning, from 1980s-in the late 1990s);(3)IITC stage(Integrating Information Technology into the Curriculum, from the late 1990s till now).In the third stage, information technology transformed from a tool of assistant teaching into a tool of cognition and emotion encouragement to improve the students' autonomic learning. [1]

In 1998, Chinese scholars begin to research the integration between information technology and subject teaching. In Oct. 2000, Zhili Chen, the minister of Education, said: "We should do well in the information technology class and at the same time, we will make significant effort to impel the integration between information technology and other subjects"[2]. In June 8th, 2001, the ministry of education published <Curricular Reform for Basic Education Outline> (we call it 'New Outline'). The 11 item made explicit provisions: "Step up our efforts to improve the common use of the information technology in teaching processes, advance the integration between information technology and subject curriculum. "[3]At the point, a large scale of tries to integrate information technology with subject teaching occurred. The specific method

to integrate information technology into primary mathematics teaching is still a problem that worth us to explore for a long time.

2 The Advantage of Integration between Information Technology and Primary Maths Teaching

Currently, primary maths teaching in Chinese mainly requires the educational concept, which is 'Mass Mathematics'. The combination of information technology and primary maths teaching is a good way to meet the challenge that required by this educational concept, which should shows the life of teaching contents, practical and instrumental of teaching values and varieties of teaching styles.

2.1 Multi-pole Information Technology Can Arouse Students' Desire for Autonomous Exploration

"New Outline" definitely held the view that an effective maths activity can not rely on the memory and imitate simply, hands-on practices, autonomous exploration and cooperative learning is the important way of students in learning maths.[4] In another words, new curriculum of mathematics encourage autonomic learning, cooperative learning as well as discovery learning. To the students in primary school, something the students interested that satisfying their inner desire can arouse their appetite for exploring. And information technology can realize this goal with it's variety of appearances. Comparing with the traditional stimuli-presenting mode, multimedia represents more vivid pictures and communicative knowledge in class, which is adapt to psychology need of students in primary school.

2.2 Powerful Information Carrying Capacity and Operational Function Can Supply to Diversified Demands in Maths Study of Students in a Certain Degree

Technology of multimedia and network can achieve the most effective organization of teaching contents in primary maths class. Base on these carriers, the information capacity of each class is increased to a great extent meanwhile the teacher can control teaching information more flexible. At the same time, we can use its strong carrying function to store some shapes, images, titles and analytic processes into the computer before each maths class, and exhibit some of them on the class properly. We can also draw the graphs accurately and quickly on the basis of high-speed character in processing of information of computers. Through the computer software, teachers can make real control of instructional objectives. These methods add greatly to the teaching modes, broaden the range of communication between teachers and students and supply to the various demands in maths learning of students.

2.3 Powerful Interactional Function Is Good to Realize Self-construction in the Field of Cognitive Structure of Each Student

Constructive learning concepts ask to take the pupils as the center, which require transforming the status of students from an accepter of knowledge into a subject of the

information processing. In the modern information technology environment, teachers can utilize its strong interactive function to change the traditional teaching pattern, and advocate a new kind of teaching and learning style. Multimedia often has functions of seeing and hearing under the modern technology environment, it can link with the computer and create an excellent and colorful picture and respond in short time during the human-computer interaction. In this interaction, students can choose the proper exercises, participate the teaching actively, adjust, rebuild and construct a clear and reasonable cognitive structure.

3 The Problems Are Existing in the Integration between Information Technology and Primary Maths Teaching

The integration between information technology and subject teaching is start from 1998 in China, it has experienced above 10 years. We get preparations and achievements on educational policies and material supports. But in the other side, we can find some problems occurred in the integration between information technology and primary maths teaching that make the advanced technology sink into an embarrassing position

3.1 The Teachers' Improper Attitudes toward Information Technology Have Influenced the Integration Effects

With the development of using the information technology in teaching process, new curriculum reform require that the teacher should be able to teach in the modern informational environment and increase higher requirement of "information literacy" of teachers. But some traditional teachers get used to the traditional way without information technology in teaching. Many of them hate to use the modern methods like information technology, and to a certain degree, they may be forced to use it on the teaching surface that can not give service to the teaching work essentially. While another extreme case is "only the technology theory" spread among the teachers. They deem it as a prerequisite factor in each class and take it as an essential evaluating indicator of course evaluation. Calmly examine the core problem, the instructional modes should serve the teaching contents. The goal to use of information technology is achieving the teaching task and increasing work efficiency better. [5]Therefore, the improper attitudes of teachers in primary schools affect the rational utilization in the process of integration with information technology and primary maths teaching,

3.2 It's Difficult to Realize the Effective Integration for the Majority of Primary Teachers in a Lower Technical Level

The quality and performance of information technology as a whole remains poor, this problems due to the rapid development of information technology, relative classes are opening in a short term in normal universities, primary teachers pay less attention in the process of learning information technology during cultivation and hysteresis quality remaining in teachers' cultivation. With the rapid development of information technology and the rat race between the normal universities and non-normal universities, normal universities start to pay more attention to the cultivation of information technology. However, the overall improvement in quality of information

technology of primary school teachers that can not achieve at once, it depends on the times of effective teachers' cultivation and consistent on-the-job training. For the purpose of improving the ability of primary maths teacher, each teacher should master the technique of words editor, graphic plotting, formula importing, pictures setting and so on. And yet, these abilities are often ignored during teachers' cultivation. That's means today's normal college's education haven't attached importance to the technology education of information field in the cultivation of preparatory teachers. Because of the low-level in use of information technology for many teachers, the problems could not be solves in the maths teaching in time and that will influence the effective utilization of information technology in maths classes ultimately.

3.3 Unilateral Action Can Not Reflect the Advantages of the Integration with Information Technology and Primary Mathematics Teaching

The significant advantage of integration is changing the way of students' learning. Students act as the main part in the cognitive activity, they become the active producer of cognitive structure. So it is good to stimulate their enthusiasm and promote the development of cognitive competence that allowing students participate into the teaching processes. Moreover, we should make the best use of interaction character of information technology in order to realize the students' individualized instruction and cultivate their abilities of active and independent thinking. [6]Currently, many schools haven't student-computers in multi-media classroom, coupled with the teachers usually not good at the skill of information technology, teachers' self-made courseware only be used by teacher himself. So that way, the interaction function can not be exhibited in class, teaching will still in the traditional way and the advantages of information technology won't reflect on primary maths teaching class.

4 The Suggestion to Promote the Integration with Information Technology and Primary Maths Teaching in China

4.1 Primary School Teachers Should Understand the Educational Concept Accurately

The integration with information technology and subject teaching is not only regard the information technology as the education assistant, but use it to create a new learning and teaching atmosphere for students. This environment should support the institution setting, irradiative thinking, information carrying, recourse sharing, multi-interaction, self-exploring and cooperative learning on classes to give play to teachers' directive function and students' main part status. This style should contain the educational concepts like freedom, exploring and cooperation indeed. Only in this way can we take a broad perspective in viewing the integration and have a thorough grasp of far-reaching significance as well as the reason of the integration between information technology and primary maths teaching. [7]Therefore, the normal college should take the responsibility of spreading the educational concepts in "New Outline" in teachers' cultivation and on-the-job training.

In the process of cultivating the preparatory teacher, our normal college should pay more attention to the theory education in mathematics teaching courses, sum up the

basic theories in "New Outline" and specific contents in primary maths textbooks together in order to make every preparatory teacher has a deeper understanding for the basic theories during their cultivation time. In this connection, I have always supposed that teaching of the course called <Mathematics Teaching in Elementary School> should use the "double tutorial system" way that a system conclude the tutor in college and primary teacher in elementary school.

Besides, when the students are going to work, they will face to the real teaching environment, and the educational concepts that they learned from university may create many difficulties during it's transforming in their practices. In order to solve these problems, teachers need the variety of cultivations and trainings. We can offer a research system for new teachers, which demand the news must have a majored study from the experienced teachers for a period of time. On the other hand, the teacher has experience about teaching should explore and accumulate the effective teaching methods including the integration with information technology and primary mathematics teaching.

4.2 Improving the Usage Standards of Information Technology of Primary School Teacher

Based on the situation that many primary teachers' usage standards of information technology are poor, we should take a variety of measures to increase their information technology literacy practically. In the integration, teachers should become fluent in the relative information technology to control classes, design each teaching link and promote courses' contents through the multimedia. So and so only, the teacher could get the very heart of the subject in the age of IT, and their skill with IT can help them link with the relevant information on the class with no restrictions.[8]

In the first place, we should carry out the teaching and training of information technology. IT training should be added into the teaching skills' training and be connected with the specific subject teaching. In the process of on-the-job training, we should create some conditions and convenience to improve their IT skills constantly by help them study with the PPT, resources searching, experiences communication and the simplified overhauling about the ordinary fault of multimedia according to their different situations.

The next, the information technology is not a simple base station, but a stage that contains rich information resources. We should take care of the resources construction in the foundation of the well infrastructure construction of IT. No resources, no integration. For that reason, we should follow the steps of the time to provide abundant of popular information resources to teachers. For a instance, China has pulled strong efforts into the information resource network construction of education in middle and primary schools to build a study stage for teachers to exercises their IT skills and gain more information.

4.3 Lead Primary School Teachers to Utilize the Information Technology Reasonably and Understand the Aim of Integration Accurately

The goal of this integration of information technology and primary mathematics teaching is developing the creative talented people. That is the primary target of our

education for all- round development and the primary objective in a new round of education reform in modern worlds.

Firstly, the goal of the integration refers to build the new teaching construction, improve the quality of teaching. "only the technology theory" is a kind of misunderstanding in the process of integration. Only if the all levels' leaders and teachers have understood the goal truly enough is the integration work done effectively. In order to do this, the schools should take responsibility of the introduction through the evaluation way to guide the integration with IT and teaching of each teacher. By the way, the schools can establish some chat forum to create the communication space for teacher in order to help them study with each other.

Secondly, with the imbalance of Chinese economic development, our basic education managed by the specific areas. The basic condition of running a school is inequality while the department of education should impose the uniformity in all cases. Related department should encourage, guide and supervise the process of integration toward the schools with better conditions. While to the others, the departments should give more supports to rich the base station and educational resources and organize the time-based training to help the teachers in their personal integration with IT skills and maths teaching.

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The Essence of Instructional Method and Its Innovation

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Abstract. To achieve teaching aims, the efficient application of instructional method is needed. The essence of instructional method means the unity of teaching methods and learning methods. The first step to innovate instructional method is to update ideas and to mix the teaching methods and learning methods in order to interact each other; the second step is to choose the appropriate instructional method according to particular cases; at last, optimize and composer all kinds of instructional method to gain the best result.

Keywords: Instructional method, Essence, Innovation.

1 Introduction

Instructional method is closely related to the success of teaching. Corresponding method should be used to achieve certain goals. Only by relying on scientific and efficient application of instructional method, can we improve the teaching quality and realize our goal. A teacher should pay high attention on instructional method and innovate continuously according to the peculiarities of the subjects. The first step to focus on instructional method is to understand its essence.

2 The Essence of Instructional Method

According to incompletely figures, there are a dozen of conceptions about instructional method. That makes some people think that the efforts to give instructional method a complete definition are all in vain. But without conception, there is no scientific research. Only after determining its specific meaning and the regularity of its quality, can we correctly discuss about instructional method and its innovation in teaching practice.

Professor Bingde Li proposed the widely used definition of instructional method that instructional method is “a general way to describe the teaching and learning activities that the teacher and students use to realize teaching goals and complete teaching tasks.” As we know, instructional activities contain two parts: teaching activities and learning activities. So the instructional method also has two parts

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(namely teaching method and learning method). Therefore, seen from the essence, instructional method is the unity of teaching method and learning method.

Herbart School pays more attention on teaching method and regards the teacher, the class and the material as teaching centers. They think students should learn as the teacher teaches. This theory had ruled the teaching field hundreds of years and students had to stay at a passive position. Pragmatism educator Dewey advocates “learning by doing”, experiencing by themselves, exploring from the very beginning and the principles of the teacher are not essential. By this way, students spend a large amount of time, but only gain some partial and superficial experiences and unstructured knowledge. Both of these two theories have unilaterally understood education, running to extremes, and split teaching method and learning method.

Teaching method and learning method are indivisible. Generally speaking, a corresponding learning method is attached to a teaching method, or a new teaching method will be adopted for establishing a new learning method. Such as self-study and self-study guidance, the former is learning method and the latter is teaching method, they are an organic whole.

Middle school student can not form their own learning method independently, some university students may have formed, but the change of learning content and environment makes them puzzled, therefore, learning method guidance is needed while teacher optimizes teaching method. The purpose of applying instructional method is to promote students’ learning, and achieve “Teaching is for not teaching any more.” which was proposed by Xingzhi Tao. As Marx once said, “Personally, one’s actions and all activities can not stimulate him to take action, without passing through his mind and turning to his own desires and motivations.” Only when acquiring the method and possessing the capability, can students step from “learning” to “be able to learn”, and is the teaching goal achieved.

3 Innovation of Instructional Method

The obsolescence phenomenon of instructional method has been changed in some degree in the trend of education innovation. But many problems still exist, such as simple transplantation, deepening shortage, blind rejection to traditional method, application of new method without any analysis. As a result, the application of instructional method needs to be reformed.

3.1 Renewed in Mind—Transforming Injection Reformation to Elicitation Reformation and Realizing the Interaction of Teaching Method Reformation and Learning Method Reformation

Students are the main body of learning and development. Teachers’ guidance should be based on their own thinking, digesting and absorbing, and this is the tie point of students and teachers. Emphasizing the learning subjectivity of students is the core of elicitation teaching ideas. In current teaching situation, some people only focus on teaching method, oblivious of learning; many teachers who teach as they want do not care what the students feel, that is ignoring the main body, students.

In terms of status, instructional activity is a very special one, in which both students and teachers are the main bodies. Students, the main body of learning, and teachers, the main body of teaching, are interdependent and relatively independent. Both of them are important, so taking one thing into consideration to neglect the other is wrong.

In order to give student a cup of water, the more important thing for the teacher to do is not to possess a bucket of water but to lead him to find the resource. Engels had said that system is temporary for every philosopher, but the valuable method contained in the system can last long to lead people thinking. Similar to the theoretical system, method is the means of acquiring knowledge with a wide range of transference. Subject ability can be strengthened and interaction of teaching and learning is realized when students acquire learning method. Most new middle school teaching materials contain some parts, like “practicing”, “self-study”, and “skill” etc, which are all available to be used for learning guidance. For example, the “skill” parts in *High School Geography* conclude all kinds of graphics that can lead students to learn how to use these graphics to represent the distribution and comparison of mineral, population growth, the changes in temperature, the proportion of all kinds of terrain in China and other geographical phenomena like that.

3.2 Choosing Appropriately—Targeted Choosing Instructional Method

There is no fixed way for instruction, the keys are to be flexible to change and be able to acquire a method. “Be able to acquire a method” means “choosing appropriately”, namely having chosen a correct way so that a good result can be gained. But, how can we choose correctly according to the actual situation? Is there a standard for it? Babanthdge(Юрий Константинович Бабанский, 1927—1987), a Soviet teaching theory expert, had concluded six standards for instructional method choosing: the first is that the choosing of method should conform to teaching principles; the second is to be in accordance with teaching purposes and tasks; the third is to be in keeping with teaching content; the fourth is to come up to student’s possibility, his preparation and the peculiarities of the class; the fifth is to fit in with current situation and specific time; the last one is to correspond with teacher’s possibility, that is his experience and knowledge, the actual training level, the capability to apply various methods and personality.

Obviously, choosing of method should be based on different situations. If the main purpose of teaching is to develop skills, practice method should be attached to, such as drawing and calculation, and students will not obtain any knowledge without practicing by themselves. If the teaching content is closely related to real life and contains more perceptual knowledge, case method of teaching or conversation method can be chosen, which are based on various materials and the use of case analysis and discussion. For the rational knowledge involving in principles and laws, we can use heuristic conversation method, discovery method or trial teaching method.

The choosing of instructional method should be on the basis of deep understanding of all kinds of methods. For instance, lecturing method which is most widely used in teaching can impart more knowledge to students systematically in a short time and is essential in most classes. But it makes it easier to ignore individual difference of

students. In order to exploit its advantages to the full, this lecturing method should be improved. The “lecturing” should be vivid; the knowledge should be explained in simple language, so that it is easier for students to accept and digest. “The voice of a teacher, who can teach beautifully and distinctly, will immerge into the students’ hearts with knowledge like oil.” In addition, other methods can be used to cooperate with. For example, as the development of information technology, we can make use of electronic teaching method to enhance the visual effects of knowledge, so that students’ minds are stimulated and their learning initiative is mobilized.

3.3 Optimized Combination, Advantage Complementary and Effective Use of Various Instructional Methods

Each method has its advantages and disadvantages; reformation is not to deny the traditional teaching methods, but to innovate on the basis of them. That is to creatively change, combine and use for each other to achieve the optimal teaching effect.

The singularity of teaching method goes against the complexity of teaching process. During a period, Herbart’s “five formal lesson-steps” is quite popular in China, regardless of the teaching content and situation, many learners follow these five steps to teach, but it leads to a failure. The innovation of instructional method in home and abroad stimulates the development of comprehensive instructional method, which is a leap for the development of instructional method. In recent years, many educators in the world have advocated comprehensive use of several methods and have gained results. After the promotion of Bloom's "discovery method" is stuck, a “guided invention method” comes into existence in America and China. This method is a combination of “discovery method” which regards students as center, and a traditional method which focus on teachers’ leading role.

4 Conclusion

Babanthdge had said “The most important and difficult problem in the optimization of instructional method is how to choose the methods to achieve this combination, namely how to obtain the best result in the limited time under this situation.” To optimize and combine some methods, we should learn their advantages and disadvantages, find out the join point and complement each other according to different teaching situations.

For example, a class in which trial teaching method is the main way can be cooperated with lecturing method, practicing method and conversation method. Optimized combination can gain a better effect to instructional method.

The future society is a life-long education and learning society, where human’s subjectivity, creativity and flexibility will be fully reflected. To survive, individuals must know how to learn. How students learn is becoming more important and attracts more attention. Therefore, someone proposes that the essence of teaching method is learning method, which we believe is reasonable.

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Exploration on the Experimental Teaching Methods in Electronic Design Automation

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Abstract. How to make students be aware of the importance of experiments? How to improve the quality of experimental teaching? It is a continuously going to discuss. It summarizes and analyzes some solutions to the practical problems of experimental teaching in this paper. It analyzed the experimental teaching methods and measures in Experiments of Electronic Design Automation as a explorative case.

Keywords: experimental teaching, Electronic Design Automation, Teaching Methods, Teaching Quality.

1 Introduction

The fundamental purpose of experimental teaching in university is to train basic practice ability of students, to stimulate students creating idea, to improve practice ability, to train the ability of solving problem. Through experimental teaching, students can know and comprehend the process of knowledge to produce and develop, can have the good habit of scientific spirit and creating idea, can train and improve the ability of gathering information, obtaining new knowledge, analyzing question, solving question, coordination. As a result, it is very important for training quality and ability of students in process of experimental teaching.

2 Existing Questions

It has some existing questions in experimental teaching presently, such as,

Firstly, students' learning attitude in the experimental course is not correct, and they attach little importance to it.

Secondly, students are lacking in self-learning ability and the interest of learning, can not learn voluntarily in the case of no supervision.

Thirdly, now the evaluation way in the experimental course is still to judge by the experimental reports, school attendance and test scores. Thus, it is a large proportion of the subjective in experiment sorces, to make students consider that it is very easy to get credit for experiment courses and neglect of experimental course in essence.

Finally, in the experimental teaching process, both as a group experiment at least. In this case, there is substantial risk that a student doing the experiment, but one with the

same group of students only is looking simply and already distracted. So experimental effect is also not satisfactory. Thus, How to make students be aware of the importance of experiments? How to improve the quality of experimental teaching?

3 Solving Methods

The smooth develop of experimental course is based on the students with solid basic knowledge, proficient basic skills. Although college students have some self-learning and understanding ability, but their knowledge structure is incomplete, their capacity structure is inadequate. In experimental course, it is prone to blind obedience, dependence, imitation and poor hands. Therefore, the basic operation of the students must be stricted.

Firstly, necessary preview. Before each experimental course, students must submit preview report to get into the lab. Teachers should encourage, recognize and promote students that write a good report.

Secondly, standardization of basic operations. To strengthen the standardization of experimental operation, to maintain clean and orderly experimental operating table and a series of standardized training and guidance. It is enable students to develop good habits as soon as possible, with a solid basic skills. During the experiment, teachers can guide or question from time to time for training students to hands, brain, mouth and can make students learn how to correctly operate, understand the basic principle of the experiment.

Thirdly, note the quality of lab reports. Report is the reflection in comprehension and scientific quality of the students. So we must emphasis it and require students to record the experimental phenomena realistically, with clear and intuitive form and data. Experiments done, the teachers recognized and signed raw data, then processing the data. The focus of report is analysis of experimental data, and the summary of the experimental thoughts and so on.

Finally, evaluation of multi-scale. Teachers should seize the process of experiment, treat objectively thoughts and reactions of students, and adopt multiple evaluation methods and evaluation criteria.

4 Taking the Specific Measures in EDA

For these problems, in the EDA experimental teaching process, we carry out a number of specific measures and implementation methods.

Firstly, it is arranged 48 hours, fourteen experiments, and each experimental arrangement 3 hours in EDA experimental course curriculum. So we make reasonable arrangements for practical teaching, and strengthen experimental preview works.

For example, in the experiment of adder, we arrange the contents of the two lessons to complete this experiment. The main purpose of the first lesson is familiar with the laboratory equipment, make students use the design software of Quartus II skillfully and master EDA design process. The second lesson is to understand mainly the EDA design thoughts of top-down and bottom-up. In order to ensure course schedule, we would require students to complete the experiment preview. Its content is decorated in

the previous lesson. Before class, using five to six minutes by check, asking questions, the teacher tests prep-content and corrects error ideas in design.

Secondly, experimental teaching methods of contrast, derive, examples, etc.

In adder experiment, the logical expressions to be compared with one-half adder and one-full adder, functions to be compared with one-full adder, many-full adder and common adder to identify the differences and links between them. By one-half adder, one-full adder is derived, by one-full adder, many-full adder and common adder is extended.

When learning in VHDL program in experimental design, we can use examples in teaching method and make students refer to examples to design circuit of few interfaces, simple structure. then, convert a VHDL file into a module component, after that, make use of schematic methods to design complex circuits of more interfaces. This method from the VHDL program to schematic play a transitional role. We can use this method in the design of multi-channel data selector, encoder, decoder.

Then, combinational logic circuits and sequential circuits can be compared on VHDL design methods. if-else statements and case-when statement, for statements and while statements, component statements and generate statements are compared to learn VHDL language programming.

Thirdly, teachers must check the experiment schematic, simulation waveforms, hardware test results, and so on. During checking the experiment, asking questions to team members, observing the experiment operating state for each experimental group members, and questioning more to students for fewer hands-on.

Fourthly, to propose some requirements for writing report, to assign some questions, that are usually the extension of the experiment, and to focus on analysis of experiment report.

Finally, the examination method of EDA experiment course is taken to computing the record of integrate design and the record of experiment preview, reports, operations. Generally the record of integrate design for 20 to 30% of the total score, according to the actual situation, teachers can adjust it within this range.

During the experiment, teachers should encourage students to try to find solutions in different angles. Although program designed for students is imperfect, and with a certain gap between the experimental requirements, but teachers should fully evaluate their positive sentiment and discovery.

5 Conclusion

The mistake minds that experiment course is not important must be corrected for students. But, teachers should focus on experiment course firstly. In this way, students will start to emphasize on it gradually. So, teachers should focus on some points in the experimental teaching. The first point, the effect of experimental preview; the second, the queries and feedback, including the dynamic performance of students in experiment; the third one, experimental data, experimental results and analysis in report; last one, the quality of solving questions after class. Experiment record can be computing extra points for it.

In short, we must arouse the consciousness of students in the teaching process, so that they understand that rely mainly on their own on learning, so that they must know that

the experimental course play an important role in the consolidation of theoretical knowledge, enhancing interest in learning, training experimental skills, and enhancing the ability to apply the knowledge, developing the ability to solve practical problems. To guide, encourage students to develop and improve continuously their own quality in order to achieve the goal that improve the quality of experimental teaching.

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Research on Legal Education of Contemporary College Students

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Abstract. Legal literacy is an important part of overall quality of college students, Legal education is an effective way to foster a good legal quality of college students, enhance their legal awareness and their legal awareness. Concerning for the legal education has important practical significance to the process of “the rule of law”. To face with of the new situations and problems of contemporary college students, we should rethink the existing problems already lying in legal education, such as lag of education concept, rigid content and simple teaching methods to some extent, of course, these problems can hardly adapt to the develop of our society. The emerging of information society and knowledge economy era has proposed new requirement for the foster of college students, so constitutional society requires innovation on subject, object, content, and methods of legal education in colleges and universities. Currently, the universities expanded enrollment, student types increased and the growing diversity of forms of education has put forward new requirements to the legal education in colleges and universities. This article tries to analyze the ways to enhance and improve the effectiveness of legal education relying on the existing problems in the legal education on college students.

Keywords: College students, Legal education, Legal awareness, Legal concept.

1 Introduction

College education is to cultivate a variety of specialized personnel to meet the diverse needs of society. Today's society needs talented people who have all the qualities, and ideological and political quality is the essence and soul of all the qualities. Legal quality is essential to contemporary citizens. The modern society governed by law requires that each member of society should be studying, knowing, understanding and law-abiding. All members should be engaged in the production and living in accordance with law. All activities must be incorporated into the legal track. This requires that every member of society have appropriate legal quality in order to behave strictly according to law. Nowadays, members of community enhance the awareness of law generally is particularly important and urgent regardless of what level and regardless of individual, group, society, nation and nationality. The level of legal quality depends on legal education, especially for college students to improve their legal quality is more urgent. They are the future of our motherland, and their legal quality is of great practical significance for the country's long-term stability, the implement of the rule of law and

building a socialist country under the rule of law. The cultivation of legal quality has become a social and school issue of common concern.

2 The Current Situation of Legal Education on College Students and the Importance of Legal Education

Currently in college, education for all-round development has not been implemented seriously, comprehensively and thoroughly. For instance, in modern society, the law permeates every aspect of life and always regulates citizens' behavior. And only with high legal-quality, people can better adapt to modern life. Legal quality is an important element of ideological and moral qualities. However, in college, legal education in ideological and political education is far from meeting the needs of modern society. First, the concept towards law is old fashioned. People always hold the idea that if only they would not break the law and commit crime, the law has nothing to do with them. Therefore, there has little legal education and the way of it is also sole. Except the course of *Fundamentals of Law*, the lack of other sources and forms of legal education activities always exists. Universities' "activity month" is rich and varied, but there is no "activity month" on legal education; there are a variety of lectures, but lack lectures on law; there are a lot of social practices, but lack the practice of legal education. Second, in terms of the course of *Fundamentals of Law*, teachers confine instructional mode into a traditional way. With simple and backward method, the course has few classes and quite a lot of content. By the way, professors often adopt theoretical interpretation; make too many explanations on points of law; leave few practices to students, resulting in a boring class and students just coping with exams by rote. Many students still have vague cognition in the relationship between rights and obligations, discipline and freedom, and law and morality. They learn about law and have knowledge about it; however, their awareness of following and using law is so poor. What's worse, some university students even break the law and commit crime. For this reason, universities must strengthen and improve legal education.

2.1 Enhancing Legal Education on College Students Is the Requirement for Institutes of Higher Learning to Foster Senior Compound Talents

With the progress of technology and the development of human society, more and more social problems can not be solved merely depending on experts in a field. But a lot of compound talents having comprehensive knowledge are in need. If technicians are ignorant of the law, they can not properly protect their rights and benefits, and yet they can not make better use of current policies and regulations to promote scientific and technological industry. As an important social science, law is increasingly attached importance to by pedagogues and educates in institutes of higher learning. Enhancing legal education on college students is partly because the law has penetrated into the social life and all aspects of people's basic necessities. On the other hand, more and more students regard legal quality as an important index to require themselves. In a questionnaire survey on legal education based on 100 college students, 100% of the students choose "important" and "very important" on the question "Do you think the law is important to learn" and no one selects "not important". When asking them the

reason, 70% think "legal quality is an important aspect of personnel quality in 21st century". Therefore, enhancing legal education on college students is indispensable for institutes of higher learning to foster senior compound talents.

2.2 Enhancing Legal Education on College Students Is the Requirement for the Development and Improvement of Socialist Market Economy

First, the subject in market economy has equal status in law; either party mustn't compel the other to do transaction; no one can work his will upon others. Second, market transactions should be standardized by law. Today's market has been very few trading in the form of barter, the space-time span of the vast majority of market transactions has increased significantly. Contract trading has become the most important form. During the process of striking an agreement, rights, obligations and responsibilities of both parties all need the law to standardize. Moreover, the steps to settle a bargain, the main provisions of the contract, the contract's validity, performance of the contract, breach of contract and other issues should be all in standardization in law. Also, the basic principles that market transactions should follow must have the appropriate laws and regulations to specify, such as principle of equality and voluntariness in both sides, principle of making compensation for equal value, principle of honesty and good faith and principle of fair competition, etc. It will be more feasible in practice. Third, the market order needs the law to adjust and standardize. To achieve most optimum distribution of resources, protection of legitimate competition, safeguarding the legitimate interests of consumers, and protecting the public interests of the market order, there must be a corresponding law against fake and forged commodity, speculation, trade monopoly, power-money deal, regional protectionism, bribery and other phenomena.

Through the above analysis we can conclude that, every aspect of the market economy are closely linked with the law, and the college students that institutes of higher learning have fostered must be in the tide to enter the market economy in the future. Of course, they will be the main part of market economy, engaged in market transactions. Therefore, enhancing legal education on college students is the internal requirement for the development and improvement of socialist market economy. Seventeenth CPC National Congress reports that: "Fully implement the basic principle of ruling the country by law and accelerate the construction of a socialist country ruled by law." College students as the main force in building socialism, the role of legal education is more important than ever.

2.3 Strengthen Legal Education of College Students Are Required to Achieve a Socialist Country Ruled by Law

Congress pointed out: "the people's democracy and legal system construction, expansion of democracy, economy, and social development does not fully match the requirements, and it needs to continue deepening political reform." Democratic legal thinking can not spontaneously generate in the minds, only through education can change people's traditional ideas, establishing a modern democratic legal awareness. So the legal thinking education of college students is one of the important precondition to achieve a socialist country ruled by law. Nowadays, with information overloaded, there

have been many new situations, new problems among college students. In college, we were surprised to find that many students lack a sense of law and legal knowledge, their understanding of virtual world exceed their understanding of the life around. Indifference and ignorance is their reflection of theft, injury to others, and spread bad information, they do not even think this is illegal. As successors of socialism, the legal education of college students will be the necessary conditions to achieve for a socialist country ruled by law.

2.4 Strengthen Legal Education of College Students Is the Need of Socialist Spiritual Civilization

Socialist spiritual civilization construction and the socialist legal system is closely related to. First of all, the socialist legal system is an important content of socialist spiritual civilization, one of spiritual civilization's goal is to enhance the people's ideological and moral, cultural, educational, legal awareness level. In addition, the legal system and to provide a guarantee of spiritual civilization. For that congress pointed out "depth legal education, promoting the rule of law, the formation of conscious use of the study of law abiding social atmosphere. Respect and protect human rights, according to the law to ensure equal participation of all members of society, the right to equal development. Organizations at all levels and all Party members must consciously act within the scope of the law and Constitution, taking the lead in safeguarding the authority of the Constitution and laws. "

2.5 Strengthen Legal Education of the College Students Is the Needs to Expand the Opening-Up and Strengthen International Cooperation in Economic and Culture

With the development of world economic integration, a growing international market is emerging, international economic, trade cooperation and cultural exchanges become more frequent. Congress pointed that" The opening-up is expanding, meanwhile facing increasingly fierce international competition, the developed countries' pressures on economic and technological dominance exist in a long term, so that predictable and unpredictable risks increase. This requires modern management personnel, technical personnel and trade personnel understand international economic law and related state laws, so as to better safeguard their sovereignty and their legitimate economic interests.

3 Measures on Strengthening and Improving Legal Education

3.1 Focus on Characteristics of College Students, Strengthen the Student's Legal Awareness, and Guide Students to Respect Law and Think about Legal Issues

As the masters of the society, we should love life, think positively, have courage to explore, put attention on social development. Legal education must implement legal thought like the "law of the national will", and "the great authority of law" and etc, guiding students into the space of" legal assessment" ,So that students know what is "fair", "fairness" and "justice". Pursuit of fairness, justice, justice is a human ideal, By

guiding students to reflect on life, guided by the moral education of entry, through legal awareness, legal assessment of two aspects, understand the law, study law, both to resist the erosion of bad ideas, but also be able to unite studying law and educating people organic.

3.2 Enhance the Effectiveness of "Legal Basis", Truly Play the Role of the Legal System of Classroom

To learn the "legal basis" class, you need strengthen and improve teaching objectives, content and methods and enhance effectiveness.

3.2.1 From teachers to leadership must be aware of that legal knowledge is but the carrier, foster self-discipline, legal awareness and faith of the students is the purpose of this course. colleges should strengthen the inspection and evaluation of the course.

3.2.2 The teacher should establish further communication with the students, getting to know students' ideological trend and the concerns of the legal issues, so that the teachers can select better depth & breadth of the concept, and lectures will be effectively executed based on the practical needs of the students.

3.2.3 The teacher should organize discussions with identified difficulties, the hot issues and doubtful points among the student, and conduct respective case analysis, legal theory analysis, watching the legal subject matter of teaching practice.

3.2.4 And connect with the rest of the "two courses" course, form mutual penetration, influence each other, promote each other, improve the "two courses" teaching overall effect, so as to promote the improvement of students' all-round development. The "two courses" teaching involves students' ideological education, covering political education, moral education, education and psychological education laws. The legal system education and other education combined, especially with moral education to combination, because "rule of law" and "moral" complement each other, moral education is the foundation, and the legal system construction is the guarantee. Students with a good moral quality can have good habit, can consciously the law. This requires the "two lessons" teachers to preparing for lessons together, study together the teaching material, the study of students' study, teaching methods and means, legal system education will be penetrated in attractive content and links in, stimulate students' interest in study, and make the legal system education content into the brain into your eyes, in order to make students in learning, knowing in the process of developing strong legal consciousness and legal assessment ability, legal regulation their thoughts and behavior, form good habits of the law.

3.3 Build Up Good Legal Education Environment and Atmosphere

The legal awareness among the college students are affected by various factors. Colleges should work together with related authorities to create a peaceful and legal environment for students to live in, and in the meantime internally boost comprehensive education towards legal concept by focusing on the construction of the legal system education, thus students could benefit from the conductive campus environment and atmosphere.

3.3.1 Legal management. Legal management in colleges and universities is the furtherance of implementation, is a college ideological construction and involves democracy and the legal system of the fundamental work. Universities should work with schools, will the actual state laws and regulations into specific school teaching, scientific research and management, service various aspects work rules and regulations, to make the work, systematic work; With the current laws and regulations to clean up the rules and regulations of the conflict, to not perfect part to be perfect, according to the reality to fit the law; Especially the "administering education according to law" and "the student management, reduce the teaching and the legal system" of the student management work illegal sex, capriciousness, to respect, maintain the lawful rights and interests of teachers and students.

3.3.2 Strengthen leadership, construction of the legal education with a expert team. Build the school, and the court of law education institutions at various levels, strengthening the education of the legal system, to the legal system education have leadership, organization, plans and check, make not only the legal system education exemptions, and system and complete. Build a by the basic law courses teachers, other "two lessons" teachers, political work cadre, counselors and other components of the legal system education team, through the communication, research, training and study and discuss constantly improve the quality of the team.

3.3.3 Trace multi-channel, various forms and continuously develop the publicity of legal system education. To increase the legal system, through the blackboard newspaper publicity, exhibition board, shop windows, newspaper board, radio, lectures on the legal system, campus network to strengthen the publicity of legal system, such as form rich campus legal education atmosphere.

3.4 Various Extracurricular Legal System Education Practice Activities

The legal system education practice can exercise students to use legal knowledge, analyzing the actual problem ability, improve the legal consciousness. As for the theme party, legal essay, knowledge competition, the moot court, joining campus policing and other activities; Out of the campus, dropping in on trial, a visit to the prison and labor camp, to the streets and towns in the legal consultation, in "a program under which officials activity" in the legal system education group organization going deep into the countryside, community, enterprise law propaganda, popularize the legal knowledge; Carry out the credit, law-abiding education so as to know the society and serve the society.

3.5 In the Psychological Consultation and Coach, the Effectiveness of the Legal System Education College Students Consolidate

Now, our country society is in transition, people's world outlook, the outlook on life, value concept and thought a sharp change in ethics. After entering university, college students' learning environment, the study way, the interpersonal, self evaluation of great changes have taken place in both. Therefore, the universities to conduct psychological counseling, helping the eliminating bad psychological situation, the greatest degree to prevent and avoid the psychological problems cause offence, to consolidate the effectiveness of the legal education of the college students.

4 Conclusion

As early as in 1980, Deng Xiaoping has explicitly pointed out that, "In midst the party and government organs, units of the army, enterprises, schools and all of the people, we must strengthen discipline education and legal education." In 1986 he more clearly pointed out: "strengthening the legal system is important to for education, the fundamental problem is education." This assertion deeply reveals the legal system education in a country ruled by law the status and function, and indicates the improvement of all citizens of the legal consciousness and legal culture basic way. Today's college students, is tomorrow's socialist modernization, the main force of the must make their legal quality education in an important position, carefully to implement.

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Study on the Difficulties Facing the Tourism Industry during Mianzhu Economic Recovery after the Earthquake

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Abstract. Using method of field trips, studying through the recovery of Mianzhu tourism industry after the earthquake, the results show that many difficulties in Mianzhu rebuilding, such as Start from scratch, superior resources of the low grade of development, lack of brand image, poor facilities, lack of relevant personnel. In order to restore or achieve before the earthquake economy, the Recommendations is that building a tourism brand, remodeling tourism image, outstanding cultural highlights, enhancing tourism quality, perfecting the service system.

Keywords: Mianzhu, economic, after the earthquake.

1 Introduction

Before "5.12" earthquake, Mianzhu relies on the territory of unique natural and cultural resources, tourism has developed and lead into the boom period. Pre-disaster in 2007, output value of output value of tourism was 9 billion in Mianzhu, received 1.86 million domestic tourists trips, 2,140 trips of inbound tourists, tourism foreign exchange income was \$ 670,000. Unprecedented earthquake damage, has not brought great economic losses in Mianzhu tourism industry achieved remarkable results, but also a significant impact on the development of Mianzhu tourism. Battered Mianzhu tourism industry facing a variety of new and old problems and the difficult task of reconstruction will lead the plight of a slump in the short term.

2 New Start from Scratch

Mianzhu earthquake area lies in the Longmen Mountains hillside, which is the city's tourism industry and also the most concentrated areas, where is the main body of the Mianzh tourism industry. In recent years, Mianzhu's traveling along the mountain has become one of the characteristics and advantages on Mianzhu tourism industry. 80% of Mianzhu tourism income comes from the hillside of ecological agriculture, rural tourism economic zone of the "peasant music" catering services.

Hillside area retains some geological wonders, such as sea fossils of the Jurassic era, there are many cultural resources, such as folklore, religious buildings, there are very unique pictures of Mianzhu corridor, which constitute all existing tourism elements. Before the earthquake, along the mountain area of rural tourism has begun to take shape. In order to attract a large number of private capital and inject great vitality in rural tourism, local government build length of 60 kilometers tourist road, running through seven towns and villages and other facilities. Therefore, the surrounding city and county share of tourists increase yearly. Scenic hillside area become well-known on the Mianzhu improvement, tourism development was booming, what not only promote the development of county economy, but also achieve a harmonious country, directly contribute to the development of the tourism industry throughout the Mianzhu.

After the earthquake, along the mountain area of infrastructure, farm buildings and place of operation were destroyed. Most of along the mountain building and infrastructure has become a "piece of white paper," has a heavy blow to tourism, destroys the effectiveness of regional demonstration, so as to make the Mianzhu tourism industry fell in low as a whole.

2.1 The Development of Advantageous Resources of Low-Level

Mianzhu tourism resources have many quantity, type of complete, space density, among which are in the quality of tourism resources. Scenic spots have been developed, such as the whole scattered, small scale, not enough development among strength, depth and width. Firstly, the development of tourism products and tour project are lack, features are not prominent, the theme is not clear enough, so that there is no scale. Secondly, the overall coordination of spatial layout is not strong, the lack of quality characteristics of the leading scenic, did not form the scenic attractions between unified coordination and interaction, lack of the co-linkage and the overall economies of scale. Thirdly, the scenic spots have different investment and stakeholders, lack of competitive Groups', developers' and operators' overall capital involvement in the overall development.

The Mianzhu tourism enterprises have four travel agencies and shops 2, which are the domestic community, the main business for the source of tourists output. They lack business in source of tourists input place, also lack cooperation development and operation associated with leading travel agencies, tourist attractions companies in the outside world. Kinds of Accommodation reception place are not less, but lack quality. Due to the impact of regional conditions, reception place services are not yet formed, few visitors spend the night outside, occupancy rate of reception is lower. In addition, tour commodity producers is less, tourism product development is not enough, the tourism potential of high value-added mining products is not enough.

At present the development of Mianzhu tourism resources stand in the initial stage, resources have not translated into effective products, but did not form related industrial chain, integration of resources need to be further excavated. The resources translate into products and economic advantage, which are the important work for a very long time at current and in the future.

2.2 The Lack of Brand Image and the Lack of Core Competence

Mianzhu economic prosperity and beautiful environment are known as "Seventy-fairyland". With the vigorous development of tourism industry, Mianzhu is also known as the "wine town, pictures of the village, eco-tourism village" in the world.

Unfortunately, Mianzhu has so rich and good taste of the natural landscape, does not form enough visibility and reputation in the outside world, almost stand in a "no knowledge kept in purdah" the situation. Tourists coming to visit now mainly confine to local and provincial, as for the domestic and international markets, the share is very limited. Because Mianzhu tourism promotion is not in place, cultural exchange activities is less, media propaganda is ineffective, the impact is too narrow, does not form an effective promotional planning support, more importantly, Mianzhu tourism brand image is not strong, the introduction of a single product, the lack of attractiveness and core competitiveness.

So how to strengthen and expand the brand and the formation of fine, how to improve service quality, strengthen the marketing of tourism, enhance Mianzhu tourists and overseas visitors in popularity, and gradually increase in the province and overseas transit passengers as well as some specific destinations (such as remains the destination of earthquake as education tourism, etc.) passengers market penetration, create a distinctive regional tourist city, which is an important issue facing the Mianzhu tourism industry.

2.3 Foundation and the Vulnerable Services, Facilities

Mianzhu is located in the edge of Chengdu Plain, the well-developed domestic transport, road aspect, 30.4 km road per hundred square kilometer, 2 times higher than province, 2.9 times more than country, so as to achieve every village access roads, townships access cement road, road network covering the city and towns, but the regional conditions at a disadvantage, the lack of main roads, away from the traffic circle, the northern gate of Mianmao road is not open. The remote location, traffic artery lag, largely restricted Mianzhu tourism industry development.

All roads leading to several major scenic are need to improve, which include the mountain roads leading to Cloud Lake Forest Park, along the mountain resort of ecological agriculture tourism in tourist areas, along the mountain road and around the roads within the area. Direct access to scenic attractions of the operating line is still quite weak, regularly-scheduled tour vehicle is not running, the formation of adequate bearing capacity. Most tourists come from the short-distance traveling by car who did not cultivate a wider range from the ordinary tourists, overseas visitors market.

Telecommunications, electricity, water supply and drainage system, there are still some deficiencies. The city has only a three-star hotels, accommodation facilities have a certain level, but the service capacity of the distribution is not balanced, there is insufficient supply during the peak season when the availability of surplus off-season conflicts. Sewage, solid waste, tourism toilets and other public facilities need to be further standardized and environmental protection. In the light of orientation and consumer preferences from the elements of tourists, there are very different in choosing the landscape, road transport, catering accommodation and requirements of reception

facilities between visitors outside the province and overseas visitors. So, characteristics of the target need to be provided with service implementation.

2.4 The Lack of Talents of High Quality in Supporting the Development of Tourism Industry

Mianzhu location disadvantage and the existing personnel system are difficult to attractive the high level of professional management personnel and high-quality tourism service personnel in objective, and thus has been the lack of high-level technical expertise and managerial personnel, the lack of talent with a sense of innovation team. Existing staff have some questions that understanding of development of tourism industry is not enough, understanding of resources is not insufficient, development of ideas is in lack of creativity, development and utilization of mountain resources is not high. Meanwhile, the Mianzhu companies of tourism development have some questions that few quantity, small scale, in sufficient independent innovation, weak competition, tourism product, line, service and etc.

The reason is that first of all, Mianzhu City tourism management functions of the government agencies, their functions responsibilities, management not meet requirements of the rapid development of the tourism industry. secondly, Mianzhu tourism market operation to be further deepened, the flow of talent to be improved, the mind to be further emancipated, the more conservative style of thought to be broken, a wide range of measures on implementation of recruiting specialists from home and abroad to be attracted and the specialized personnel to be matched, improve the regional innovation system to be improved.

2.5 The Low Status of Tourism Industry

Mianzhu economic total output increase rapidly, healthy and continuously in the past decade. The city's overall economic strength arrange among the 10 county in Sichuan province for 10 consecutive years and Mianzhu show a strong advantage in the western region. Before the earthquake, Mianzhu's food, machinery and phosphorus chemical industry are mainstay industry, and tourism is only supplementary.

In recent years, with the market-driven and consumer attitudes change, Mianzhu tourism development increase steadily and rapidly, the tourism industry has achieved some success. Generally speaking, the tourism industry structure is in the low proportion, its development status correspond with the city's rich tourist resources, but does match. The reason are that, firstly, market pull is not strong, in the lack of market demand, low return on investment, Secondly, the driving force of industrial policy is not enough, the tourism industry is in the absence of industrial policy, tax incentives, and labor and employment policy, the development of consciousness is improved.

Tourism industry as an emerging industrial sectors can play important influence on in driving local economic growth, promote employment, improve the service structure and improve the level of manufacturing technology. I light of Mianzhu rich tourism resource, the Mianzhu tourism industry will establish a new economic growth point, put forward industrial restructuring and economic growth pattern.

3 Conclusion

Although the earthquake has made the Mianzhu tourism industry suffer serious damage, but the reconstruction of Mianzhu tourism has brought new opportunity for new development. In order to restore the economy before the earthquake, we must build a tourism brand, rebuild tourism image; outstand cultural highlights, enhance tourism quality and improve the service system.

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Distance Teaching in Optical Design

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Abstract. Optical engineering is an important part of modern technology and optical design is necessary step to create any optical device. Professors of National Research University of Information Technologies, Mechanics and Optics obtain big experience in teaching optical design. Because of growing international links between different universities the distance education becomes an important part of all educational process. Teaching optics is one of our important projects. The idea is to create a system of distance teaching in optical design. This gives an opportunity to get students (and teachers) all around the world. To optimize the process of distance education in optical design we created special system of classification of optical devices. The system is built on the optical experts' knowledge and database created by software engineers. The current publication is devoted to research and organizing distance teaching in optical design.

Keywords: distance teaching, optical design, classification, optical elements, software open source, internet.

1 Introduction in Distance Education

Within a context of rapid technological change and shifting market conditions, the Russian education system is challenged with providing increased educational opportunities without increased budgets. Huge amount of money is needed to establish the basic infrastructure on campus teaching. In this circumstance, many educational institutions are answering this challenge by developing distance teaching systems. At its most basic level, distance education takes place when a teacher and students' are separated by physical distance, and technology is used to bridge the instructional gap. These types of programs (i.e. webinars, voice chats, print, video and etc.) can provide adults with a chance receive university education, reach those disadvantaged by limited time, distance or physical disability, and update the knowledge base of students, provide experience exchange between educational staff at different universities.

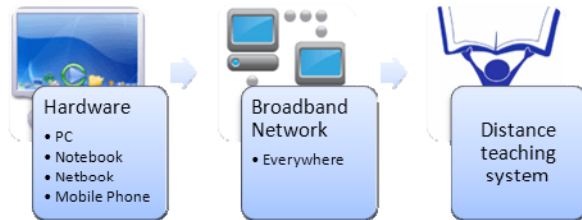
The growth of technology and software for distance learning has opened many options for teaching from home or office or other remote locations In convenient time. But few questions are still remaining: can the educators disseminate knowledge to the learners directly through the new method of education system and how to check up the learners storing of new information?

2 Objectives

It is necessary to consider that remote Distance Education won't involve students if say Distance Education. Our university aims to build a unique method for distance learning which combines in equal part the newest information technology, the modern software, the qualified teaching personnel and support personnel. The combination of these methods should involve more quantity of the trained because of actuality of material, teachers, competent system of feedback and constantly updated system of courses (according to modern training requirements).

3 Possibility for Distance Teaching

Computer technologies is used everywhere and is the integral element on work, at home and at universities. In first of all the distance teaching become possible thanking to global computerization and second to broadband networks.



Now middle-end computers are able to work with a big flow of various media content, and receive a lot of information from a global network Internet. At present it is observed that the number of channels of broadband access, speed connection and quantity connected to a network the Internet are increasing. That means that at this time and in future the number of students will also increase!

There are a lot of hardware possibilities to connect the distance teaching system over Internet network:

- **PC**
Using PC with typeface student can take a part at all types of conference
- **Notebook**
Notebook with typeface provide the same functionality as the PC
- **Netbook**
Netbook is not such productive. It can be used at conference with number of persons lower than 8
- **Mobile phone**
Mobile phone is very useful to download and read lectures, read e-mail and etc.

Broadband network called Internet delete the distance between teacher and student, gives a chance to connect a distance teaching system remote from any point on our planet using a mobile computer, home or work PC or even mobile phone.

Computer technology and broadband network gives us a possibility to access to the system of distance teaching and this system has to satisfy several conditions:

1. Availability
2. Functionality
3. Attraction

Any distance teaching system must satisfy these three conditions and can have more features: included in these three conditions or different.

3.1 Availability

Distance teaching is positioned as the main system that can provide teaching all over the world, at any time for recorded content or lectures, and specially marked time for web conference, audio lectures and etc. In any time student must have access to the content with lectures, practical exercises and special remote programs to make practical exercise.

According to the written the main connector to the distance teaching system is Broadband Network. The first of all students has Internet at work, home or elsewhere and distance teaching system must provide access to the information. It could be reached by special programs and hardware.

Proper realization of availability makes distance teaching system more attractive for former, current and future students.

3.2 Functionality

Searching over Internet there are a lot of systems for distance teaching open source or commercial version. Each of them has own functionality, realization, supporting OS(operational system – typically based on Windows or Unix platform) and it's very hard to find the system that can provide the necessary level of functionality according to the requirements for long term distance teaching systems. Distance teaching system can be expanded by adding special modules that can provide more functionality to the system and must be compatible with the system. Functionality is divided into two parts – internal and external system functionality.

Adding news to the distance teaching site, new lectures or courses with new material are just the visible part for student of internal functionality.

External functionality helps to extend system by adding and including special software services from remote servers. For the example integration with mail servers, social networks, server for video and audio conferences and etc.

3.3 Attraction

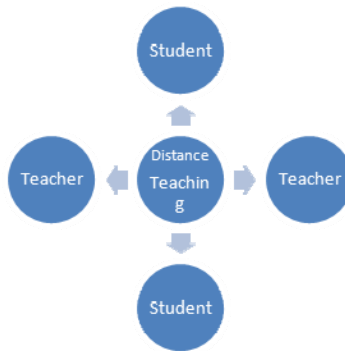
Attraction is based on functionality and content material. Now the current teaching system at universities cannot offer various types of content and is not so universal. This teaching system offer just standard material, at the appointed time and if you miss lecture you have troubles to get the material.

Distance teaching catalogue help student to choose what kind of information he want to learn, who will teach him and choose time for distance education. Also after

the distance lectures student can get the necessary information on the site from anywhere.

4 Feedbacks

Distance teaching has a lot of pluses but there is one big problem – feedback. During the education period teacher has to check the students' progress. Many educators ask if distant students learn as much as students receiving traditional face-to-face instruction. Research comparing distance education to traditional face-to-face instruction indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to-student feedback. With the help of distance teaching system functionality feedback helps to communicate each other students and teachers.



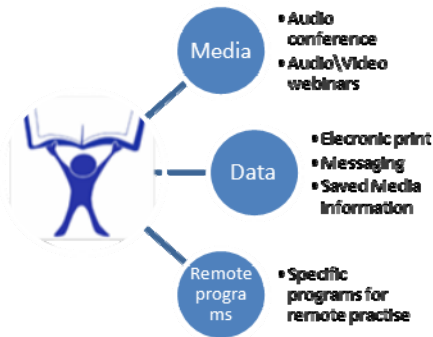
This could be done with help of homework, online tests, practical exercises and teacher-to-student audio\video conference. In case of teacher time lack it very useful to communicate not only with teacher but also with other students to solve problems with the practical exercises, misunderstanding to taught material or something else.

Feedback can be used to receive another teacher's opinion and to use this information to make the material better.

5 Communications

A wide range of technological options are available to the distance teaching and to make teaching process easily and add more functionality, beside the functions of the distance system, there are indirect servers with specific server side programs – mail, video\audio conference system, data servers.

Distance teaching system and communication in that system during a studying period is the result of integration various services, modules, technical solutions in one and all of them can be divided in the main big groups: Media, Data, Remote applications (Used for practical training and result checking to improve education program).



5.1 Media

Media is the main part at education process because it one let to use speaker-to-speaker technology over video or voice communication. It is very important to use video, voice and combined video-voice during the education period. Modern computer technologies allow reducing costs of training, to improve quality of material and to make a material accessible of any point of the world. Using media technology all students receive maximum information in interactive form during the webinars or audio conference. At any time student can ask what he don't understand or teacher can tell what is not correct in students test, homework or practical exercises. For the education period students will use various methods of media technology – at one day audio conference, at another day webinar.

All lectures are saved at video format and accessible to studies during the education period on-line. So if student forgot something he can watch lectures once more and if the question is still exist he can call the teacher for audio\video conference.

5.2 Data

A lot of information from books, technical magazines, and electronic documents are holed at electronic type. Electronic libraries can be accessed over internet and using internet content search machine. In the distance teaching system all students automatically receive access to the internal database with the information according to chosen courses. So the student has all the material which will be used during the studying period. The practical works and the lectures are also holed on the server.

But there are a lot of possibilities that helps to communicate and make data exchange at distance teaching system. They could be deviled into text messaging communication and saved audio\video conference. The most popular text messaging is e-mail but this is not the fastest way to communicate. E-mail is used to notify something to teacher or student, to talk each other person-to-person or one-with-many and is good to hold and save up the information. Students and teachers can send private messages using the internal functionality of the distance teaching system. There are a lot of other ways to exchange text messages besides the integrated modules extending functionality – ICQ, IRC, Skype and etc.

Other way to use data information is downloading or watching online video or voice saved conference and lectures. It is possible better way to remember the given information. If the internet connection is slow student can watch the lecture online and if the connection is strong he can download it and watch offline from own computer.

5.3 Remote Application

Distance teaching program cannot be high-graded without practical exercises and practical home works during the education period especially if the chosen lectures are hard learning. To remember a lot of information after lectures the best way is to make practical exercise and this is the best way for teachers to mark how material is learning and to see where mistakes are often meet.

Current distance teaching system is oriented on training optical sphere and there are not as much programs for remote use. The negotiations are carried on to make current programs for optical calculation optimized for current system.

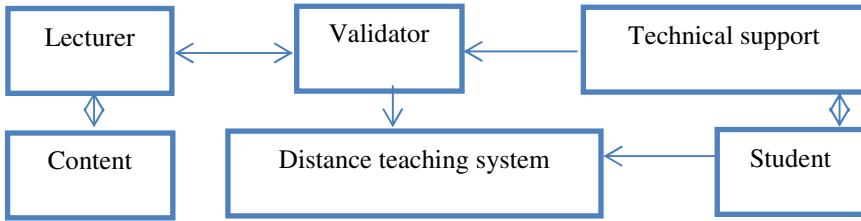
6 Persons and Workflow

A lot of persons take part during the education period and all of them take various places at education system. From the beginning there are lecturers and students but the system cannot work without the technical specialists and a team that check the studying material.

The most important link is the material content and the teaching method. Professors of our university take the active part in preparation of courses, materials, conducting webinars, tests and practical exercises. Being based on long-term experience lecturers has a big knowledge base, a lot of lectures and studying materials. This material and the way of education are useful at face-to-face education and need to be adapted for distance teaching. To start education of students using distance teaching system the lecturer has a lot to do:

1. Choose the theme of lectures
2. Collect material
3. Create electronic documents
4. Create practice exercises
5. Schedule the training

Next stage is checking material and its content for the system of distance teaching. On this stage work special team of validators who check all inbound information and send the lecture back if it's needed the correction. After the course of lectures passed the information may need to be updated and validators check the actuality of lecture information according to the new requirements, new technical resources and feedback information. After check the lecturer receive a notification about the status of the lecture course.

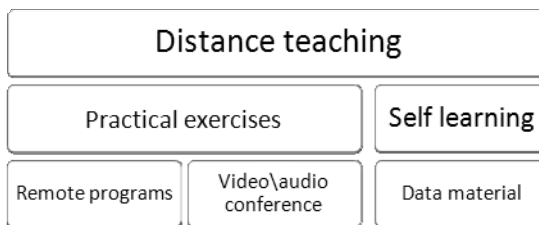


To start the education students have to send the request to take part in certain lectures, carry out dates and wait until the lectures start. That is not necessary but is useful to send feed back to the technical specialist who will help to solve technical problems and will make the system more clear.

Technical personal is responsible for serviceability of the whole system with all modules and indirect services. Maximum automation of internal processes, creation new users or lectures and creating backup will help to make the support cheap and minimize number of support request during the education. To resolve a lot of request technical support must create a simple HowTo's or make a FAQ where students and lectures could find answers on questions.

7 Distance Teaching and Optics

Optics is an important direction of development of a science. It is a big work to prepare courses of lectures and to implement special calculating and modeling optics system at distance teaching. Professors of National Research University of Information Technologies, Mechanics and Optics obtain big experience in teaching optical design and ready to take part in building the distance teaching system that is suitable for usage in optics system. Consolidation of well-qualified technical specialist and professors with big experience will make the system more effective at optics sphere, with actual information and completely filled content.



To teach optics is hard not only for the lecturer but for students too. Lecturer can't give the whole information during the webinar (mixed audio and video conference) and students have to read additional information in a free time and use the new information not only to make homework but to make a practical training independently.

It all will be possible if the listed conditions of implementing distance teaching system will be executed.

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A Comprehensive Examination Mode for Chemistry Course in University

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Abstract. The limitations of traditional examination modes to inspire active learning indicates the need for more a reasonable or comprehensive examination form in higher education. This article analyzes the advantages and disadvantages of the traditional examination method; while at the same time, providing a brief look at some of the other forms of assessment. A comprehensive examination mode is established to assess the teaching and learning outcomes in a Analytical Chemistry course. It provides a combination of varieties of exam methods. This more comprehensive mode focuses more on the concept of “student centered” learning, and serves the teaching purpose better.

Keywords: examination method, a comprehensive examination mode, student centered examination, chemistry.

1 Introduction

Examinations play a vital role in education. These scores weigh more heavily for undergraduates because the scores are considered not only for criteria of good learning, but also decide the ascription of all kinds of honors or opportunities. Therefore examinations are evaluated seriously by the students and the teachers, meanwhile, high scores are the very goals the students struggling for. Examinations are decisive not only for the students, but also for the universities, the industries, and the whole society to select “excellent candidates”. Almost every Chinese adult grows up taking hundreds of examinations, especially for those whose received higher

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education. The university Admission Examination is very impressive and powerful enough to affect one's entire life. The Admission Examination is considered a only way to brighten the future of every candidate and every family, and more than ten years of study is directed towards the University Admission Examination. Higher score acquired in the Admission Examination confers the right to choose a better university to continue their education. An individuals score is assumed to which indicate better teachers, better facilities, better environment, and more opportunities, more social recognition. By contrast, a low score infers that one might have lost all his right to choose, but wait to be chosen or lose completely the right to be accepted into higher education. Therefore, this examination is considered as the master card of the teachers and the forever pain of the students.

However, in many ways it can not be fair to decide one's entire fate through examinations, especially through a traditional unseen time-constraint written exam. However, assessment is indispensable and efficient for selecting universities candidates. For a student, if he can not even do well with an examination, how can we expect he will be good at something else? Therefore, examinations will be an important assessing strategy at present and the near future, and our purpose is not to criticize the examination process, but rather to make it more valid, more reliable and diverse to ensure relatively fair outcomes.

The paper here will analyze the advantages of the traditional examination, and the characteristics of the others form of assessment. More over, a practice on a comprehensive examination mode is introduced in an Analytical Chemistry course. From this work it can be concluded that the a more 'comprehensive examination form' can serve the teaching goal better because it inspires the student's learning, and is more adaptive to the diversity of the students.

2 Advantages and Disadvantages of Traditional Examination

It is widely accepted that examinations are indispensable at present in China and across the whole world. However there are advantages and disadvantages for every mode of examination [1], and this is true for the traditional one.

2.1 Advantages of Traditional Examination

The advantages of traditional examination are obvious. First of all, it is the most time-efficient and cost-effective method; Secondly, it is seen as the most objective form of evaluation; and thirdly, its good reliability has been verified over the years; Moreover, the traditional examination module provides fewer concerns with plagiarism or cheating. .

The advantages and lack of equivalent ways for assessment make the traditional examination method widely used till now, and will last for even longer time; however, the disadvantages are not negligible.

2.2 Disadvantages of Traditional Examination

Some of the principle disadvantages of traditional examination methods are summarized below.

Firstly, exams don't inspire students learning. To gain high marks in exams, some students resort not to endeavors, but to tricks or cheating; some will rush to memorize information closely related to exam, and will forget this completely after the exam has passed.

Secondly, exams are not a good way of alerting students to active learning. Exams are somewhat like the terminations of units, it might be a little too late to realize that further endeavors are needed.

Thirdly, there are many important qualities which are not tested well by traditional time-constrained, unseen written exams. One may be good at presentation, or practical skills, or essay writing, however, the traditional exam method offers less space for them to perform well using their strong points.

No matter how, traditional examination methods have been the dominating mode of assessment for a long period of time, and no other single exam form can be an efficient alternative for assessment. However, some of the other exam forms can act as complementary, which means to carry forward the strong points of the traditional exam and those of the compensate forms.

3 An Introduction into Methods of Examination

There are some other examination methods, each has its advantages and disadvantages as we all know. Some of the examination methods [2] other than the traditional one are exemplified as follows:

3.1 Open Book/ Notes Exams

In many ways, these resemble the traditional exams, but with the major difference that the students are allowed to take with them sources of reference materials that they can refer to during the exam.

The main advantages of open book/notes exam exist in that it lays less pressure on memories, but will contribute to the development of refining skills. Students are encouraged to read through the references several times, and then come out with the major concerns on a given problems or an assumed problem beforehand. It can be seen that the students works as hard as the unseen written exam, but they are relief of the pressure of too much memories and no need for cheating under this circumstance.

The flexibility and friendly mode make open book/ notes exams a broadly welcomed one by the students.

3.2 Essays, Reports and/ or Presentations

In some subject, assessment is dominated by essay-writing, report and/ or presentation. For this exam method, the students are granted with more freedom to express in their individual ways, and it requires deep learning because a serial of complicate works are around an essay-writing.

A more efficient way to achieve the most from essay-writing is to write essay first, and then evolve it into a report or presentation.

This method might be the most demanding one as we can see that: First of all, the students will have to learn to use internet searching for some helpful materials; there

after, read through and select materials carefully, and decide which meets the requirement of the given topic; then, the main contents of related materials are developed according to a logic train, and thereafter, condense all the information to support the argument of the essay.

When preparing presentation, the students will be asked to develop their essays into a lecture mode, using explicit language and multi media measures to make the presentation more attractive, more interesting to the audience. However, the strategies to insure the quality of essay-writing and presentation giving are beyond the concern of this paper.

3.3 Practical Work

Practical work is a requisite part for disciplines as Chemistry, Physics and clinical medicine, it is often more difficult than written exams. Practical skills are not required for course learning, but also stressed on for employee selection. In Analytical Chemistry unit, both the quantity of a product and the quality of the measuring process, practical skills are required strictly. In employee selection, the employer sometime will emphasize on how well the practical ability of the students instead of how good their marks are in written exams.

More over, learning by doing will help to keep the information in mind for a relative longer time, and also bring confidence to some practical challenges in job.

4 A Comprehensive Examination Mode Adapt in Chemistry Course

Different exam module has different features, and a carefully combine of these exam methods might helps with the validity, reliability of the exam. A frame of the comprehensive examination mode adapt in the assessment of the Analytical Chemistry course is shown in figure 1.

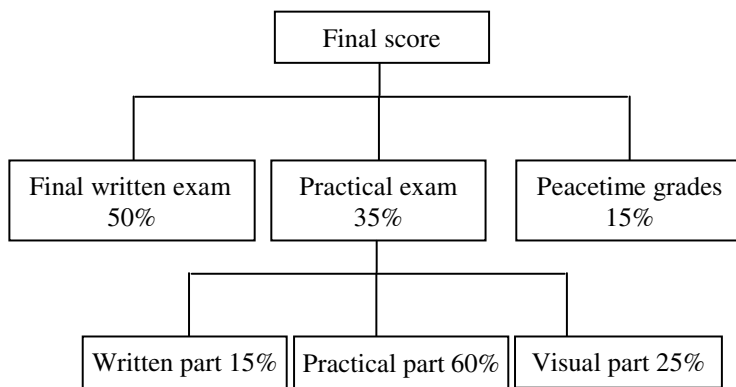


Fig. 1. The frame of a comprehensive examination method for Analytical Chemistry

It can be seen from fig. 1 that the final score is composed of three parts, which is the written part, the practical part and the visual part, and each part weights differently.

4.1 Written Exam

The written part is some what resembles of the traditional written exam with some modifications to enable students to demonstrate their fuller capability. For Analytical Chemistry assessment in the final script, a case design or a problem oriented part is carefully added. In this part, the students are expected to combine creativity and the knowledge they acquire during the theoretical sessions, which means not only sufficient theoretical knowledge is needed, but the capability to logical programming, present background knowledge logically and accurately, and make the case design theoretically and practically feasible [3].

We may have the quantitative measure of acetate acid in vinegar as an example in case design part. From the nature of the acetate acid, we might think promptly that if the acetate acid can be quantitative determined by acid-base titration? If possible, then, can the amount of acetate acid be determinate through direct titration or back titration or through indirect titration? It is well known that acetate acid is volatile, which inevitable will bring in systematic error. To avoid this problem, back titration through acid base reaction is oriented. Where after, the reaction processes are decided, by which an excess amount of standard sodium hydroxide solution is added to react with acetate acid first, and then a second standard- hydro chloride solution is used to decide the amount of excess sodium hydroxide. The react equations are as follows:



According to the chemical reactions of (1) and (2), the product which might impact the pH value of the system is acetate anion, which is a base according to the definition of Bronsted concept, therefore, phenolphthalein, an indicator which will change it color at alkaline condition of about pH=8.0~10.0 is suitable for tell the equilibrium point in this case.

And the stoichiometries are clear according to the reaction equations; hence, the amount of acetate acid can be calculated by equation as follow:

$$\begin{aligned} n(\text{HAc}) &= n(\text{NaOH}) - n(\text{HCl}) \\ &= c(\text{NaOH}) \cdot V(\text{NaOH}) - c(\text{HCl}) \cdot V(\text{HCl}) \end{aligned}$$

Following these steps, the case can be designed logically. It can be concluded that the case design part is practical related, while simple theories or memorized knowledge is far from enough to solve this kind of problems.

4.2 Practical Exam

No matter what mode is applied as a proper assessment method, new elements to make the results more valid, fair and accurate should be included. To strengthen the

practical skills of the students, practical exams are designed and are improved through years' practical experiences.

The practical exam is composed of three parts. The first is written part which is assigned a relative small percentage of weight; the second part is the visual part, in this part the student will be asked to watch video for several minutes; whereas the third part is the practical skill demonstration, which is the dominating part. This design is to serve the purpose of comprehensively evaluating the teaching and learning outcomes, as well as to exclude any disadvantageous impacts such as cheating, unfairness, nervousness and unwanted disturbances from the other students.

Normally, the interviewee is asked to go to the experiment demonstrating room and face to the examiner alone. A selection from the examination database brings out all his/ her missions. It is advised to start from the written part, during this 5 minutes, answer to a question concerning the practical knowledge will be given, meanwhile, the candidate will feel a bit relax when concentrate on writing; After that, a five minutes' video of practical skills will be played, the interviewee is required to point out any unreasonable operating within it; The critical part is the practical skill demonstration, the interviewee is required to finish one experiment concerned measurement in five minutes, no unreasonable operations as well as no excess time is permitted, or according to the mark distribution, a corresponding percentage of mark will be deducted. The difficulties increase step by step, leaving the students time to adjust to the atmosphere of the practical exams.

The practical part is extremely successful because the theories and the processes can be kept fresh for years. Analytical Chemistry is taught to the first year students; however, when being interviewed at the fourth year in a postgraduate student interview, almost all the knowledge and skills are still there.

4.3 Peacetime Grades

For reluctant learners, they take no endeavors to leaning during non-examination time; to pass the exam, and then they will rush to memorize some useful concepts or information to cope with the final exams. However, this temporary information stored will soon be cleared out of their mind by knowledge of the next exam. This kind of strategic learning is definitely contrary to our real intentions of education. Therefore, proper strategies are needed to encourage their learning.

The score of peacetime grade is divided into three parts as well. Firstly, the attendance. It is believed that, when the students are in the classroom, it is unavoidable for them to pick up information occasionally, which will be much better than sleeping in dorm or playing computer games in internet bars. Also the coordinators will know that the students are safely around. Secondly, efficient communication. Any efficient communication will contribute directly to the peacetime grades, no matter it is a good questioning or a correct answer to a question, or a temporary presentation or an impressive internet debates in the course blackboard. Finally, homework. When homework is handed in and thought to be done well, this part of score will be granted directly.

Of course, there are some punitive measures at the peacetime. The policies are: firstly, for one third times of absence, no right for final exam as well as the practical exam is available; secondly, for extreme poor performance such as disturbing

teaching and learning in the classroom or lab, after times of warning, the offender will be deprived of peace time grades. Actually, the punitive measures are just provided against accident.

More weighing is added to efficient communication part, which servers as inspiring active learning. The participation of the students in the teaching and learning activities increases steadily under this circumstance.

5 Conclusion

Some underlying limitations of traditional examination methods have been explored and an appeal outlined for a merging of the traditional methods with some other examination modes. A comprehensive exam method has been built for Analytical Chemistry course assessment creates a more reliable, more valid, more diverse way to evaluate the teaching outcomes. Students are motivated to learn more actively in the classrooms as well as in the experiment lab. This method inspires deep learning, thus the information can be kept in mind for longer time.

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The Research on Out-of-Class Autonomous English Learning in Computer-and Network-Assisted Environment

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Abstract. In order to make English learning more interesting, more individualized, more flexible, more varied, more independent and freer of the limitation by time and space; the following suggestions are proposed for teachers and students. First, we should raise students' awareness of their out-of-class autonomous English learning through cooperative assessment of learning. Second, teachers must cultivate an awareness of students' positive attitude towards and strong interest in autonomous learning and the application of computer and network in it. Third, teachers should be provided with support for overcoming disadvantages of computer and network use.

Keywords: English learning, out-of-class, network assisted.

1 Introduction

In current human learning research, there is a strong concern on how cognition is related to social processes. From a variety of theoretical perspectives, it is claimed that learning improves when it is carried out as a constructivist and social activity. Cooperative learning has been defined as the acquisition by individuals of knowledge, skills or attitudes through group interaction. Interaction and communication between group members not only helps to develop the reconstruction of individual's understanding but it also provides some practice in important interpersonal reasoning skills. Thus, cooperative learning would play an active and important role in language teaching (Hu Zhuanglin, 2004).

Cooperative learning (or collaborative learning) (CL) in education originated in Britain and was later widely advocated in America and other European countries. In cooperative learning, students generally work together in face-to-face groups. They spend large amounts of time engaging in discussion and assisting one another in understanding. "This type of peer interaction increases opportunities for meaningful communication about academic content in low-anxiety contexts (Jacob, 1996)". Nowadays, Cooperative peer learning environments have received increasing attention in classrooms due to the potential for improving learning and achievement. Prior research on small-group collaboration identifies several behaviors that significantly predict student learning, such as exchanging explanations and applying help received.

In fact, what deserves our attention is that, in China, only 47% of high school students have the opportunity of entering normal universities. But the number of college students only accounts for 6% of the peers. The statistics shows that many young students fail to be enrolled by normal universities. Then normal universities, making use of their own teaching resources, set up colleges attached to them with the support of the society. Such kind of teaching model will definitely become an important way to cultivate students. Zhang Yongchuan, a famous scholar and the president of a college attached to a key university, stated. Furthermore, it is true that with the opening up of more such colleges, more and more students are enrolled by them. But unfortunately, nobody has done any research concerning these students (Zhang Jing & Chen Yuhong, 2005). It is generally agreed that the English proficiency of this type of students is comparatively low. In order to improve students' English level more efficiently, appropriate English teaching method should be figured out. Thus, in addition to attaching importance to appropriate interactions between students and materials (i.e., textbooks, curriculum programs) and some time is spent on how teachers should interact with students, how students should interact with one another, especially in their out-of-class time should also be emphasized.

It can't be ignored that recent years have especially witnessed computer-assisted language learning (CALL) popularly applied in college EFL(English as a Foreign language) teaching and learning around China. It has been argued that when used appropriately, new technology, in particular computer networks, have the potential to increase learner autonomy. In response to this potential as well as the requirements of the National Ministry of Education, many universities and colleges have invested heavily in IT to provide teachers and students with facilities that can make the learning and teaching of English more self-directed, more varied, more interesting and more effective. A conductive language learning environment, which is computer-and network-assisted, has thus been established among these universities and colleges. In such a computer-and network-assisted environment for English teaching and learning at large, it is particularly meaningful and necessary to research into the actual use and applications of high technologies by college learner in their in-class and out-of-class cooperative learning.

The feasibility of in-class and out-of-class cooperative learning in a computer-and network-assisted environment has been probed by a teaching experiment among non-English majors in the second-level colleges. The experiment is significant in the following aspects. Firstly, it is suitable for the teaching conditions of second-level colleges, that is, students' scores in the national college entrance examination are lower than those who are studying in the key colleges and universities, thus, most students are less autonomous than those in top-level colleges and universities. As a result, how to cultivate their autonomous learning ability in second-level colleges becomes a hot topic. Secondly, it can help teachers in such colleges cultivate students' autonomous awareness, which improve their teaching qualities eventually.

2 Cultivating Students' Autonomous Awareness Based on Their Course Network

Many students get confused when they are required simply to do cooperative learning, therefore, a set of comprehensive and systematic guidance are set to help them adjust

Table 1. The basic information about teaching (The first to the third week is taken an example)

| Contents | Explanation | Remarks |
|-----------------------|---|---|
| Teaching time | The first week to the third week | two lessons every week |
| Teaching materials | New horizon college English 3 | two lessons every week |
| Students' information | Students from the advanced class whose average score was 75 in grading test | General requirements for English learning |

Table 2. The teaching design and aims in class for Unit 1

| Time | Teaching design | Teaching aims |
|-----------------|---|---|
| The first week | <ol style="list-style-type: none"> 1.Classroom teaching: : Lead-in 2.Out-of-class cooperative learning: referring to words and expressions related to the theme 3.Network reading: how to be an a student 4.Assignment: to write a composition on “About My English Study” and to submit it to the forum 5.Teachers upload the focus words and phrases | <ol style="list-style-type: none"> 1.to enable students understand the purpose of English teaching reform. 2.to cultivate students' network autonomous learning awareness |
| The second week | <ol style="list-style-type: none"> 1. Classroom teaching: group discussion on the contents on the forum. 2. Inspecting the results of network preparation of the text and discussing “personal relationship” 3. After-class assignment: to write a composition on “my college life’ and to submit it on the forum | <ol style="list-style-type: none"> 1.to cultivate students' awareness of standard network writing. 2.to conduct intensive reading teaching. 3.to help students enlarge their vocabulary. 4. to cultivate students awareness of cooperative learning. |
| The third week | <ol style="list-style-type: none"> 1. Classroom teaching: making a conclusion of the focuses of this unit, putting forward the theme of preparation of next unit and discussing. 2. Uploading the result of discussion on the forum. 3. After-class assignment: to write a composition on “on friendship”. | <ol style="list-style-type: none"> 1. to inspect students' network learning information. 2. to evaluate the performance of students' network leaning and cooperative learning. 3. to urge students to conduct network autonomous learning and cooperative learning |

their mind-set and thus cultivate their autonomous learning awareness. As a result, under the teacher's direction, the students have acquired the following knowledge about cooperative learning and their course network. To start with, they are directed by the teacher to learn the strategies of grouping. After several discussions, each class is divided into 4 groups with 5 to 6 members and they also assign a leader who is required to organize all the members to conduct discussions and learning activities and feedback their learning procedures to the teacher, an inspector who is responsible for inspecting their learning effectiveness and a secretary whose duty is to record the results of their discussions and their problems which have to be submitted every week. Moreover, all the members of a group have a chance to be the leader, the inspector or the secretary because they have to work in shift. Secondly, special introduction to the requirements of English learning under the network circumstances are given to the students in order to help them get to know how to get access to the learning materials in the digital network system and interpret exactly the features of teaching, management and the ways of autonomous learning related to college English network courses.

3 Making Use of Teacher-Student Forum to Communicate on the Network

Teacher-student forum is one of the most important teaching means which is applied the most frequently. All the network writings are required to upload on the forum, such as "About My English Study", "My College Life", "On friendship", etc..

From their writing, teachers can find some common problems which can be discussed by the teacher and students on the forum. For example, the teacher once found in students' writing "make" and "let" was used very frequently. In order to improve their writing, students are advised to use "enable" or "help" instead.

Teachers participate in students' discussion on the forum as an equal, which also is a way that students like best. In this way, teachers can find some language errors in students' writings and give feedbacks according to the above teaching procedures, thus establish a special learning environment to develop students' abilities to read, listen, speak and write.

The teaching procedures in class are as follows:

- 1). To carefully select several typical posts on the forum and copy them before the class to make preparations for the evaluation in class.
- 2). To demonstrate the posts and invite the author to retell his or her viewpoints.
- 3). To encourage students to discuss in pair work and evaluate their work.
- 4). To ask two or three students to address their own opinions.
- 5). To evaluate its ideas and philosophies based on the content of the post and to evaluate its way of expression based on its characteristics of writing.
- 6). To demonstrate the functions of correction of Microsoft Word to modify students' grammar and spelling mistakes made by them commonly.
- 7). To invite one of the students to show how to modify another copy in order that everyone of them has learned how to use this function, and tell all of them that all their following writings should be modified like this before being submitted.

* 6) and 7) can be omitted later which is shown on the first class.

Table 3. The appliance of teacher-student forum

| | |
|---------------------|---|
| Teaching aims | To cultivate students' critical way of thinking and help them write and modify their own work with the help of computer |
| Theoretical basis | to develop students' cognition and metacognition strategies |
| Capability training | Writing --reading -- listening-- speaking |
| Learning field | Teacher-student forum |
| Time in class | 20 minutes (40 minutes in the first lesson) |
| Means of activity | Individual, group work, the whole class |
| Methods of learning | Autonomous learning and cooperative learning |

This activity enables teacher and students to communicate on the network, which helps the teacher know about students' ideas and provides students with necessary information of language learning.

4 Making Use of “Learning Resource” to Enlarge Vocabularies of the Related Theme

“Learning resource” can be beneficial to conduct Warming Up activity of New Horizon Intensive Reading. For example, when “campus” is learned, teacher can lead students to revise the “learning resource” in Unit 4 of New Horizon Listening and Speaking. Students can be asked to draw a map about the campus and sign each building with English.

The teaching procedures in class are as follows:

- 1) Students are required to go over the content of “learning resource” before class and activate related vocabularies to form their own semantic net.
- 2) The teacher conducts Warm Up activity with heterogeneous groups to draw their semantic net which are demonstrated by the delegates of each group. At last, the group which demonstrates the most vocabularies wins.

Comparison of Mean between Pre-tests and Post-tests

In order to ensure of success of the experiment, non-English majors of 2006 had a standardized test when entering into university. The testing items and the degree of difficulty are similar to those of CET-4 (College English Test Band 4). After the test, 100 points scoring system is adopted to analyze the results with the help of SPSS.13.0. The result of the pre-test for the control group is listed as the following: It can be seen that students from the control group are low-level English learners. The data exhibited in the test can explain this point clearly: the maximum score is 77 points while the minimum is only 23 points, and the mean score is just 48.73 points.

Table 4. Teaching method of “Learning Resource”

| | |
|--|--|
| Teaching aim | To promote students to enlarge vocabularies |
| Theoretical basis | to activate their psychological semantic net |
| Capability training | Writing →speaking→listening→ reading |
| Learning field | Learning resource |
| Time in class | 10-15 minutes (20 minutes in the first lesson) |
| Means of activity | Brain Storm(Individual, group work, the whole class) |
| Methods of learning | exploring learning and cooperative learning |
| Pre-text preparation/after-text revision | to preview the text on the network and draw the semantic net single-handedly |
| Judgments | This activity is helpful for students to enlarge their vocabularies, which can be used to promote their long-term memories of vocabularies. However, it can not be applied frequently. Otherwise, students’ interest would be decreased. |

According to the testing scores, 80 students were divided into two groups: the experimental group and the control group. In order to ensure the reliability and validity of the experiment, the same number of advanced level students, intermediate level students and low level students were arranged in both groups. From the ANOVA (analysis of variance) of both groups, it was found that $P=0.165>0.05$, which indicates that students in both groups belong to the same level learners. Therefore, it can guarantee the reliability and validity of the experiment.

One and half year later, all the students in both groups took part in CET-4 (in the year 2007). The examination was conducted strictly, and cheating was avoided as far as possible. Their examination scores were collected, and the results were gathered and analyzed as follows:

Table 5. Comparison of mean between pre-tests and post-tests

| | | N | Minimum | Maximum | Mean | Std. Deviation |
|------------|--------------------|-------|---------|---------|-------|----------------|
| Pre-tests | Traditional class | 80 | 23 | 77 | 48.73 | 9.594 |
| Post-tests | Control group | 40 | 25 | 75 | 49.13 | 8.632 |
| | Experimental group | 40 | 38 | 84 | 61.24 | 7.256 |
| Valid N | | 40/40 | | | | |

Statistics in the above table manifest that the mean score of the control group is 49.13 points, which is similar to the mean score of the traditional class(48.73), while the mean score of the experimental group is 61.24, which is much higher than the

reported score presented in Table (48.73). The data imply that students from the experimental group have made greater progress in English learning for the past one and half year.

5 Conclusion

The use of computer and network has become part of our life and education in the modern society. The learning environment with computer and network not only greatly increases opportunities for exposure to the language but also makes for a flexible environment capable of catering to individual needs and preferences. However, as Bransford(1979:263) points out, “ an emphasis on enriched environment is important yet insufficient. Unless people can be helped to develop the skills necessary to learn from experiences, exposure to enriched environments may do little good”. In the case of learner-centered learning and learner autonomy, the greater freedom and independence offered to learners, the greater the call for guidance and training. Therefore, the development and use of modern technology must be combined with pedagogical changes and learner support.

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The Influencing of Electronic Games to the Moral Education of College Students

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Abstract. Nowadays, it is an inevitable problem that college students hold a big enthusiasts to electronic games. However, many parents, teachers and even some experts mostly hold the negative attitude toward the role of electronic games on shaping the moral of college students. Research shows that the influencing of electronic games to the moral of college students is not through game plots and objectives of games.

Through literature material method, logic analysis and other research methods, this thesis focus on the different impacts of disparate electronic games to moral shaping of college students, corrects people's entrenched prejudices on electronic games and explore the problem that how electronic games could develop more healthily.

Keywords: Electronic Games, Education of college students, Moral of college students.

1 Introduction

Nowadays, it is an inevitable problem that college students hold a big enthusiasts to electronic games. However, not only parents, teachers but even some experts are adverse to the influencing of electronic games to college students. And they even gave the force-out to electronic games. But in fact, every new thing has got its immature aspects during the process of growth. Then we should hold the supportive attitude toward the development of electronic games rather than blindly criticize it.

At present, among researches of electronic games in China, the research of application of traditional games and electronic games to early childhood teaching has made some achievements. Under the background of education reform in colleges and universities, how to make students get better moral development and cultivate innovative college talents which is the problem we have to face during the process of exploring the new teaching pattern.

Based on above these, this thesis systematically discusses the influencing of electronic games to the moral cultivation of college students and attempts to correct people's traditional concepts against electronic games. Through the analysis of the study, the thesis tackles the subject that in what aspects electronic games could be useful for helping college students so that the electronic games could inject new vitality to the college moral education.

2 Electronic Games and Related Theories

2.1 Reasonable Definition of Electronic Games

Similar to other conceptions, there are still the disputes about the conceptions of the electronic games and there haven't been the agreed understanding achieved till nowadays. In this study, the author is more inclined to the definition of electronic games from the given survey report of Erin Market Consulting Co., Ltd in 2005 in China: Electronic games can be simply defined as the game program by the electronic media as the carrier. Since the first arcade game appeared in Massachusetts Institute of Technology in 1971, electronic game as the representative of digital entertainments have become the global mainstream entertainment (especially in developed countries) from the originally marginal entertainment during the short 30 years.

For now, there isn't very clear nor authoritative standard on the classification of electronic games but the customary convention in the field most of the time. Traditionally, according to types of games, the games can be mainly divided into: Puzzle PUZ, role-playing RPG, racing RAC, shooting STG, strategies SLG, sports SPT, the first person shooter FPS, simulated of SIM, adventure AVG, real-time strategy RTS, fighting FTG, etc and other types of action. And according to different operation platform of games, electronic games can be divided into: stand-alone PC games, console games, interactive TV games, on-line games and mobile games. While in South Korea, the government divide electronic games into four categories: home console games, arcade games, on-line games and stand-alone PC games. So there would be possible to further the research only on the base of having a clear understanding of the classification of electronic games.

2.2 Characteristics of Electronic Games

For electronic games is concerned, it has its own characteristics and just because of these features, electronic games have a big influencing on the ideological and moral of the players. So it is necessary for us to understand the characteristics of electronic games before we proceed the research of the influencing of electronic games to the moral of college students.

A. Common Experience

Electronic games draws people with various races, different gender and disparate ages together through the experiencing process of electronic games itself so that the people could have a common experience and lesson. However, this kind of common experience and lesson could not end even if the game ends. In fact, we can often see that strangers become friends eventually because they have the common experience of games.

B. Equality

For all involved players in electronic games, basically they all have relatively equal status and equal chances of winning, in which no one can enjoy the privilege during the games. And for this reason, people can temporarily forget their social identity and status and release their moods in games to obtain the sense of equality which can't be got in the real life.

C. Freedom

Playing or not playing the game is entirely voluntary for people and no one can force them. Under the background of contemporary social life, people are under economic pressure, life pressure and various aspects of pressure, all of the pressure make people suffocative. But at this time the appearance of games could supply the freedom for people to escape from the reality.

So to speak in the process of games, the players can be completely immersed in the game world inside and leave the reality behind. Then we can regard the game world as the simulation of the space and the space has its own rules and luck. There will be unpredictable outcomes through the competition of the games. But it needs to be emphasized that the game world is rooted in the real world but again independent outside from the real world which can't mixed and the results of games should not affect the people's life in the real world. But factually, it is not rare to attach the things learned from the game world to the life events of the real world, which is specific elements influencing the ideological and moral of college students.

3 Influencing of Electronic Games to the Moral of College Students

The influencing of electronic games to the moral of college students is not only the single negative effect but the positive effective and harmless. As it were, various influencing of electronic games to people comes from different conditions of subjective and objective.

3.1 The Positive Effects Electronic Games Have on University Students' Ethic

There is an educational theory claiming that people are born with nothing .it is the education that makes people what they are now .we regard the cultivation of ethic as a process from nothing to something .Then this game is an aspect of this kind of process.

Take a game for an example. Uncharted Waters, invented by The Japanese company, is famous for exploring historic computer games and popular with the whole Asia area .the series of the great times is one of the typic electronic games.

It is an early Uncharted Waters, dating back to 16 and 17 century, the theme is to explore treasure in the world. In this game, players can chose people and then the final goals vary according to people. The specific models are to explore the mystery, earn much money, wipe out the enemies and so on.

This game collects maps of the world in the 16th century, including many islands in every port and many oceans. the players can go and return in these ports .they can enjoy different cultural atmosphere in visiting these ports. We can say that this game is an encyclopedia about the navigation in the 16th century.

In this game, players should adjust their activity, and broaden their knowledge in knowing the Game .people can improve attitudes on good and bad, affection and value and so on. It encourages people to get what they want through their hard works. At the same time, players should have a reasonable plan for their futures. So it is a process of teaching for the students.

Again with daewoo's "xuan yuan jian" series game for example. It is famous for exploring Chinese RPG game in Taiwan China.his popularity is unparalleled. in RPGgame players the most famous name is Xianjian JiXia preach ,even this name is a symbol of RPG game in some period. The game's script is developed into a TV series. besides this game,his Xuanquan jian series game and Millionaires series game are also very popular. Here I only take SWDHC as an example to illustrate.

The story happened in the late of Three Kingdoms period, they regard zhu's action as positive and Works increased a lot of the knowledge of The Three Kingdoms period compared with Uncharted Waters, in other words, in this game, it is thought as a way for zhu to express his personal affection .Relatively, Such knowledge does not see more. Instead, lots of the plots were tamperd. And the players don't need to many things, so, the effects are't obvious of Training game skills.

This game plays a very important role in developing students' affection, attitudes and value .especially their ethics. The heroes see the unparelled damage brought by war .this leads players to think what the signifiance is.

The heroes give their own opinion on people's value, significance, war and so on. In the meantime, this leads players to reflect .from this game, we can find their out that war is not really what we need. and people can find their significant only when we make contibutions to other people and society.

The hero of the game has his own thoughts about the meaning of life and what causes the war. However, these thoughts are likely to provoke much discussion about war and the life. War must be avoided. And maybe helping somebody and making useful contribution to society is a way of how to find the meaning of life.

There's a little disrespect for history because the game is based on alternative history. But from a character shaping point of view, there's still a lot of work to do for the ethics & moral educators. Looking all the works of 'Xuan yuan jian', such as Feng Zhi Wu, Tian Zhi Heng, Cang Zhi Tao, Han Zhi Yun, They all stand for Mohist point of view, perseverance, tolerance, philanthropy, and Military forces are to be used only for the maintenance of peace and order. And these are what the Xuan Yuan Jian want to propose. Also this is the positive material that electronic game is shaping college student's character.

3.2 The Negative Impact of Electronic Games on College Students' Virtue Modeling

Electronic games gives much negative impact on college students' virtue modeling, for example, game addiction resulting in studies delay, wasting money and health in long time addiction. Most relevant researches concern that, contents of electronic games give large impact on video game players' act, some players keep imitating and learning even the games end, moreover, when similar scenarios appear in real life, some aggressive behaviour can be observed.

Take *Need for Speed* as an example, which is a famous racing game around the world. In this game, the player needs to drive his own vehicle in various missions for points, which is important for upgrading the vehicle until the game gets clear. Large number of crashes and crash plots can be seen in the game, what is more notable is that game players have to crash the police vehicles by using their cars so as to achieve the clearance. This plot, however, has significant effect on college students' violence tendency.

Such current games, *Violent Motorcycle*, *Grand Theft Auto*, etc, will activate aggressive acts. A study on the violence of video games indicates that, violence of games concern not on the game screen or bloody plots, but through the game circumstances and win the game target as the means to activate the violence emotional in player, the mood of violence among not only through the game to vent aggression, and even a lot of people addicted to them, confound with the game world and the real world, in real life eventually led to the occurrence of aggressive behavior of players. These aggressive video games bring enormous harm to the character of the students which directly affects the healthy growth of college students.

4 Conclusion

The influencing of electronic games to college students' moral can't be judged by taking one-sided approach. In the study, we found the influencing of electronic games varied because of the differences of the types of electronic games. Some electronic games may do contribute to the shaping college students' moral, while other electronic games may bring some negative effects, for example, the influencing of puzzle-type games is completely different from the influencing of violent games. This requires people to distinguish different factors between good effects and bad effects of roles of electronic games playing in the shaping college students' moral.

The effects of one electronic game in shaping college students' moral does not mainly depend on the game platform nor the specific forms of the game, but further shape college students' moral through the game circumstances, winning the game objectives and other means. As the war scenes of protecting the port in "*Age of Discovery*" aim to defend their own rights and interests justly, while the racing between the gangs in "*Need for Speed*" has identified the different impacts on individuals.

So to speak, properly using the educational function of electronic games to college students' moral is a problem that should be concerned. Students can constantly find problems, explore issues and promote their own moral development during the process of playing games. Although some electronic games have negative impact on constructing college students' moral, it can't be denied that part of electronic games can promote the improvement of college students' moral.

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Research on the Teaching Reform of MIS Courses of Universities

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Abstract. According to the problems of the management information system(MIS) that currently exists in the teaching content, teaching method and the practice, this paper aims to design a new teaching reform and propose that it should combine the case teaching method and the project-driven teaching method to meet the demands of different majors and states how to apply them.

Keywords: Management Information System, Teaching Reform, Case teaching, Project-driven Method.

1 Introduction

IT has changed the traditional modes of manufacturing and management of the enterprises and modern enterprises try their best to apply the MIS to improve the management efficiency, lowering the operating cost and enhance the competition in the market. Because of the great demand of MIS talents, many colleges take the courses of MIS as the core ones of the management major. MIS is the one that fuses computer science, management theory, decision theory, operational research and systematical engineering together so that it is one core course to create the comprehensive talents.

However, the MIS teaching of most colleges results little, which leads to the deviation between the talents and social demand. According to the teaching practice of Shengju Xu[1], Ruimei Wang[2] and the writer, there are four reasons to explain the problem above: First, the target position is unclear. Different majors have different targets as well as the students of different majors have different basic knowledge structures. But in fact, some colleges make the same schedule for the MIS courses without specify the different majors, which further lower the teaching efficiency. Second, the students have no enough knowledge of many disciplines. On contrary, MIS fuses the knowledge of many disciplines. The study will be influenced if without the knowledge. Third, without the case study, the students will feel the study abstract and hollow during the process of theory teaching and they do not know how to use the knowledge, which causes the breakup of theory and practice. Fourth, it lacks necessary practice. It is the theories and methods that could be understood well

by practice. But, few colleges pay attention to the practice teaching that deduces the learning effect.

So in order to improve the efficiency of teaching and learning of the MIS courses and train the comprehensive talents, it is quite meaningful to explore the ways to reform the MIS teaching.

2 Designing the Content of the MIS Teaching Reform

2.1 Points to Meet the Needs of Different Majors

Taking the domestic MIS textbooks into account, we conclude that the main contents of MIS courses should include the aspects of the concept, the information system and organizational relationship, system development, the operation and management of the system, seen in fig. 1.

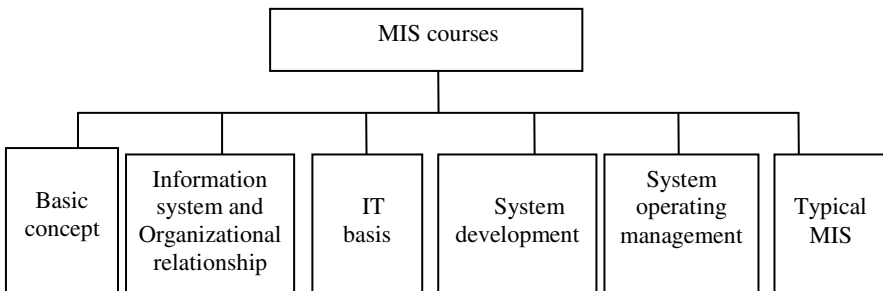


Fig. 1. The content modules of the courses

The students of information management and system have good basis, so it should focus on the method of the system development and the explanation of techniques, aiming to train the ability to develop and realize the MIS. Comparatively, other majors of management leans to the explanation of system projecting, system analysis and management of system operating, aiming to train the ability to analyze and resolve the problems. To ensure the consistence of the learning, the MIS courses should be carried out on the basis of other preliminary courses.

During the teaching, choosing cases and designing the practice projects also need to combine with features of majors. According to the writer's teaching experience, we can distribute the questionnaires to the students before class to get how much they know of the practice projects. Then, we can suggest they notice the related information and collect them to prepare for the continuous practice.

2.2 Teaching Modes Based on Case Method

Case method was first proposed by Randall, the principal of the law School of Harvard University, which has been widely adopted in the teaching of management. Case method can specify the abstract theories and the methods and inspire the interest of the students by helping them to feel the practice [3]. Meanwhile, the cases chosen

must be typical and inspirational, combined with the different background of the students. During the MIS teaching, teachers choose the related cases due to the students' majors after learning the related theories and understand deeply them in order to develop the ability of the students to resolve the problems through the introduction by the teachers and discussion among the students [4]. Taking the MIS teaching of business administration major for example, the practice of MIS case method is as follows:

- (1) Before teaching, we introduce the marketing strategies of Wal Mart based on the MIS and the success it has achieved, which will help them to get an impression on the MIS and inspire their interest to learn.
- (2) After introducing the IT basis and the prototyping method, we can use the VF learned by the students to make an information management system of their personal information. As an example, it is easy to understand the application of IT in the management. Finishing introducing the prototype system, we can ask the students to discuss, give suggestions perfecting the prototype system and practise it.
- (3) While teaching Structured method of system development, we introduce the methods to analyze the business process and data process with the sales management system of the Yong-you software as an example. At the same time, we will introduce the systematical Function design, process design and the database design combined with this case.

Except the case above, some failed cases should be combined to help the students to understand deeply. There are also some cases of the websites of the enterprises and the government when related to the teaching of E-commerce and E-government. The case method should be continuously adopted in the MIS teaching.

2.3 The Project-Driven Teaching Practice

MIS is a comprehensive and practical course. Except the case method in the theoretical teaching, sound practical teaching is good for the students to learn well the basic theories and application of them. Further, the ability to resolve problems can be trained. The experience shows that adopting the project-driven teaching can provoke the desire of the students to learn, develop the ability to teach themselves and the ability to analyze and resolve the problems, which has great accomplishment.

Project-driven teaching is the one of the exploring teaching modes that the learner accomplishes the assignment creatively by using the necessary materials with the help of others under certain circumstances. The project-driven teaching can be divided into five stages [5], seen in fig.2.

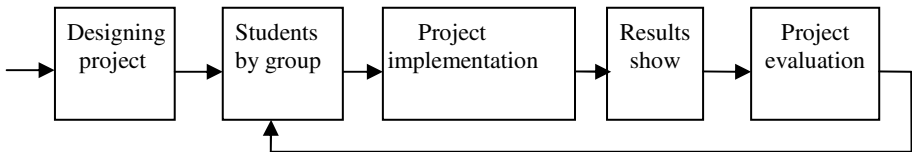


Fig. 2. Project-driven Teaching Method

In the following passage, we will introduce practical teaching of the business administration major by adopting the project-driven teaching method. In order to respond to the teaching of structured method, we design the related system projects in the practical teaching.

The first step is combined with the major features, to design such projects as the human resource management system, the sales management system, the warehouse management system and the mini-logistics management system. Meanwhile, the teachers should help the students to contact with the organization or companies to investigate. Usually, the practice base is the first choice. And teachers arrange the students to investigate the enterprises or the departments.

The second step is to divide the students into groups by the unit of interest, 6 or 7 in a group. There is a team leader in one team to organize the members to make a project implementation plan.

The third step is that each team carries out the field research, looks through the literature, doing the system planning, system analysis and system design and finally gives out the written report. During this step, the teachers have three roles to play. They are the directors who give hints on the problems and speculate the system planning of each team to avoid the great deviation from the system targets. They are the supervisors who supervise the process of each team and to remind them of revising the project and adding the materials. They are also the users who discuss with the students the demand of the system from the perspective of users and make them rethink and explore the problems [6].

The fourth step is to perform an exhibition. The representatives of each team will explain the logical and physical model of the whole system.

The fifth step is to perform a result evaluation from the angles of the students and teachers and put forward the suggestions to perfect the system. At the same time, the teachers need to evaluate the implementation process of each team.

The experience has shown that the practical teaching above provokes the positivity of the students to learn. Also, it combines the structured method with the application to develop the ability of the students to do investigation and resolve the problems. But the investigated enterprises should be chose carefully by the teachers, even with the help of the school and the students to find the target enterprises to provide the students with chances to practise.

3 Conclusion

MIS is a greatly comprehensive, theoretical and practical course. There are many problems in the MIS reform to explore. This paper introduces the measures taken to revise the MIS teaching combined with the writer's teaching experience. We hope to improve the MIS teaching in order to train more compound talents for the information society.

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Investigation on Bilingual Teaching in Team Development Course

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Abstract. Bilingual teaching is widely used in universities. This paper makes an investigation on bilingual teaching in team development course and analyses the effect of bilingual teaching. Finally, this paper gets three conclusions for bilingual teaching.

Keywords: Bilingual teaching, team development, business and management.

1 Introduction

The course 'Team development' is a bilingual teaching course for students in business and management school. In this course there are eight situations to understanding the process of team development. By experiencing the eight situations, students will understand the process of team development, and master the basic theory and common methods when making team decision. Meanwhile, students should use the knowledge to make presentation with one company as a team. After learning this course, reading and speaking in English should be improved as an additional result.

2 Framework of 'Team Development' Course

Team development course is one of necessary courses for students in business and management school in most universities. It is a bilingual teaching course for students which are major in management in Zhejiang Sci-Tech University.

2.1 Goal of 'Team Development' Course

a. Knowledge goal

After learning this course, students should master the theory and method of teamwork. They can know about how group grows up into a team. Firstly, they will learn the team work cycle, including four stages of initiation, ideation, elaboration and completion. Secondly they will learn a force field problem solving model, which can be widely used in solving team problem. Thirdly learn the process of team performance management cycle to get extraordinary performance from ordinary people. And finally learn to find out the personal style to make much more team share and the five strategies to confront team conflict.

b. Competence goal

In this course, the focus is on the cultivation of competence for independent learning, problem analyzing and systematic thinking. After studying this lesson, students will have framework for team work. The goal of this course is to help student master the basic theory and method of team work to analyze and solve the practical problem in a team.

c. Diathesis goal

After learning this course, students should master the advanced idea of team work, and possess the scientific and efficient method of team work. It is an important base for the future learning and working of student in business and management major.

2.2 Methodology of ‘Team Development’ Course

a. Method

Team work is a course in which there are close connection between theory and practice. Most of theory in this course is just based on the simulation of practice. So the method is diverse to get the best effect. Students in this course will be divided into team with five to six persons to carry through this course. And situation simulation, discussion, role play, presentation will be used in the course.

b. Instrument

The power point showing will be used in the course of team work. Meanwhile, the ppt combing some picture, data and the essential form will promote the information of teaching. And the student will be very active when using the method of situation simulation, role play and presentation.

c. Discussion

To help students analyze practical problem with team work theory, students should make a presentation on some topic with a team including five to six persons. The score of the presentation will be got from other teams’ evaluation. When one team is making presentation, he will not score for himself, and his score is the average of the other team’s score for him.

2.3 Evaluation of ‘Team Development’ Course

Measurement of this course includes: daily assessment (including exercise, active speaking and attendance) is 40 percent, presentation is 30 percent, final examination is 30percent.

3 Effect of Bilingual Teaching on ‘Team Development’ Course

The investigation is made on 30 Dec. 2011 just before the examination. There are 77 students in this course, and 68 valid questionnaires had been got.

According to the questionnaire, the percentage of female is 72.1%, male is 27.9%. The percentage of those who are active speech in course is only 11.8%, while those are occasionally speech is 45.6%, never speech in course is 42.6%. From this data, we can see that most of students are not very active in the course.

3.1 Satisfactory Evaluation of the Course

According to the data in table1, about 83.8% students are satisfying with this course. And 89.7% students think that teaching method used in the course is proper to the content, and 94.1% students adapt to the teaching form which taking students as core.

Table 1. Total evaluation on team development course

| <i>Total (%)</i> | <i>Satisfaction</i> | <i>Quite satisfied</i> | <i>Satisfied</i> | <i>No feeling</i> | <i>Dissatisfied</i> | <i>Quite dissatisfied</i> |
|-----------------------------------|---------------------|------------------------|------------------|-------------------|---------------------|---------------------------|
| | | 17.6 | 66.2 | 14.7 | 1.5 | 0 |
| Teaching toward Content (%) | Method | Quite proper | Proper | No feeling | Improper | Quite improper |
| | | 23.5 | 66.2 | 5.9 | 4.4 | 0 |
| Student-be-Core Teaching Form (%) | | Quite adaptable | Adaptable | No feeling | Inadaptable | Quite inadaptable |
| | | 26.5 | 67.6 | 5.9 | 0 | 0 |

On learning efficiency, most of students think that they increase team cooperation spirit and theory, when comparing with status before learning this course, the percentage are 79.4% and 86.7%. Meanwhile most of student doesn't think they have great increase in English except for reading. About 60.3% students think they increase reading competence in English, 83.8% students think they have no change in writing competence, 70.6% students they have no change in listening competence, 58.88% students think they have no change in speaking competence.

Table 2. Learning efficiency evaluation

| <i>Comparing with Status before Learning</i> | <i>Large increase</i> | <i>Some increase</i> | <i>No change</i> | <i>Some decrease</i> | <i>Large decrease</i> |
|--|-----------------------|----------------------|------------------|----------------------|-----------------------|
| Team Cooperation Spirit | 17.6 | 61.8 | 20.6 | 0 | 0 |
| Team Cooperation Theory | 13.2 | 73.5 | 13.2 | 0 | 0 |
| Reading in English | 4.4 | 55.9 | 39.7 | 0 | 0 |
| Writing in English | 1.5 | 14.7 | 83.8 | 0 | 0 |
| Listening in English | 4.4 | 23.5 | 70.6 | 1.5 | 0 |
| Speaking in English | 4.4 | 35.3 | 58.8 | 1.5 | 0 |

3.2 Participation and Feedback on 'Team Development' Course

From table3, we can see that students think they have good cooperation and communication in the course, but not enough preparation before the course. For the question of team labour division and cooperation, 83.8% students think they are good. For the question of team communication and dialogue, 82.4% students think they are frequent in communication and dialogue, and 89.7% students satisfy with their team cooperation. These data shows that most of students think they have good team communication and cooperation. While for the question of preparation before class, above half students' answer are average, and almost the same percentage answer about the question of hard working. Most of students doesn't think they make enough preparation before the class and hardworking in the class.

Table 3. Participation on team development course

| <i>Team Labor Division and Cooperation</i> | <i>Quite good</i> | <i>Good</i> | <i>Average</i> | <i>Bad</i> | <i>Very bad</i> |
|--|------------------------|------------------|-----------------|----------------------|-----------------------------|
| | 35.3 | 48.5 | 14.7 | 1.5 | 0 |
| Team Communication and Dialogue | Quite frequent 41.2 | Frequent 41.2 | Average 16.2 | Not frequent 1.5 | Almost no 0 |
| Satisfaction of Team Cooperation | Quite satisfy 45.6 | Satisfy 44.1 | Average 8.8 | Dissatisfy 1.5 | Quite dissatisfy 0 |
| Preparation before Class | Quite adequate 4.5 | Adequate 25.4 | Average 56.7 | Not adequate 11.9 | Totally not adequate 1.5 |
| Hard Working | Quite hard 5.9 | Hard 38.2 | Average 50 | Not hard 5.9 | Totally not hard 0 |

Team presentation is one of the most important practices in this course. Students in one team will work together to make collect information, make decision, investigate one firm, find problems and give solution to them. And they need to present their work as a team and get evaluation from other teams. It is very important part to use the theory which they just learned from the textbook. From table4, we can know the feedback on team presentation. Above half of students agree that other teams presentation enlightens. And about half of students agree that team presentation help them understand theory. And 82.1% students think team presentation is necessary for this course. From this data, we can say that team presentation is important and necessary part in this course, and it is helpful for students to understand theory.

Table 4. Feedback on team presentation

| | <i>Quite agree</i> | <i>Agree</i> | <i>Partly agree</i> | <i>Not agree</i> | <i>Totally not agree</i> |
|--|--------------------|--------------|---------------------|------------------|--------------------------|
| Other Teams Presentation Enlightening | 25 | 33.8 | 36.8 | 4.4 | 0 |
| Team Presentation Help Theory Understanding | 20.9 | 28.4 | 40.3 | 9 | 1.5 |
| Team Presentation is Necessary for This Course | 38.2 | 44.1 | 16.2 | 1.5 | 0 |

3.3 Evaluation on Learning Custom and Source

The investigation on students' learning custom and source is shown in table5. For learning custom, it is obvious that self learning is main custom for students. For learning source, listening to the course is the first source, the second source is network, and the third source is self exploring. Form this evaluation, we find that communicating with students has not been a useful custom and source for undergraduate students.

Table 5. Learning custom and source of students

| | | <i>Always</i> | <i>Often</i> | <i>Average</i> | <i>Seldom</i> | <i>Never</i> |
|-----------------|---------------------------------|---------------|--------------|----------------|---------------|--------------|
| Learning Custom | Self-earning | 26.5 | 52.9 | 19.1 | 1.5 | 0 |
| | Communicating with Students | 5.9 | 36.8 | 52.9 | 4.4 | 0 |
| | Listening to Specialized Person | 11.8 | 35.3 | 41.2 | 10.3 | 1.5 |
| Learning Source | Communicating with Students | 5.9 | 44.1 | 47.1 | 2.9 | 0 |
| | Listening to the Courses | 19.1 | 58.8 | 19.1 | 2.9 | 0 |
| | Self-exploring | 19.1 | 48.5 | 30.9 | 1.5 | 0 |
| | Network | 13.2 | 58.8 | 27.9 | 0 | 0 |
| | Relative Occasion | 19.1 | 41.2 | 36.8 | 2.9 | 0 |
| | | 1.5 | 17.6 | 55.9 | 25 | 0 |

4 Conclusions

After data analysis for the bilingual teaching on team development course, we can get conclusions as following:

4.1 Bilingual Teaching for ‘Team Development’ Course Accepted by Students

Bilingual teaching for team development is quite proper for students. Since the theory of team development is not very difficult, bilingual teaching is quite proper for those courses without difficult theory just like team development. For team development course, much more practice is helpful to understand theory. Then division and cooperation between team members is helpful to improve the use of English. From the data, we can find that most of students are really satisfied with the bilingual teaching for this course, and some students do have improvement in English after this course.

4.2 Method for Bilingual Teaching Should Be Diverse

Bilingual teaching is not just using English textbook, most important thing for bilingual teaching should be let students receive and send signal in English. Students are not just reading English paper and listening English paper, they should have opportunity to convey their idea in English. So students need to answer in English and make presentation in English. From experience of teaching in the course of team development, I find that students are much braver than before. When I design an opportunity for them to present team output, students are quite active once they have enough time to prepare for. I think method for bilingual teaching need to be diverse. Teacher are not knowledge implanter, they should be circumstance designer, information provider and learning promoter. Teacher can use all kinds of method to create opportunity for students to make show and practice.

4.3 Student Communication Need to Strengthen

From the data, we find that student communication is not the main custom and source for learning. It is so important for students to learn from each other. That is also why teamwork is so important in reality. There should be more chance for students to communicate and cooperate with each other.

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Tutor Group Based Guidance of Extracurricular Science and Technological Activities for Undergraduates

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Abstract. Extracurricular Science and Technology Activity (ES&TA) is a major carrier of cultivating innovation and practice ability. We first analyze the current situation and existing problems of ES&TA for undergraduates, and introduce the origin and development of the tutor group system. Then, we put forward and explore an innovative guiding mode, which combines focusing on **one center** (enhancing the quality of personnel training), taking **two levels** (capacity-fostering level, winning prize level) into account, and applying **three platforms** (discussion platform for each student group, meeting platform for group leaders and the contact, and report and exchange platform for the whole team). Finally, we give the issues that we need to research further.

Keywords: Guidance of ES&TA, tutor group, teaching reform.

1 Introduction

The 21st century is the era of information and knowledge, which characterized as information driving industrialization rapidly, accelerating the transformation and upgrading of industrial structure, emphasizing knowledge economy and innovation, and training a large number of compound talents with the practical ability. With the expanding of the enrollment scale of universities, the undergraduates have to face head-to-head competition in the job market. Hence, most universities are moving towards connotation construction and characteristic development.

For a long period, there are serious imbalances on college education, especially in technology universities. The teaching methods are often limited to professional education, and overemphasize theory but overlook the significant role of practice. As a result, most undergraduates tend to lose competitiveness in practical ability and innovation because of the single training mode. Higher education serves economic construction directly. Only through full implementation of quality education, and fostering comprehensive-quality talent with creativity, practical skills, can we keep the education being in touch with economic construction and social needs.

As a major carrier of ability fostering and quality improving, ES&TA is being paid more attention by teachers and students. In this paper, we first analyze the current situation and existing problems of ES&TA for undergraduates, and introduce the origin and development of the tutor group system. Then, we present and explored the novel teaching mode called tutor group based guidance of ES&TA, Finally, the summary and future work is given.

2 Related Works

2.1 Current Situations and Deficiency of ES&TA for Undergraduates

ES&TA is not only an effective way to combine teaching with practice, but also that of improving the technological content of campus cultural activities. Due to its important role in personnel training, ES&TA have gained great attention from the related national department, social scholars, and universities.

For the past two decades, the relevant state departments organized many competitions such as National "Challenge Cup" of Scientific and Technological Competition activities, Business Plan Competition, National Undergraduate Electronic Design Competition, and China Undergraduate Mathematics Modeling Competition. These competitions are characterized by orientation, demonstration, universality and authority. It plays a significant role in many aspects. For example, students can develop innovation and practical ability by discovering problems from social practice and solve them through their own study, and this in turn will promote the carryout of ES&TA among university students. Some colleges and universities have taken a series of measures which include increasing activity funds, making certain working and incentive mechanism, and founding a number of scientific research bases, which attracts more teachers and students to get involved. Obviously, ES&TA has been placed on a regular, institutionalized, and well-developed track.

However, since people didn't realize the importance of extracurricular activities (guidance), the phenomenon of incomplete guidance mode or underutilizing potential still exists in most universities. Some deficiency is in the followings. Firstly, supporting policies, incentive mechanism and activity base aren't implemented efficiently, and relevant functional departments fail to show their enthusiasm completely. Secondly, inadequate publicity leads to many students being unable to participate in activities, which means a decline in the technological value of campus culture. Thirdly, the teacher team qualified to support and guide in science and technological activities is not yet fully constructed. Forth, due to the lack of confidence, initiative and independence, students always don't have a strong desire for innovation, which causes serious inefficiency in both collaboration and competition. Fifth, one student group usually has only one instructor, which cannot meet the comprehensive requirements of extracurricular activities. Those factors severely restrict the carryout of extracurricular activities (guidance). Therefore, Great efforts should be made to take appropriate measures to make sure that the activities can be carried out deeply and enduringly.

2.2 The Origin and Development of Tutor Group System

In the 14th century, the British educators proposed the concept of "Tutorial System", and Tutorial System is widely used in graduate education in universities like Oxford and Cambridge in 17th century. Then Tutorial System is extended to undergraduate Cultivation. In 1937, Yanching University first founded Tutorial System just like Oxford University. At the same time, Coching Chu set up the earliest Tutorial System in Zhejiang University. In graduate training, Tutorial System has the following three forms: one to one Tutorial System, one main and more auxiliary Tutorial System, and united Tutorial System.

In view of the fact that teachers are mainly in charge of classroom instruction, they didn't really do well in educating people. Some well-known universities have implemented Tutorial System in undergraduate education, such as Peking University, Zhejiang University and Zhengzhou University. In 2008, the Ministry of Education issued the file called several opinions on Further Strengthening undergraduate education in colleges, which pointed out that some qualified universities should introduce tutorial system into undergraduate education and should be place more importance on training comprehensive ability.

Currently, the contradiction between the restricted special knowledge of single teacher and integration of scientific development is sharper and sharper, and that's why tutor group system came into being. Tutor group system can overcome the deficiency caused by the narrow knowledge structure of a single tutor and show a team advantage. It also can help students absorb the collective wisdom and fully apply their knowledge and skills. Meanwhile, the tutor group system can also overcome the problem caused by inadequate instructor resources.

2.3 Our Ideas and Perspective

Based on the above research on ES&TA and tutor group system, the following four points are concluded by authors.

Firstly, we must first clear that our central task is personnel training which means cultivating a large number of high-quality personnel who possess a sense of innovation and practical abilities. And we should also remember awards, papers or patents are merely kinds of form, but not our sole target.

Secondly, we should pay more attention to the way that how students make a thorough research, how they extensively search information, and make innovative design. One-sided pursuit of the final result but neglecting the learning process is very unwise.

Thirdly, as well as improving self structure of knowledge, concerning cutting-edge technology, and enhancing the awareness of innovation, it's also a must for teachers to strengthen self-cultivation and influence students through their words and deeds. By doing this, students will surely have a comprehensive improvement on intellectual and non-intellectual literacy.

Fourth, considering the deficiency caused by single tutorial and the challenge posed by the integration of activity contents, introducing the tutor group system is becoming more and more important. Because it not only can help teacher enhance self-discipline, but also help students foster a sense of competition and cooperation.

3 Tutor Group Based Guidance of ES&TA

3.1 Integration of Collective Guidance and Tutor’s Supervision

The conventional single tutor guiding mode is shown in Fig.1, characterized by one student group has only one instructor. That is the main guiding mode of Scientific Activities at present. The proposed tutor group-based guiding mode is illustrated in Fig. 2, which integrates collective guidance and tutor’s supervision together. The collective guidance mode can overcome the deficiency caused by the narrow knowledge structure of a single tutor. Both teachers and students can share high-quality teaching resources, which will be helpful in enhancing the guidance level and effectiveness, and expanding students’ participation and knowledge. This kind of responsibility system would no doubt improve efficiency.

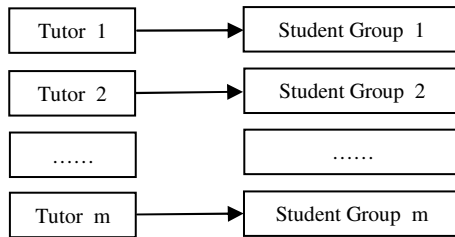


Fig. 1. Single tutor guiding mode

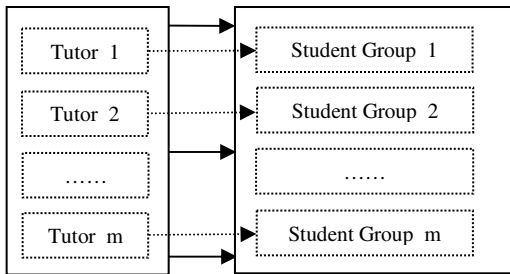


Fig. 2. Collective guidance mode

3.2 One Center, Two Levels and Three Platforms

One Center means that fostering of abilities is the core purpose of ES&TA (guidance). ES&TA combines the teaching of knowledge, the fostering of abilities, and the improving of qualities, and centers on fostering abilities. Its purpose is to build a teaching system that is useful to foster the students' practical and creative abilities, to form a highly qualified faculty which will meet the need of modern experimental teaching. That is to say, our goal is to train a number of outstanding talents who has innovation, entrepreneurship and practical ability, more than just acting as tutor’s assistants, or winning certain award.

ES&TA (guidance) should take into account Two Levels”. One is about training activities which solves practical problems by using basic and relevant knowledge comprehensively, and promotes social science and technology by doing research and innovation activities. The other is winning certain prize, publication of papers and authorized patents. It must be pointed that the former is core, that the latter is form of ability expression.

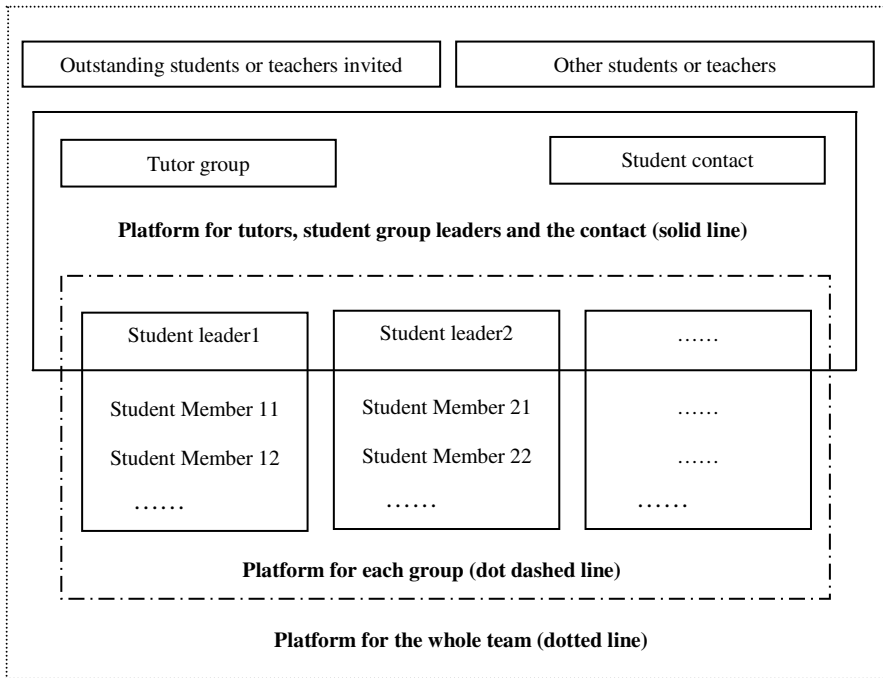


Fig. 3. The structure of three platforms

ES&TA (guidance) can use the three platforms demonstrated in Fig.3. The first is organized by each student group leader for regular exchange on certain subject inside each student group, the supervisor can be included. The second is organized by the student contact or tutor group system, in which all student leaders discuss common issues like purchasing parts or development direction. The third is organized by tutor group system for periodic reporting and discussing and attended by all the teachers and student members inside group and some outside. The invited teachers and students outside share their experience and put forward some constructive views on our progress.

3.3 Students Being the Core Role in ES&TA

In ES&TA, we must adhere to the core role of students. It’s essential to protect their innovation bud and creative enthusiasm, and to encourage students to be highly imaginative and creative. Each teacher must be clear that his (or her) main role is as

an organizer, a guide, and a fugleman. The enough space random should be given to students in which they can propose schemes or organize activities through independent study, reflection and exploration. At the same time, they can get involved selectively combined with their own advantages and developing targets. Those methods will stir up students' interest and innovative desires, and also enhance their overall capability (such as observation ability, associative ability, practical ability, and exploration ability) as well as the ability to apply knowledge to solve problems. What's more, those methods can improve students' independent thinking ability, and help them cultivate a positive life attitude, and lift emotional and scientific literacy.

3.4 Allowing Students Two-Way Flow Inside or Outside Group

In ES&TA, we support the partnership with students outside group according to their own needs, and allow them to participate in the competition guided by teachers outside group. That means students have a chance to flow inside or outside group at any time. The opening guidance is applied, that is teachers or students outside the team are welcome in the third platform. Only in this way can we attract more students or teachers get involved. The thoughts and measures above is the embodiment of focusing on ability fostering of students.

3.5 Enriching Activity Resources and Building Quality Feedback Channel

Firstly, we invite the excellent students, teachers and experts, or the front-line specialists outside the school to give us lectures. Secondly, we join hands with different levels of technology associations and carry out a variety of promotional activities. Thirdly, we buy the equipment and instruments required, and we also cooperate with related companies or enterprises for funds and knowledge. Forth, we apply for the project funding from academy level, university level, the provincial level and so on.

The quality feedback channel is established to asses the guidance effectiveness. According to the feedback result, we can make timely adjustments on the activity content and instructional methods to meet the needs of personnel training on social and economic development and technological progress dynamically.

4 Summaries

This paper explored the guiding mode and method of ES&TA. The aim is to strengthen the cultivation of undergraduates, guarantee a coordinative development of tutor group member. Many factors contribute to the effectiveness of guidance, such as national educational policy and guidance system, incentive mechanism for teachers and students, the participation of Social Enterprises, and so on. We will take further research and improve managerial approaches, rules and regulations in tutor group based ES&TA (guidance).

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Practice of the Study-Discuss Teaching on Course of Introduction to Microelectronics

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Abstract. Scientific research and discussion is combined together efficiently by study-discuss teaching, and throughout the whole process of teaching. On the basis of the analysis of the connotation and function of study-discuss teaching, the necessity and significance of carrying out the study-discuss teaching of the course 'microelectronics introduction' is elaborated, the research and exploration of study-discuss teaching of "introduction microelectronics" which is the key construction course of China Jiliang University is discussed. Study-discuss teaching is benefit to cultivate the team cooperation ability, innovation consciousness and practical ability of students which is showed by the practice, a good foundation for students of their future research and employment is laid.

Keywords: Study-discuss Teaching, Microelectronics Introduction, Educational Reform.

1 Introduction

Study-discuss teaching is originated from universities in German, then become one kind of major teaching methods of higher learning in the colleges and universities in the developed countries, China Taiwan and Hong Kong, especially in postgraduate training, to some extent, it is considered to be "new trend of the development of colleges and universities teaching". In recent years, some universities in mainland of China began to get attention to the study-discuss teaching of the education of postgraduate student. Study-discuss teaching is one kind of education method that the study of students is organized by teachers, students work in team, expand, discuss and research for a subject which teaching content is accorded to; various information resources multimedia tools, production of courseware is made full use of, and the whole process is made into a speech; The opportunities to put forward questions and discussion for that questions is given by students in the teaching process, and the problem that other forms of teaching can not resolve such as classroom teaching is discussed and addressed as target, the learning initiative and learning ability of students is fully enhanced at the same time. But classroom teaching is the main kind of method of traditional higher education, backward teaching methods such as "injection", "spoon-feeding" and "cramming education" are used by many teachers in the teaching process, study-discuss teaching is used relatively small.

An important required course of professional direction which is named "Introduction to Microelectronics" for upperclassman students of Electronic Information Science and Technology Program is offered by China Jiliang University. "Introduction to Microelectronics" is designed to enable students to fully understand the basic knowledge of various professional fields of microelectronics, foundations for the professional learning of the students is laid in the future, the teaching covers all aspects of the field of microelectronics, basic theory, design \ manufacture \ packaging and testing the integrated circuit are included, as well as other emerging cross-cutting areas ,it is both theoretical and practical, very complex at the same time, so the traditional "indoctrination" teaching methods can not achieve the desired teaching results , new vitality to the teaching of microelectronics will be injected by the introduction of study-discuss teaching, the interest and enthusiasm of students will be stimulated, a comprehensive analysis ability of students to solve problems will also be developed.

2 The Content and Function of Study-Discuss Teaching

Cultivating students who are creativity, having practical ability and shaping a sound personality of students is the fundamental meaning and value of education, students are made to adapt to the demands of a new age, cultivating innovative talents is one of the important tasks of higher education, and the study-discuss teaching is an effective way to achieve this target. The human mind has conscious activity is held by Constructivist, knowledge is generated from the inside in the process of human mind interaction with the external objects, the real effective teaching should be the process of collaborative construction of teachers and students to understand the global significance , not just an objective process of knowledge is transfered. "True education is the training of intelligence". Study-discuss teaching is one kind of teaching methods that " scientific research and discussion is combined together organically and throughout the whole process of teaching", according to the teaching content, the discussion subject pre-class is studied out by teachers, students are organized to study, discuss and research the relevant issues surrounding the subject, relevant network resources are made full use of, the relevant literatures is consulted, multimedia software is made the full use of, ppt is made and given lecture to students. Study-discuss teaching is intended to provide students with the opportunities to discuss issues as complementary of the class, the initiative and enthusiasm of students for learning is fully mobilized.

The philosophy of study-discuss teaching is built on top of the right, the traditional teaching of "teaching-based, learning-secondary "is transfered into "learning-based, teaching -secondary ", the dominant position in the learning process of the students is fully affirmed, the initiative of students is mobilized. In the study-discuss teaching, the mainly role of the teacher is an organizer of a seminar to promote the activities of the discussion, the responsibilities of them are to ensure that every steps and links in the discussion are in a democratic atmosphere. Study-discuss teaching is a democratic teaching method, students contact different views with each other in the discussion, a habit of listening to every kind of sound and comparing different points of views in a prudent way is developed, and their thought is expanded, the willing to stand in someone else's issues of perspective is made, team spirit is developed. students to

increase their knowledge, broaden their horizons and stimulate interest is allowed by study-discuss teaching, the intelligence and research training for students are strengthened, the academic atmosphere in the colleges and universities activity is made, teachers and students explore and discover together in the study, the relationship between teachers and students are developed, teaching is benefits to teachers as well as students. Study-discuss teaching is conducive to enriching the student's extra-curricular learning. Homework assignments is given to the students in the traditional teaching after class, but in practice, generally work is not done by many students or is just copied by others, but students are required to prepare in advance, consult large number of documents in the extra-curricular time, bring materials and issues into the classroom in study-discuss teaching, students are bound to use a lot of spare time to prepare.

3 The Necessary of Introducing Study-Discuss Teaching in the Process of Teaching "Introduction to Microelectronics"

All aspects of the field of microelectronics, including basic theory, design \ manufacture \ packaging and testing of integrated circuit, and other emerging cross-cutting areas are mainly covered by the content of "Introduction to Microelectronics", a wide range of knowledge is covered, it is theoretical, practical and very complex; solid state physics, quantum mechanics, signal processing, testing processing, computer technology and others are involved. But now, the class hour of "Introduction to Microelectronics" is relatively small, such as little more than 40 class hours, students are difficult to equipped with such a large scale of knowledge in the relatively few class hours by traditional teaching methods, so the reform of teaching methods are needed. The curriculum requirements of the times and cutting-edge is met by study-discuss teaching, the contradiction between small class hours and large scale of knowledge is solved, the interest of student in learning is stimulated, and interest is the best teacher, in that way, full advantages of the extra-curricular time is taken by students to consult and summary the knowledge, their ability of comprehensive analysis and problem-solving is improved, and an ideal teaching effect is achieved.

3.1 Strengthen the Construction of Measure and Measurement Characteristics in Practice Courses

The practical teaching courses of Electronic Information Engineering major which are already existing such as "Electronic Measurement Technology", "Radio Measurement and Testing" and others are strengthened, the network teaching platform is constructed, electronic measurement technology navigation sites for both domestic and overseas is established.

3.2 Enhance the Teaching of Standard Practice, Create a Quality Standard Database Platform

"Standardization and Intellectual Property", "management system certification" and other standard courses are introduced in the professional training program,

standardization knowledge and standardization awareness of students is cultivated; the standards in the electronic information field content into the practical teaching is made; a database platform with quality standard literature resources which based on "quality inspection characteristic literature database" is created, comprehensive resources about standards, testing procedures, regulations, documents and other documents are mainly provided by the platform to teachers and students in the whole province, the research results for standard practical teaching is given full play to.

3.3 Strengthen the Construction of Bilingual Education

Bilingual education in some basis professional practice courses in the practice course system is carried out. Further development of the practice bilingual teaching is made by relying on "Modern Logic Design" which is the national bilingual teaching demonstration course, the corresponding experimental instructions in English is compiled and English network teaching platform for "modern logic design" is build.

3.4 Laboratory Construction

The construction of the provincial finance and the school-enterprise cooperation laboratories which are already existing are strengthened, the practical teaching role for electronic measurement technology of the provincial Laboratory demonstration center -- "RF2000 RF circuit test" is given full play to; a central government laboratory -- "Wireless Communication comprehensive laboratory measurement techniques "is build, some corresponding teaching experiments are carried out, engineering capabilities and ability of creativity and innovation of students are improved; the laboratory opening dimension to the outside is expand, the participation in variety kinds of academic innovation competitions and opening topics in the laboratories for students are encouraged, an open and research-based practical teaching platform for more students is set up; the experiment teaching and engineering practice are combined.

3.5 Construction of Teaching Materials

Experimental materials as follows:" guide book for electronic measurement experimental ", "guide book for modern logic design experiment" (English version), " Integrated design and test experimental guide books for wireless video transmission system ", " experiment instructions for WCDMA mobile communication network system " are compiled in the way that the needs of Electronic and Information Engineering major is closed, the engineering nature, applicability and innovativeness of that experimental materials is highlighted.

4 Practice of Study-Discuss Teaching for "Introduction to Microelectronics"

Different from the classroom teaching, system and complete knowledge can not be granted to students by study-discuss classroom teaching, and a small number of students is required by study-discuss classroom teaching. One class about 30 students

for the electronic information science and technology major in China Jiliang University is set per year, study-discuss teaching is very applicable, therefore, the practice of study-discuss teaching in the key construction school curriculum--"Introduction to Microelectronics" is introduced. Study-discuss teaching is one kind of expansion of classroom teaching, the procedure of the study-discuss teaching are as follows:

4.1 Identify the Subject of Discussion

The theme of the discussion in the view of the teaching contents and characteristics of the "microelectronics introduction" is determined. For example, teaching objectives in the teaching process are combined, such as optoelectronic devices, MEMS, nano electronic devices; the discussion topics of each part of the learning processing are determined, such as in the learning processing of optoelectronic devices, students are allowed to freely choose a certain kind of optoelectronic devices, the principle of its work principles and related applications are analyzed.

4.2 Consult Information

The studies, surveys, testing, demonstration and other activities is started from the identified issues or problems. This part is prepared by the students outside of class according to the discuss topics which are made by teachers, the school's network resources will be made full use by students, relevant information including the variety of digital resources provide by library are consulted.

4.3 Write the Research Reports, Outline of Statement for Thesis or Review Article

The reference literatures are summarized, the writing of the report for specific theme is completed, outline of statement for thesis is prepared.

4.4 Report Discusses

According to the study of student, the preparatory group for the discussion teaching is established, the students are grouped according to grades and interests, the poor students are led by the good students, and the project reports, the group discussion procedures and timing are announced to the whole class. The projects reporting and discussion of each group are supervised, the network resources which is provided by school are made full use of, the services of real-time communication and BB course site of school are provided to public for discussion. Finally the result is reported by the team member representatives to the seminar, the class discussion and summarized are made.

There have been some problems in the practice of Study-discuss teaching for "Introduction to Microelectronics", such as: information and issues are not prepared before class by some students, the consulting of the literature is not comprehensive enough, the teaching process may face the risk of interruption; the subject of the discussion will be deviated in some group; the ability of summarizing the literatures of some students are not satisfactory, the final report of the discussion is not enough

in-depth and comprehensive, etc. These are all can be overcome slowly in the future teaching.

5 Summary

Scientific research and discussion are combined together efficiently by study-discuss teaching, and throughout the whole process of teaching , the opportunity to share and discuss problems to the students is provided, the traditional teaching of "teaching-based, learning-secondary " into "learning-based, teaching-secondary "is transfered, the dominant position in the learning process of the students is fully affirmed, students' initiative is mobilized, the ability of independent learning and innovation of the students is cultivated, their teamwork spirit is cultivated. In combination with the characteristics of the course, the practice of study-discuss teaching in the key construction school curriculum-- "Introduction to Microelectronics" is introduced and good teaching results are got, a good foundation for students for their future research and professional work is laid.

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Teaching Reformation and Exploration of Postgraduate English Course

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Abstract. Postgraduate English course is a most important degree course for non-English major postgraduates. The paper analyses the present situation of postgraduate English teaching in Inner Mongolia University. Teaching reformation and exploration of the course are discussed in this paper. It consists of optimizing the teaching content, transforming teaching ideas, enriching the teaching means, strengthening the practical teaching, developing second classroom activities and perfecting test methods.

Keywords: postgraduate, English course, teaching reformation.

1 Introduction

Postgraduate English Course is a compulsory course of basic public courses in our country. According to English (first language) teaching outline for non-English major postgraduates, promulgated in 1992 by the National Education Committee (Teaching and Research Office [1992] 22), the aim of postgraduate English teaching is to increase postgraduates' abilities in listening, speaking, reading, writing and translating and to train them to use English as tools for their professional study and research.

The paper analyzes the current situation of postgraduate English teaching in Inner Mongolia University. Reforms in postgraduate English teaching are discussed from the aspects of optimizing the teaching content, changing the teaching ideas, riching teaching means, strengthening the practical teaching, expanding the second classroom activities and perfecting examination means.

2 Present Situation of Postgraduate English Teaching

Inner Mongolia University is the earliest comprehensive university ever established in minority nationality regions in China. There are nearly 4000 graduate students, most of whom study English and very few of whom learn Japanese, French and German.

Graduate students of our school differ in their English abilities when they are admitted. Age differences, professional differences, and a significant difference in learning and experience, all these factors have caused complexity and particularity of English teaching in our university.

3 Teaching Reform Ideas

The main purpose of postgraduate English teaching is to train postgraduates to increase their scientific research capacity, so postgraduate English education should focus on the comprehensive application. Through the study of this course, postgraduates, with dictionaries, can read English professional literature and academic theses, and can communicate fluently with others in English.

Based on the general idea of training innovative talents and effectively enhancing the teaching quality, combined with postgraduates' training objectives, we put forward the following reform ideas:

Developing English comprehensive application ability of postgraduates as the basic goal of English teaching reform;

Starting from the teaching practice, expanding the second classroom activities, and exploring a new model of English teaching;

Further optimizing the teaching content, combining English teaching and professional teaching, academic activities and theses for master's degree to perfect the curriculum system.

4 Implementing Measures of Teaching Reform

4.1 Optimizing Teaching Content

The core of teaching reforms is the reform in teaching content and modes. For this reason, the teaching content, according to the teaching outline, has been further optimized.

Selecting "textbooks" reasonably. According to "scientific, knowledgeable, interesting and inspiring" principles, we selected new, practical and resource-rich textbooks to improve English application abilities of postgraduates, especially oral and written communication skills in relevant fields and to lay the foundation for their further study and research.

Taking "materials" flexibly. Teaching content should be selected flexibly from textbooks by teachers, either full-text copy, or for exclusion. Hot material from the network and other resources should be added to English teaching.

4.2 Transforming Teaching Ideas

Teaching philosophy refers to teachers' basic attitudes and views on teaching activities. To define teaching philosophy precisely is particularly instructive for teaching activities.

The traditional "teacher-centered" concept of teaching should be changed and gradually shifted to "student-centered" one. Teaching activities should be carried out for the purpose of cultivating graduate students' comprehensive ability of using English.

4.3 Enriching Teaching Means

Teaching methods are ameliorated and teaching means are constantly enriched to improve teaching quality and perfect teaching effect in the process of English teaching in Inner Mongolia University.

Adopting "multimedia courseware and the blackboard" teaching mode. Multimedia teaching has effectively promoted postgraduate English teaching. It provides graduate students more opportunities for speaking and listening to pure English, and makes the classroom teaching atmosphere more active.

Making full use of network resources. Network platform provides lots of English learning materials for postgraduates. It also strengthens the connection between English learning and professional knowledge and increases postgraduates' learning abilities and broadens their horizons.

4.4 Strengthening Practical Teaching

Strengthening practical teaching, which is a combination of listening, speaking, reading, writing and translating; improving postgraduates' language and speculative skills and their cross-cultural communication abilities. In practical teaching, Chinese teachers will be arranged to teach integrated course and foreign teachers will undertake oral lessons, for Chinese teachers are good at analyzing sentence structures and English grammar while foreign teachers have authentic pronunciation and intimate knowledge of foreign cultural background.

Teachers should try to create an efficiently practical teaching environment to improve graduate students' learning efficiency, such as encouraging students to listen to English radio, watching English movies and enhancing classroom discussions.

4.5 Developing Second Classroom Activities

A lot of English second classroom activities have been carried out, such as English Corner, postgraduates English speech contests, English lectures given by foreign experts. Graduate students' enthusiasm for learning English extends from inside classroom to outside of the classroom, which will broaden their horizons, enrich their cultural knowledge and improve cross-cultural communication skills.

4.6 Perfecting Test Methods

Assessment is an integral part of postgraduate English course. It is not only a vital link in the teaching process but also an important guarantee of achieving course objectives. According to the teaching purpose, tasks and basic requirements, we have perfected examination means. Postgraduates score in English exams according to the following parts:

- Usual results accounting for 10%;
- Midterm results accounting for 20%;
- Final results accounting for 70%.

Usual results can be assessed according to postgraduates' attendances, performance in class and other comprehensive evaluation ways. Midterm and final papers consist of listening, vocabulary, reading comprehension, translation and writing and so on.

5 Conclusions

Problems that public postgraduate English education meets are common in state education system, so teaching reform and innovation will be a long-term process. Only by optimizing the teaching content, selecting textbooks reasonably, taking materials flexibly, changing teaching ideas positively, treating graduate students as the center, using multimedia and network teaching, improving graduate students' integrated language ability, trying to build a good practical teaching environment and timely perfecting learning evaluation means can we promote smoothly English teaching reform and advance greatly the development of postgraduate education.

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Reform and Practice of Practical Teaching System for Electronic Information Engineering Major

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Abstract. The Practical Teaching in the colleges and universities education has a great significance to improve the practical ability of students, cultivate their innovative talents and improve the education quality of the college and university. According to the educational philosophy of China Jiliang University: "Measurement made school, Standard made people, Quality made enterprise", the reform and practice of Practical Teaching System for Electronic and Information Engineering major is involved in 5 parts as follows: develop curriculums which have characteristic practice, practice standards teaching, bilingual teaching, practice teaching of the major and compile the teaching materials.

Keywords: Electronic Information Engineering, Training Mode, Talents of Electronic Measuring.

1 Introduction

The goal for the education of Electronic and Information Engineering is cultivating the higher engineering and technical talent who is able to engaged in research, designing, manufacture, testing and application various types of electronic equipment and information systems, so it is not only necessary to ask a solid theory is mastered by students, but also ask a strong practice ability and innovation ability are held by them. So how to make the Practical Teaching of Electronics and Information Engineering major go in a deep way, cultivate talents who master a solid theory, hold a strong practice ability and innovation ability is in urgent need for colleges and universities education to research and make discussion in the current.

The Practical Teaching System for Electronic and Information Engineering major in college and university of both domestic and overseas are summarized at first, then the specific methods of this reform and practice are introduced, and the conclusion of this reform and practice is proposed at the end.

2 The Research of the Practical Teaching System for Electronic and Information Engineering Major in College and University of Both Domestic and Overseas

The "student-centered" concept is mainly reflected by the practical teaching system of Electronic Information Engineering major in Foreign Universities, the mainly two types of the practical teaching models are as follows: (1)The Understanding Practice which is based on the Classroom Teaching , student's knowledge is increased and the ability of analyzing and solving problems is improved through teaching and learning ; (2)The Operation Practice which is based on extra-curricular activities , student's ability for hands-on exercise is improved and his apply knowledge is increased through extra-curricular activities.

Based on the domestic needs of society and their own development needs, Electronic and Information Engineering major have been set up in a lot of colleges and universities. Reform for Practical Teaching System of Electronic Information Engineering major in many colleges and universities are conducted through laboratory equipment upgrades, open laboratories set and teaching methods reform, but several problems are still existing as follows:

2.1 The Characteristics of Electronic Measurement Are Not Obvious in the Practical Teaching System

Practical teaching of electronic measurement is weak on current electronic and information engineering professional training system, so special electronic measurement talents are lack and the capabilities of research and development for electronic measuring instruments are lack at the same time, the development of the whole electronic information industry is impeded.

2.2 Practical Teaching System Lack of Standard Education

Standard is the important basis for the field of production practice in electronic information industry, however, attention to cultivate students' awareness of the standards are not paid much in most of the colleges and universities, the cultivating of practical ability of their students is deficiency, and this will be a major obstacle when students engage in the curriculum of production practice.

2.3 Practical Teaching System Lack of Bilingual Education

With the rapid development of electronic information technology and the continuous strengthening of international exchanges, new demands for foreign language skills of the electronics and information engineering talents have been set by community and enterprises. However, bilingual education for electronic information engineering teaching in colleges and universities are relatively small in the current which low levels of English ability of the students are resulted in, so the participation in international exchanges, the expanding in international perspective, the cross-cultural exchange, the transnational cooperating ability, the ability to participate in international competitiveness for students are impeded.

2.4 Engineering Background Is Weak in the Practice Teaching

Education of Electronic Measurement Technology is an important part of practical teaching, but Most of the teachers in colleges and universities are lack of engineering background and the practical teaching in the majority of colleges and universities in current is attached to the theory teaching, practical teaching is led to break away from the engineering practice, practice teaching with engineering background is weak, the cultivation of the ability of engineering practice for students is impeded.

3 The Content of the Practical Teaching System Reform and Practice

The development of curriculums in the reform and practice are contained 5 parts as followed: characteristic practice, practice standards teaching, bilingual teaching, practice teaching of the major and compiling of the teaching materials.

3.1 Strengthen the Construction of Measure and Measurement Characteristics in Practice Curriculums

The practical teaching curriculums of Electronic Information Engineering major which are already existing such as "Electronic Measurement Technology", "Radio Measurement and Testing" and other curriculums are strengthened, the network teaching platform is constructed, electronic measurement technology navigation sites for both domestic and overseas is established.

3.2 To Enhance the Teaching of Standard Practice, Create a Quality Standard Database Platform

"Standardization and Intellectual Property", "management system certification" and other standard curriculums are introduced in the professional training program, standardization knowledge and standardization awareness of students are cultivated; the standards in the electronic information field is integrated into the practical teaching; a database platform with quality standard literature resources which based on "quality inspection characteristic literature database" is founded, comprehensive resources about standards, testing procedures, regulations, documents and other documents are provided by the platform to teachers and students in the whole province, the research results for standard practical teaching is given full play to.

3.3 Strengthen the Construction of Bilingual Education

Bilingual education is carried out in some basis professional practice curriculums in the practice curriculum system. Further development of the practice bilingual teaching is achieved by Relying on "Modern Logic Design" which is the national quality engineering bilingual teaching demonstration curriculum, the corresponding experimental instructions is compiled in English and English network teaching platform for "modern logic design" is build.

3.4 Laboratory Construction

The provincial finance and the school-enterprise cooperation laboratories which are already existing is strengthened by the construction, the practical teaching role for electronic measurement technology of the provincial Laboratory demonstration center -- "RF2000 RF circuit test" is given full play; a central government laboratory -- "Wireless Communication comprehensive laboratory measurement techniques " is build, some corresponding teaching experiments is carried out to make students improving their engineering capabilities and ability of creativity and innovation; The laboratory opening dimension to the outside is expanded and students are encouraged to participate in variety kinds of academic innovation competitions and opening topics in the laboratories, an open and research-based practical teaching platform for more students is set up; The experiment teaching and engineering practice are combined.

3.5 Construction of Teaching Materials

Experimental materials as follows: " guide book for electronic measurement experimental ", "guide book for modern logic design experiment" (English version), " Integrated design and test experimental guide books for wireless video transmission system ", " experiment instructions for WCDMA mobile communication network system " are compiled in the way of closing to the needs of Electronic and Information Engineering major, the engineering nature, applicability and innovativeness are highlighted in that experimental materials.

4 Conclusion

The practical teaching innovation reform and practice for electronic and information engineering major is an important way for our school to achieve the goal about cultivating engineering background talents, and the overall design of basic specifications of our school. It is also the main basis for the teaching management and the talent training needs in the new period, the construction of research universities will be accelerated in this way, what is more, it is an important action for cultivating creative talents. With the reform and practice for the curriculums development which characteristic practice, practice standards teaching, bilingual teaching, practice teaching of the major and compiling of the teaching materials are contained, a curriculum system for cultivating applied innovative talents for electronic and information engineering which is benefit for our development, in line with the times and benefit for cultivating students of great practice and innovation ability is created. But the construction of a scientific and rational system of practical teaching system is a long, complex systems engineering, many aspects are need to explored. Meanwhile, the accompanying syllabus, teaching conditions, teaching staffs , teaching methods and means in teaching process are all the important conditions to improve the quality of personnel training, the work should unremittingly in the future.

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Teaching for VPN Information Security Experiment Based on VMware

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Abstract. In the construction of the new information security specialty, practical experiment has an important assistant effect on theory teaching. Students of security specialty should do VPN experiment as VPN is a typical security technique, which can provide secure communication between members of a group through use of the public telecommunication infrastructure, maintaining privacy through the use of a tunneling protocol and security procedures. By the use of VMware virtual machine in single PC environment, we simulated enterprise Intranet VPN network solutions so that we reduce the required network devices, improve the abilities of students, and achieve the purpose of accessing Intranet by VPN.

Keywords: virtual machine, virtual private network, information security experiment.

1 Introduction

Virtual Private Network (Virtual Private Network, VPN) is an extension of the intranet. It can help remote users, branch companies, business partners and suppliers with the company's internal network to establish credible security connection, which can ensure data transmission by Internet. VPN mainly uses the tunnel encryption technology, technology, key management technology and user identity authentication technology and equipment. VPN as a mature Internet security technology has been rapidly applied in enterprises, scientific research, education and other fields. Therefore, the understanding and application of VPN technology will become important points in the information security professional practice teaching. This paper discusses how to build a VPN network experimental environment in a host by using virtual machine technology. It has practical significance at improving students' operation ability in network security aspects.

It needs a variety of experimental equipments in order to build VPN network experiment. However, there will be a lot of inconvenience in the information security practice teaching. It is difficult to achieve the desired effect of teaching experiments. In view of that a virtual machine can host multiple operating systems, the use of virtual

technology can quickly build a network experimental environment. Compared with traditional experimental environment and experimental methods, it has the following advantages: Short experimental period, experiments with higher efficiency in the limited time; Economic effects, and increasing resource utilization; easy management and maintenance, reducing the possibility of hardware damage or system failures; conducive to develop experimental teaching program, while increasing the ability of each student's practice.

2 Main Technique

2.1 Virtual Machine Technology

At present, virtual machine technology has a diversity of software, such as the VMware and Microsoft Virtual PC based on Windows has been widely used, but the VMware has better stability and network support, so it is more widely used.

2.2 VPN Technique

VPN uses authentication, access control, confidentiality and data integrity to build a private network on the public network, so that data is secure “encrypted tunnel” in the public communication network. VPN client uses the specific TCP/IP protocol (called Tunneling Protocol) to call a port on VPN server. Tunneling protocol is supported mainly by three protocols: PPTP, L2TP and IPSec. Considering the current applications, there are two kinds of VPN connections: remote access VPN and Site-to-Site VPN.

A remote access VPN connection over the Internet enables a remote access client to initiate a dial-up connection to a local ISP instead of connecting to a corporate or outsourced network access server (NAS). By using the established physical connection to the local ISP, the remote access client initiates a VPN connection across the Internet to the organization's VPN server. When the VPN connection is created, the remote access client can access the resources of the private intranet.

3 Design of Experiment

3.1 Experiment Purposes

By simulating the Intranet and the Internet, we use VPN technology to connect two network segments so as to realize the internal network user can access the safety of enterprise internal resources.

3.2 Experimental Environment

VMware virtual machine, a PC, Windows Server 2003, Windows XP

3.3 Experimental Network Topology

Given that the Intranet is 192.168.1.0/24 and the Internet is 202.201.244.0/24, considering that we use the virtual machine to do the experiments, as long as the

purpose to let the student acquire the VPN technology and understand the VPN configuration process, so we can only have a virtual machine in each network segment. The experimental network topology is shown in Fig.1. This experiment host system is installed Windows XP, assuming that host name for VPN Client; The operating system of Intranet server is Windows Server 2003, assuming that host name is VPN Server, and the network card mode is the host-only with virtual VMnet2 switches connected; The VPN gateway server must have the double network card, which is called VPN Server. The network card (VMware Network Adapter VMnet1) connected Internet works in host-only mode, connected in virtual Vmnet1 switches. And the network card connected Intranet works in host-only mode, connected in virtual Vmnet2 switches.

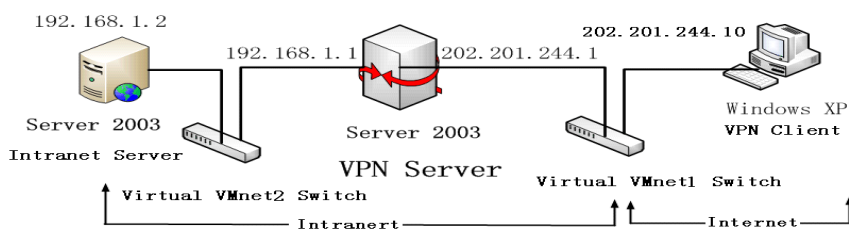


Fig. 1. Network topology

3.4 IP Address

The host machine and virtual machines are assigned IP address as shown in Table 1.

Table 1. IP address allocation table of host and virtual machine

| Host Name | Virtual Switch | Network Card | IP Address | Subnet Mask | Gateway |
|-----------------|----------------|-------------------------------|----------------|---------------|-------------|
| VPN Client | VMnet1 | VMware Network Adapter VMnet1 | 202.201.244.10 | 255.255.255.0 | |
| VPN Server | VMnet1 | local connection | 202.201.244.1 | 255.255.255.0 | |
| | VMnet2 | local connection2 | 192.168.1.1 | 255.255.255.0 | |
| Intranet Server | VMnet2 | local connection | 192.168.1.2 | 255.255.255.0 | 192.168.1.1 |

The host machine for VPN Client execute the command of ping to the VPN Server, the result is shown in Fig. 2.

3.5 VPN Server Configuration

(1) Configure remote access service

In the VPN Server of virtual machine, select the "Start" >> "Programs" >> "Administrative Tools" >> "Routing and Remote Access", open the "Routing and Remote Access" service window, select "Configure and Enable Routing and Remote Access", Run "Routing and Remote Access Server Setup Wizard" >> "Remote access (Dial-up or VPN)", check "VPN" and "dial", in the VPN connection interface, select

```

C:\Documents and Settings\Admin>ping 202.201.244.1
Pinging 202.201.244.1 with 32 bytes of data:
Reply from 202.201.244.1: bytes=32 time<1ms TTL=128
Reply from 202.201.244.1: bytes=32 time<1ms TTL=128
Reply from 202.201.244.1: bytes=32 time<1ms TTL=128
Reply from 202.201.244.1: bytes=32 time<1ms TTL=128
Ping statistics for 202.201.244.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Documents and Settings\Admin>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

```

Fig. 2. The results of ping command

the "local connection" of the network card; select the IP address of the user access mode as "from a specified address scope", and the IP address scope should be assigned between 202.201.244.11 and 202.201.244.15. As the Radius server is not established, the last step select "No, use Routing and Remote Access to the connection authentication request". The above processes can complete the basic set of VPN server. These settings can be changed in the "Properties" of RRAS after the end of the VPN setup wizard.

(2) Security settings on the VPN server

In the VPN Server "Properties", you can modify the VPN server from the "General", "security", "IP", "PPP" and "log". In the "General", you can make choices at the usage mode. In the "Security", you can choose the authentication method. In the "IP", you can change the way of obtaining their IP address or change The IP address range.

(3) Set user dial-in permission

Create an account "VPNTTest" which is used to dial-in the VPN services in VPN Server. And then set the "remote access permission (dial or VPN)" to "control access through the Access Policy" through "properties". In order to facilitate the management, create a user group called "vpn", add the user VPNTTest into this group. In RRAS "Remote access policy", create a new remote access policy, then just select as the licensing model.

3.6 VPN Client Configuration

On the desktop of the VPN Client, right-click Network Neighborhood, click on "Properties" and open "Network Connections" window. Click "Create a new connection">> "Connect to the network at my workplace">> "Virtual Private Network Connection" on the left network tasks, fill in the VPN server address: 202.201.244.1.

3.7 Dial-Up Login, and Test Results

Double-click the above established VPN client connection, input assigned client's user name and password. After post-dial, the network connection icon be lighted, and it works. The result of test on the “VPN Server” is shown in Fig. 3 and Fig. 4.

```
PPP adapter vpn:
Connection-specific DNS Suffix  . : 
Description . . . . . : WAN (PPP/SLIP) Interface
Physical Address. . . . . : 00-53-45-00-00-00
Dhcp Enabled. . . . . : No
IP Address. . . . . : 202.201.244.14
Subnet Mask . . . . . : 255.255.255.255
Default Gateway . . . . . : 202.201.244.14
```

Fig. 3. “VPN Client” dial-up

```
C:\Documents and Settings\Admin>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=2ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms
```

Fig. 4. The ping result of test between the Intranet and the Internet

| | | | | | |
|---|------------------|------------------|--|-----|-------------|
| 2 | [202.201.244.1] | [202.201.244.10] | PPP: First Choice Compression | 108 | 0.00:00.000 |
| 3 | [202.201.244.1] | [202.201.244.10] | GRE: Header Compression | 232 | 0.00:00.034 |
| 4 | [202.201.244.1] | [202.201.244.10] | GRE: v1 Rev=49152 | 46 | 0.00:01.060 |
| 5 | [202.201.244.1] | [202.201.244.10] | PPP: Ctrl Msg Type=0010 (Echo-Request) | 70 | 0.00:21.762 |
| 6 | [202.201.244.10] | [202.201.244.1] | PPTP: Ctrl Msg Type=0014 (Echo-Reply) | 74 | 0.00:21.762 |
| 7 | [202.201.244.1] | [202.201.244.10] | TCP: D=1150 S=1729 ACK=2547316942 WIN=65 | 54 | 0.00:21.919 |
| 8 | [202.201.244.10] | [202.201.244.1] | PPP: First Choice Compression | 96 | 0.00:30.063 |
| 9 | [202.201.244.1] | [202.201.244.10] | PPP: First Choice Compression | 224 | 0.00:30.063 |

```

IP
  GRE ----- GRE Header -----
  GRE: Flag = 30
  GRE: 0 ..... = Checksum and offset field present if routing field set
  GRE: 0 ..... = Offset field not present
  GRE: .1 ..... = Payload length and call ID field present
  GRE: .1 ..... = Sequence number field present
  GRE: .0 ..... = No strict source route
  GRE: Flag = 01
  GRE: 0 ..... = Acknowledge field not present
  GRE: Version = 1
  GRE: Protocol type = 800B (PPP)
  GRE: Payload length = 43
  GRE: Call ID = 18445
  GRE: Sequence number = 68

PPP ----- Point-to-Point Protocol -----
  PPP: Protocol = FD (First Choice Compression)
  PPP: Flags = FX
  PPP: 1 ..... = History buffer initialized ( Bit A )
  PPP: .1 ..... = Packet moved in front of History buffer ( Bit B )
  PPP: .1 ..... = Has no significance in MPPE (Bit C)
  PPP: .1 ..... = Packet is encrypted (Bit D)
  PPP: Coherency Count = 61490
  PPP: 40 bytes Compressed and Encrypted Data

```

Fig. 5. The data packets captured in the communication

From the above results, it shows that when remote user via dial-up connection gets an IP address, they can access the Intranet. From the data packets captured in the communication, the PPTP connection uses encryption technology of PPP, as shown in Fig. 5.

3.8 The Comparison of Experiment Teaching Effect

The comparison of experiment teaching effect between the virtual machine VPN experiments and traditional hardware VPN experiments is shown in Table 2.

Table 2. The comparison of experiment teaching effect

| comparison Content | the virtual machine VPN experiments | traditional hardware VPN experiments |
|---------------------------|-------------------------------------|--------------------------------------|
| Required Number of people | 1 | 3 |
| experimental facilities | 2 Servers, 1 PC, 2 Switches | 1 PC |
| Required site | Smaller | larger |
| Test period | short | longer |
| experimental effect | Relatively good | general |

4 Conclusion

The teaching and learning environment of VPN experiment based on virtual technology, without addition hardware devices, is based on the basic experimental platform, to carry out simulation experiments not only can increase the student's Practical opportunity, but also can enhance the student's practical skills. Therefore, experiments based on virtual machine technology have positive significance.

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Research on Java Teaching Method of the Course JAVA by the Actual Needs

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Abstract. With the related issues in the traditional java teaching, this paper presents the Java community teaching methods to turn towards the actual demand, and puts forward the relevant point of view separately from the Java language syntax, practice ability, documentation writing ability, teamwork training, comprehensive evaluation and other aspects. It is designed to improve the students' comprehensive ability and employability, and thus to provide the basic protection for improving the competitiveness of students and reducing the cost of training.

Keywords: Java, Actual Needs, Teaching Method.

1 Introduction

Java is a new generation object-oriented programming language Sun has introduced, all aspects of its performance are good. The basic features of Java are simple, object-oriented, distributed, interpreted, robust, secure, structure neutral, portable, high performance, multi-threading and dynamic, especially it has the cross-platform characteristics. It has become more mainstream development tools, used by many companies.

As the industry's huge demand for talent on Java, Java has been as the required course by computer-related specialized field in many universities, and there are many training courses related to Java. However, Java's syntax specification is very large, and very strict, it is a prominent problem during the process of the teaching that how do we put a lot of these complex grammars as a unified theory.

In addition, according to the jobs provided by the IT industry, JAVA is currently the mainstream application platform and development technologies. However, due to the poor application and overall quality, many graduates have the low competitiveness. Hence although there are many Java courses in the college, but it cannot provide more graduates to meet the requirements for Java Enterprise Personnel.

To solve the above problem, this paper puts forwards some ideas about the Java teaching method based on the actual needs of society. It makes some contribution to enhance the competitiveness of college students for employment.

2 The Main Problems during the Java Language Teaching

Java programming is a very strong practical courses, generally composed of theory courses and laboratory classes. In traditional teaching, theory class will be divided into chapter on Java language and related technologies, teachers are beginning to start to explain the concept, for example what is class, what is the multithreaded, what is JDBC, and then for the programming specifications they introduce the relevant syntax and programming specifications, such as the class declaration can contain member variables and member methods, multi-threading can have inheritance and interface, there must be several steps during operating the database with Java. At last, the students can master the related technologies through some practical examples, it is like how to declare the stuff and manager with classes and their relevant characteristics, how to use multi-threaded to realize selling tickets in multi windows, how to store the users' information with the database and so on. At the same time in the experimental classes, teachers will allow the students to be more familiar with some features and usage of Java language by practicing every point for the knowledge. But this is the current norm of teaching methods, the following deficiencies still exist:

(1)The old form of classroom teaching is teacher-center teaching for indoctrination, the students are hard to concentrate attention, there is lack of interaction between teachers and students, it is not ideal.

(2)This course involves many points of knowledge , but each chapter contents is scattered, consistency is poor, different knowledge points are relatively independent, it is difficult for students to form a whole experience, some students has been forget the previous content while learning the back of the knowledge point, it will affect the subsequent course.

(3)After completing this course, students only feel that they learn a programming language, they don't have the learning achievement and outcomes of motivation, it is hard to understand the effect of Java language to solve practical problems. Also it can not be applied to the practical projects, and affects the future employment of students some extent.

(4)Although the setting of experimental class gives the students opportunities to program, but often the teachers apply some questions mechanically to make the students master the concepts and Java syntax. Students do the experiment just to complete the task, they are short of motivation and achievement involved in the project.

(5)The traditional test makes some students think that only remembering the points of knowledge is enough, practice doesn't matter, this notion is wrong, and it ignores training the ability of students learning knowledge.

(6)Because of the division of Art and Science in the high school, the documentation writing skills of most engineering students is poor, they can not make their own work accurately summarized in place.

(7)Because the size of software systems increases, the demand for teamwork is high, teachers not only need to develop the practical ability, but also to develop their teamwork ability, and exercise their ability to organize and coordinate the team.

Facing all the practical requirements of enterprises, the teaching methods of Java are needed to be improved, that can enhance students' practical skills and employability, but also train more qualified personnel for enterprises.

3 Java Teaching Method for the Actual Needs

In order to solve the above problem in traditional teaching, through the repeated studies about Java programming and daily teaching practice, we conclude the following teaching methods in order to develop students ability to better hands, good self-learning ability and coordination organizations capacity, more importantly, to achieve its self-identify problems and problem-solving ability and good document organization and writing skills.

3.1 Consolidate the Grammar, Utilize the Basics

A strong foundation is an important guarantee for success of the program, at the same time, while teaching the basic grammar, the teachers should train the flexibility of students, that makes them can understand basic use of the relevant statements, understand the frequent errors and obtain the ability to debug the error. In the Java language experiments, mainly we should guide students to break through the traditional way of thinking, train them to read, write, debug programs, improve their interest to operate the computer and self-test techniques.

Firstly, the teachers are the key actors, the theoretical attainment of teachers impacts on the effectiveness of this course. Java language is a highly practical course, which is aimed at teaching them to learn the programming ideas, and can be applied flexibly. Therefore, in the teaching process teachers should accumulate and learn some new theoretical and technical knowledge, combine with the latest needs of the community, timely design their own course content and teaching method to achieve teaching and learning closely linking, school and social needs linking. In addition to active learning and the accumulation of latest knowledge, the teachers can also participate the social work training to update their knowledge and abilities.

Secondly, in the teaching process, the good case that teachers provide is an important tool for students to help them master the basic knowledge and improve their practical ability. A better case can not only help the students understand the related knowledge, but also train their manipulative ability and accumulate the main usage of the basic grammar, find common errors through handling operation, and then develop their ability to solve problems. Adhere to the "use" as the center, so that based on "understand" the language students can further learn "use language".

Thirdly, in order to meet the learning needs of students at different levels in the process of writing exercises on the machine, we must take full account of this difference. The teachers should raise the basic requirements to meet the general demands of the students, as well as provide some relatively high degree practice to good students, it can improve efficiency, enhance their interest, and ultimately improve their teaching quality.

Fourth, in the code writing process, students should pay attention to good code writing habits. Good writing habits, not only contribute to the migration and error

correction codes also help the collaboration among different technologies. Code has good readability, it is the basic need of the programmer. If there is not standardized coding practices, the collaboration is absolutely not like that.

3.2 Combine with the Practical Projects, Exercise Ability in Practice

To cultivate good analytical and problem solving skills, through simple exercise is difficult to obtain, because these exercises are generally small scale, it can not exercise the students' problem analysis and solving skills. So the teachers should screen out some reasonable open source or practical projects to train the students' practice skills.

Firstly, in terms of project selection, the selected project should be moderate difficulty, it is necessary to practical (close to the actual development case) and new but also to facilitate the teacher to explain the knowledge systematically. So we divide the Java program into primary type, intermediate type and advanced type: (1) the primary project is smaller, short and pithy, concise and clear. The project aims to enable students to understand the knowledge where to use, how to use; (2) the intermediate project is medium-sized project, it requires students to complete the need analysis, system design, implement and test under the guidance of the teachers; (3) Advanced Project is also a medium-sized projects, which is more comprehensive than the middle, basically from the real case, it requires students to independently complete the project, the teachers give appropriate guidance.

Secondly, after the project selection, how to lead students into the teaching program is the key step to achieve good results. Teachers must give students the guidance and reasonable guidance to help students carry out project analysis, design and related R & D work, and guide students to accept the project to think about how to take the initiative to complete the project, tell them what problems will be encountered during the process, and how to solve these problems.

Thirdly, after students taking over the project, teachers are not laissez-faire. The teacher is also a member of the team, when the students encounter problems, teachers should guide students to find ideas and methods, and guide them to resolve the question; when students need encouragement and help, teachers should give students support, and guide students to independently complete the project.

3.3 Follow the Document Writing Closely, Improve the Comprehensive Ability

Software documentation is an important part of software products, there is not documentation of the software can not be called as software. Preparation of software documentation in the software development work occupies a prominent position and the considerable workload. Good document has great significance to play the benefits of software product. If it is lack of documentation, a software system is the lack of vitality. In the future, when we find error, update and reuse module, we will encounter a great trouble.

In order to make people to understand their specific work and the basic ideas and methods of the system design, a software developer must have the basic document writing skills; Meanwhile, in the software requirements analysis, system level design, system detailed design and system implementation, testing process, students also need

to have the appropriate documentation writing skills. However, due to the division of Art and Science in high school, most engineering students neglect practicing writing, leading them not to accurately describe the problem, which will significantly limit their ability in the future work. Good documentation writing skills, can improve their comprehensive ability and competitiveness. Therefore, in carrying out the project process, teachers should actively guide students to complete writing the document, tell the students the norms and methods of writing the document, and further guide the students to summarize their own work.

First, teachers should guide students to understand the usage of the support tools of the software engineering, such as commercial visio, MagicDraw, PowerDesigner, and Netbeans UML Plugin, Eclipse UML2 Tools, etc.

Secondly, teachers should guide students to complete the related documentation writing based on software engineering, develop their good ideas, make them to understand the writing standards of the software documentation. Through the project, teachers should give them directions to write the content, ideas and related technologies, and give students the real-time guidance, correct errors and bias timely.

Finally, after the project, teachers can guide the students with higher ability to summary this project, write reports related to the development work, further guide them to analyze and summarize the key questions and write research papers.

3.4 Form R&D Group, Develop Collaboration

To achieve the stated objectives teamwork is shown as the spirit of cooperation and concerted efforts, it can mobilize all the resources of team members and intelligence. As a software developer, teamwork and collaboration is a basic quality. Teamwork can generate innovations and strength.

In the project development process, teachers need to consciously develop the team spirit of each development team, and to foster team spirit, we must focus on the following capabilities and quality.

(1) Training expression and communication skills. Expression and communication skills are very important, no matter how good you make the work, if there is no expression, it cannot allow more people to understand and share, it is almost equal to waste. As a member of the team, we only pay attention to all the exchanges and communication between teams, focus on teamwork in order to make R & D success.

(2) Training initiative to do things. Everybody has a desire to succeed, but success is not a long wait, but by trying to do out. Any member of a team, can not passively wait for others to tell you what to do, but should take the initiative to understand the team's goals, what they need to do, and then carry out a detailed plan, and go all out to complete.

(3) Training professional dedication. The members must have professional ethics. When you have professionalism, you can regard the team as your own thing and play your wisdom.

(4) Training tolerance and cooperation. Potential crisis of the success is to ignore working with others. Some person with strong ability has a good idea, but when his idea is inconsistent with others, he doesn't know how to seek common ground. Some team members are critical of other members of their own, who lack the objective quality of looking at things; in fact, each person has their own strengths and

weaknesses, the key is the attitude among the members, they should be able to find the usual beauty in each other, rather than to pick out of weaknesses. It is particularly important for team spirit to train their quality of seeking common round.

(5)Developing global awareness, the overall situation. Team spirit doesn't oppose the self-assertion, but individual actions must be consistent with the team, person must have overall actions and holistic perspective, considering the team's need. Team members should help each other, look after each other and work together. Therefore, in R&D work, it is extremely important to develop a global concept.

3.5 Bring the New Assessment Method, Form the Correct Orientation

The aim of course examination is for students to master the knowledge and technology, is also an evaluation to teaching effect. Java programming is a professional technical courses, the traditional written examination mode cannot meet the actual situation of course, teachers should focus on assessment of students in the learning process and increase the intensity of the appraisal practice, allow the students to design the Java program and to complete higher Java-based software projects. At the end of the course design, we regard one group as a unit for displaying the development project, evaluate and summarize each project.

Through a variety of assessment methods teachers assess learning process and practical ability, it is scientific and reasonable.

(1)The assessment of the usual practice. The assessment is mainly to urge the students to master the basic knowledge, therefore, it is mainly completed through arranging homework and operating after each chapter. To demonstrate the importance of basic knowledge, and routinely scores account for 30% of the final total grades.

(2)The assessment of practice project. It is made to assess the comprehensive ability of groups and members. It is mainly to evaluate the completion of the project, document writing situation and the expression of the project. The final examination accounts for 40% of the total score.

(3)Final exam assessment. Because assessment (1)(2) focus mainly on the practical ability, therefore, (3) focus mainly on assessing the basic knowledge. In order to prevent students from rotting some knowledge, teachers can take the form of open-book examination; but also to prevent students from copying a large number of materials, the range can beyond the textbooks appropriately, it not only grasps the situation of assessment, but also is not by rote.

4 Summary

With more and more wide usage of the Java language in the community, we put forward higher and higher requirements to the teaching of Java. We should bring up their a good grasp of basic knowledge, practical skills and teamwork ability, it is important to improve the competitiveness of students and reduce the cost of training. This paper presents the community-oriented Java programs teaching methods, from basic syntax, project development, team collaboration and document writing, assessment methods and other aspects it proposes the corresponding teaching ideas, which provides a good talent reference for developing a comprehensive talented person.

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Exploration on Computer Simulation Method in Physics Education

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Abstract. Computer simulations are now an integral part of contemporary basic and applied physics, and computation has become as important as theory and experiment. The necessity and possibility of introducing computer simulation method in physics education are analyzed. Practice and method including typical physics teaching, guidance of programming, model developing are described. The teaching experiences presented that although the students are very interested in computer simulation, there are many problems in the implementation process. The existent problems have been analyzed at the end of the paper.

Keywords: computer simulation, investigating study, physics education.

1 Introduction

Today, a variety of computer applications have been developed and used in physics education, such as multimedia, computer-based laboratories. Computers offer many presentations and opportunities to facilitate lectures in large-scale classrooms. When applied in difficult physics concepts, computers can give straightforward teaching. When applied in laboratory, computers can collect data in experiments as aids in laboratories and this data can be displayed simultaneously and analyzed. Furthermore, research has often been employed to design and develop physics software.

Apart from multimedia teaching, computer-based laboratories, one of the important use areas of computer is the education and training process run by simulations. Computer simulations are now an integral part of contemporary basic and applied physics, and computation has become as important as theory and experiment. With the help of a powerful simulation many of physics subjects which are difficult to teach and transfer can be made simpler and clearer. Also, some experiments which are difficult to make or hard for the students to understand in a real laboratory can be made much simpler with the help of simulations. In this way physics courses are becoming a fun and immersive. Over the last two decades a great deal of educational research has been directed towards the computer simulation in physics education [1], [2]. Many researches have shown that they are more successful in courses run by computer simulations [3], [4].

Whereas the physics teaching in most universities of our country emphasize excessively the physical theory and experimental physics, and computational physics is barely mentioned. In terms of teaching and learning methods, instructors give lectures to the students from the start to the end of entire term. Although the lectures provide the students with a broad background in the principles and concepts of physics, but the students lack of time to think and discuss the problem with free space. In this study, the numerical calculation and simulation method is introduced to the traditional style education, and some experiences in our teaching are described.

2 The Necessity and Possibility

Physics, as a bedrock of all the science and technology, plays a more and more significant role in our society in 21st century. Physics provides the fundamental principles, research method and varies experiment means for other natural science and engineering technology. University physics education for undergraduate students is not only as fundamental course training but also the first stage to be a scientist or engineer.

What should the students learn in university physics class? This is the problem that we have been considering. Compare with the physics knowledge, physics method is more stable and more applicable, and physics method is the way used to acquire knowledge in which students can learn knowledge more quickly and more thoroughly. In addition to general logic method, non-logic method and hypothesis method, mathematics method especially the numerical calculation and simulation method is used in a wide range of engineering and science, including signal and image processing, communications, control design, test and measurement, financial modeling and analysis, and computational biology. For this purpose, it is needed to explore the computer simulation method in university physics education.

Currently, the construction of campus network and computer hardware conditions are maturing for the introduction of computer simulation method in university physics education. Moreover, the university students had received information technology education in junior high or elementary school, so college students are increasingly high level of computer application. Based on the curriculum of our university, Computer programming skills of students can meet the basic requirements for this project. The students from Department of Computer Science learn C language courses in the first semester, students of other faculties learn C language courses in the second semester, and college physics courses are set up in the second semester and third semester. So it's possible for us to introduce computer simulation method in college physics teaching.

June 2010, a total of 260 students in two classes participated in a survey. Statistical results showed that 67% of the students have personal computers, 61% of the students are very interested in the computer simulation method, and 25% of the students have not heard Numerical calculation and simulation. If the teacher guided the use of computer simulation to solve physics problems in university physics teaching, 87% of the students choose to participate. The above data expresses that introducing computer simulation method in college physics teaching is practical viable.

3 Practice and Method

The research has been carried out in 2009-2010 academic year spring semester at Ocean University of China, up to 130 students take part in the computer simulation program.

3.1 Typical Physical Model Teaching

Compared with the conditional teaching method, computer simulation method is a new teaching method and strategy, and it's one kind of investigating study. However, both methods should be closely linked. Because the change of the teaching and learning method must ask for help from the classroom teaching, so it is meaningful for computer simulation method to be brought into whole teaching activity.

In general, because of the first touch with this new method, many students expressed their feelings in the following manner: "what is computer simulation? Why do we have a try? How can I do in order to accomplish a satisfactory result?" So we provide examples to the students, and the examples are beneficial for the student to have a general idea of numerical calculation and simulation. Some physics problems with rich content and a large physical space to expand are selected as typical models (listed in table 1).

Table 1. Typical physics models

| Part of physics | Models |
|----------------------|--|
| Mechanics | Motion synthesis, Rigid body model, Track model, pendulum model |
| Thermodynamics | Maxwell velocity distribution |
| Vibrations and waves | Lissajou figure, Standing wave, Vibration synthesis |
| Electromagnetism | Magnetic field distribution, Electric field distribution |
| Optics | Thomas Young interference, Fraunhofer diffraction, Grating diffraction |

In the typical physics model teaching, the core of physics must be emphasized, including the physical principle, physical model, physical conditions and physical meaning of calculated results. Through these models of teaching, not only to teach students the basic numerical calculation and simulation methods, but also to mobilize the students to participate in a great enthusiasm and initiative. The basic methods and steps of computer simulation as follows:

- Understanding of the physical problem;
- Establishment of physical model;
- Listing the physical equations (Including the initial values and boundary conditions);
- Select the appropriate numerical method;
- Program in computer and achieve numerical calculation;
- Results discussion.

It is only after the student find interesting problem worthy to investigate that the computer simulation learning become possible. What is the problem worthy to investigate? It is exoteric and uncertain, and maybe has several methods and answers. So the teacher should work hard to study the teaching content, change the original close content to open. For example: single pendulum and elastic medium of mechanical wave are approximation of nonlinear phenomenon. The approximations present the subject in a logical and clear style. In order to get a comprehensive understanding of single pendulum, we introduced nonlinear physics process and how to dispose it.

3.2 Guidance of Programming

The guidance of computer programming is a key for our research. C language is compulsory course in our university for all the students major in science and engineering. Combined with the learning of C language course, some exercises programs are given to the students. In the beginning most of the programming tasks involve modifying the given programs in the class. Students should then be given some assignments related to typical models that require them to write their own programs.

MATLAB software is the second numerical calculation and simulation software that we recommend to the students. MATLAB is a high-level language and interactive environment that lets you focus on your course work and applications, rather than on programming details. It enables you to solve many numerical problems in a fraction of the time it takes to write a program in a lower-level language such as Java, C, C++, or Fortran. MATLAB helps you better understand and apply concepts in a wide range of engineering, science, and mathematics applications.

We assume that the students have no background in computer programming, so a self-study guidance courseware about MATLAB software is offered to every student. This self-study Guidance courseware introduces the basic principle and algorithm of MATLAB, including the windows environment, matrix operations, programming algorithm and plot applications.

There are two types of suggested student activities in the program training. The exercises, which are provided in the beginning of the practice, are designed to help students learn specific programming techniques. The problems, which are related to the typical models, are open ended and require students to run, analyze, and modify programs given in the class or write new, but similar programs. Students can learn how to program quickly because they will soon learn that the format for most of the programs is very similar.

3.3 Model Development and Guidance

After the typical physical model teaching and program guidance, the students will choose a particular topic for their own projects, and may later develop their own style as they work on their projects. The teacher should give guidance about research methods as follows:

Develop their understanding about phenomena and physical laws through a process of hypothesis-making, and ideas testing;

Isolate and manipulate parameters and therefore helping them to develop an understanding of the relationships between physical concepts, variables and phenomena;

Employ a variety of representations (pictures, animation, graphs, vectors and numerical data displays) which are helpful in understanding the underlying concepts, relations and processes.

The projects are usually more time consuming and would be appropriate for independent student research. We believe that students obtain a deeper understanding of the physics and the algorithms themselves by writing and modifying their own programs. It's important that students read the problems even if they do not plan to do them.

4 Existent Problem and Analysis

4.1 A Method of Investigating Study

Computer simulation method is one kind of investigating study. This study method means that students choose interesting topics and solve research problem using method similarly in scientific research. In other words, students will develop their independent learning skill through find a topic, research, analysis, presents and joining in a discussion. Computer simulations offer a great variety of opportunities for modeling concepts and processes. Comparing with traditional teaching method, investigating study not only make a point of problem-solving result, but also make a point of training the student's practice ability and innovative ability, not the generation of numbers and figures.

4.2 The Higher Request to the Teacher

The computer simulation teaching method put forward the higher request to the teacher, especially their ability of teaching research and scientific attainments. First, it should be noted that the task is accomplished by great effort, a feature not in existence in traditional classroom teaching. Periodical discussion is indispensable to the student, from choice of subject, to information searching, arrange of project, guidance to program. Therefore one precondition of this research is respect-work spirit of teacher. The next in order, computer simulation method request the teacher must have innovative consciousness and ability. The teacher is the guide to students at the original stage, debater at research stage, questioner at the stage of oral presentation. At the same time reasonable evaluation system should be established to evaluate the investigating study achievement. All of the above require the tutor have high scholarship, for this reason teacher must enhance the study in teaching, become the student's real tutor.

It would be misleading to imply that the computer simulation method may not be difficult to learn—it can be. You must: “crawl before you can walk.” It is perhaps the “crawling” stage in the method that is most difficult for students. There will be some falls and bruises, but with the proper approach and motivation, at the end of the study they will build confidence in their ability to tackle new and different situations.

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Superficial Explore the Humanities Education in College Mathematics Education

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Abstract. Traditional mathematics education pays more attention to the mathematical science education and its pragmatism but ignores the humanism in mathematics. As a result, the students can only obtain some incomplete mathematics and are with low humanities quality. So to strengthen the fusion of humanism education and science education is necessary. This work is a system engineering that needs the joint efforts of all the teachers and the unity cooperation. In this paper the humanism in college mathematics education is discussed. According to the current situation of college mathematics teaching, the importance and feasibility about infiltration of humanistic spirit in college mathematics teaching are elaborated. Some advices are also given to teachers on how to promote the students' humanism.

Keywords: mathematics education, humanities education, combination.

1 Introduction

Mathematics is science of quantitative relationship and space forms about the objective world. As the science tool, it greatly enhances the human ability of nature recognition and nature reconstruction, which determines the education value, the function and position in the long history of mathematics education. And with the progress of the times and social development level, this understanding is also in constant deepening. Mathematics has gradually been endowed with new education meaning.

As U.D'A. [1] pointed out that the roles of mathematics education are to restore the cultural dignity of students and improve the opportunities for employment. He said an important component of mathematics education is to reaffirm and, in many cases, to restore the cultural dignity of students. Much of the content of current programs is supported by a tradition alien to the children. On the other hand, students live in a civilization dominated by mathematically based technology and by unprecedented means of information and communication, but schools present an obsolete worldview. It is equally important to recognize that improving the opportunities for employment is a real expectation that students and parents have of schools. To meet the challenges of the new, self-esteem is essential. Self-esteem goes along with cultural dignity. So in the classroom teaching, mathematics education function is not only to teach

students to master mathematics basic principle and method, but also the more it manifests mathematic humanistic education function.

Mathematics is a kind of human culture, its content, idea, method and the language is an important part of modern civilization [2]. It makes the students thinking ability, attitudes and values and so on get progress and development. It is not only the cultivation of knowledge, and ability but also a kind of sensibility and scientific literacy formation. Therefore, excavating humanity resources of mathematics itself and in the process of mathematics teaching, seeking combining site of mathematics teaching and the humanities education, developing students' humane spirit are important aspects of mathematics curriculum reform in China.

But at present, in university mathematics teaching, a common fact is that teachers often highlighted mathematical professional characteristics, such as emphasis on mathematical logic, strict and accuracy, which are the scientific attributes. But they ignore the humanistic attribute of mathematics in accidentally or deliberately. In fact, mathematics is not only a scientific tool, but also is a kind of culture. Mathematics has scientific attributes, and has humane attributes. The dualism of the mathematical nature decides that the mathematical value orientation, as an education task, is multipolar expansion. Mathematics education is not only imparting knowledge, abilities, and it is a kind of cultural influence, the quality of the training. Mathematics education should be a mutual penetration of humanities education and science education, which is also called integrations.

Therefore, it is a mathematics teacher's basic work that how to impart humanities education in mathematics professional education and how to combine the two together, which makes the student trained is not only a professional "science talent", is also a more general sense of "cultural talent". To this, we put forward some advices from three different levels and angles.

2 Advices on How to Promote the Humanities Education in Mathematics Education

2.1 Combining the Professional Teaching of the History of Mathematics, Mining the Cultural Atmosphere of Mathematics

In fact, there load rich cultural and historical facts behind the content of our teaching mathematics and there has a vibrant spirit behind each of the content. Mathematics is not a symbol, a graphic. It contains a rich cultural atmosphere.

Therefore, teachers should fully tap the human material in new textbook and reveal the scientific connotation of human material. For example, when teachers teach functional limits, they should highlight the great mathematician Cauchy. It is Cauchy that uses the limit sigh first. He defined the infinitely small or infinitesimal as a zero-limit variables simply. Thus the whole process of the limit is described by inequalities, which is the improved method of ε - δ (ε - N). With the strict clear objectives, Cauchy established the complete strict system for mathematical analysis. On the other hand, mathematicians research activities are an integral part of social culture, which reflects the life and values of participants. When the enemy invaded, the city is at stake and the life is threatened, Archimedes is still immersed in the

mathematics study, as the reason is "I can not leave an uncompleted theorem for the future generations "; Euler was blind in right eye when he was 31-year-old. Poor vision in old age ultimately leads to the blindness. But he is still a strong determination to continue to study. His paper is more and long so that in 10 years after his death, his paper is still published in the Academy of Sciences. Mathematicians' dedication shown has in the pursuit of truth and their hard at work, their success and failure, growth and development path, moral strength, etc, all of which can deeply inspire and spur students.

2.2 Combining the Dialectical Viewpoint Contained in Mathematics, Carrying Out the Materialistic Dialectics Education Organically, Shaping Students' Many Scientific Outlook

Mathematics is science of quantitative relationship and space forms about the objective world. While the real world moves, changes and develops according to the dialectical rule that is independent of man's will for transfer. Therefore, as the space form and quantity relationship that reflect this law, everywhere in mathematics is full of dialectics. During the process of the occurrence and development of mathematics, the formation and evolution of the concept, the establishment and development of the important thought method and major theory etc, all show the core of materialist dialectics thoughts are development, movement and change. These are important thought methods. Mathematical object comes from objective material world, which illustrates the materialism epistemology and reflects the point of view that being determines consciousness.

Throughout Chinese mathematical history, the characteristic that mathematics comes from the production practice and guides the practice after forming theory is very obvious. During the process of long mathematics knowledge occurrence and development, the human has accumulated a mathematical science law of thinking and solving strategy for problem. Mathematics, as a scientific tool, expands the human's ability of recognizing nature and transforming nature, which makes the humanity correctly understand natural and transform nature better. These are all good textbooks that undertake to the student dialectical materialism education. And also they have great role to form students' scientific outlook.

2.3 Paying More Attention to Mathematical Aesthetics

Russell, a famous philosopher and Logic mathematician, describes mathematical beauty as a "cold and serious beauty". He pointed out that "Mathematics, if viewed correctly, has not only truth, but also supreme beauty".

Mathematical beauty reflects in multifaceted. The unification of brevity, harmony and universality is an important feature of Mathematical beauty. Brevity is a compelling one in mathematical beauty. The symbols prevailing in the world can be the most concise symbols of words. Refining accurate mathematical concepts and theorem of expression can be the most concise language. With its concise form, mathematics inferred all sorts of amazing theorems and formulas from a set of axioms and conception, which makes people insight into the harmony and order in mathematics. Mathematics is a unit of beauty in structure, symmetry, order and

harmony, such as the coordination of algebra equations and curve in analytic geometry, and the harmony in algebraic structure, topology structure and sequence structure of mathematics structure in Bourbakian School. All these beauties are the foundations of shaping people cheerful sense.

So mathematics education is also an important way to train the aesthetic sense and cultivate esthetic emotion of students. Teachers shall examine the mathematics teaching material with aesthetic education view, reveal the connotation beauty of the teaching content and intentionally lead students to discover and enjoy the beauty of mathematics. Also teachers shall exploit fully the aesthetic factors in the textbook and show the content of mathematical beauty and the nature of mathematics, which exhibit the abstract mathematical arts before the students and permeate it to the heart of students.

3 Conclusion

By these ways students can fully understand mathematical beauty and love it. Moreover these ways build up students' scientific mathematical aesthetic values. The training of the students' mathematics aesthetic interest and aesthetic consciousness and improve students' mathematical beauty, appreciation and creativity, sensibility and improve the students' mathematical humanistic quality.

In short, the appropriate teaching way through the above, can play fully the role of humanity of the mathematics and also make the mathematical learning process become the process of the student will tempering, sublimation thought, edify, purify the mind. Furthermore it will eventually make students to become the useful workers that have the scientific literacy and humanistic quality.

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Study and Design of Wireless Data Communication Experiment Teaching System Based on GPRS

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Abstract. A wireless data transmission experimental teaching system based on GPRS(General Packet Radio Service) is studied in this paper. GPRS network is the platform for remote data transmission in the system. The system consists of three parts, which is remote communication terminal, GPRS network and communications server. Embedded systems based on ARM is used in the design of wireless data terminal.This system based on embedded CPU ARM9 and GPRS module accomplishes the transmission and supervisor of remote data. The type of the GPRS module is SIM companies SIM900 GPRS module. The design of system software includes terminal software and communications server software. Client/server model is the communication model of the data communication between data terminal and the server. Terminal will establish TCP or UDP connection to the communication server as soon as the system is started. Communications server receives the data using Windows socket. Communications server establishes connections to communication terminals through reliable GSM wireless communication network. The advantage of the system is that the operation status of each terminal can be obtained by accessing the communications server. Students and communication technicians can understand and master the GPRS wireless data transmission technology quickly through the experiment teaching system.

Keywords: Wireless data communication, experiment teaching system, ARM, GPRS, GSM.

1 Introduction

With the development of mobile communication technology, wireless data transmission technology based on GPRS is widely used in the sensor data acquisition, data transfer, images and voice transmission. Monitoring and maintenance of mobile wireless communication terminal is the focus of communications support. Present communication monitoring systems in use are designed for large wireless communication systems. System installation and network configuration is extremely complex. To understand the structure and maintenance of wireless communication systems in a short time through experimental communication system consistent with the actual wireless communication system is urgent needed by the communication professional technicians. Therefore, research and design of stable and easy to use wireless communication experiment teaching system is of great significance.

There are two types of connection forms between wireless communication terminal and communication server: (1) Contact way: collection information about environmental parameters, equipment and power supply of the wireless communication terminal. After technical treatment, information is transferred to the communications server through the auxiliary channel comes with the wireless communication terminals. (2) Fiber ring network: open another channel from the master transmission channel and send data to the server using slot extractio. Therefore, research and design of the wireless data communication experiment teaching system must be based on the structure of the wireless communication network and appropriate technical solutions should be used in the design.

2 Key Technology of System

2.1 The Network Architecture of GSM/GPRS and TCP/UDP

GPRS (General Paeket Radio System) system is based on IP, using mobile public network resources, network transfer rate can theoretically reach 171.2Kb / s, and the transmission delay is small, system performance is stable, Now, GPRS network of China Mobile and China Unicom already covers the whole country. GPRS comes from adding GGSN(Gate GPRS Supporting Node) and SGSN(Serving GPRS Supporting Ndoe) in the GSM network, which allows the user to send and receive data in the end to end packet mode and is compatible with circuit-based data and packet switched data. GPRS is 2.5G mobile communication systems. The system structure is shown in Figure 1.

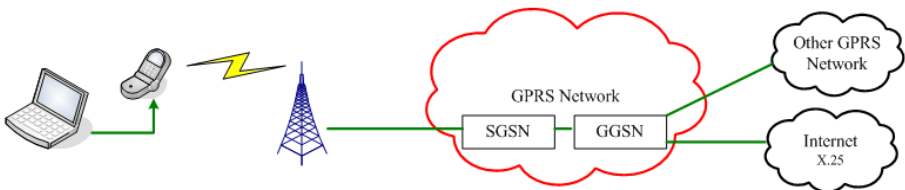


Fig. 1. GPRS network architecture

Server communicate with the terminal through GPRS communication module, SGSN communicate with the GGSN, GGSN process packet data and sent data to the destination network, such as the Internet or X.25 networks. SGSN is the interface between the GSM network and the terminal. SGSN's function is recording the current location information of mobile terminals and performing mobile packet data transmission and reception between the mobile station and the GGSN. GGSN is gateway connect GSM network and external packet switched networks (such as the Internet and LAN).

IP protocol is the core protocol in the TCP/IP protocol suite. The TCP, UDP, ICMP and GIMP data transfer in IP datagram format. Transport layer protocol TCP /UDP use IP as the network layer protocol in the system design. TCP provides high reliability data communication for two hosts. UDP's function is to send datagram from one host to another host in the application layer. UDP does not guarantee that the

datagram can reach the destination. Reliability of data communication is supported by the application layer software.

2.2 ARM and Embedded System

ATMEL ARM family of microprocessor company is mainly used for PDA and communications products, ATMEL company has industrial chip and enjoy high reputation in the industry. Based on the above comparison, taking into account the design of system functions and communication protocols, ATMEL company's ARM9 is selected as the embedded processor in the design of wireless data communication experiment teaching system.

Windows Embedded CE is a real-time operating system with multi-tasking and complete priority. Development tools like Platform Builder, a Visual Studio 2005 plug in, provide an integrated development environment (IDE) that enables user to build applications and Windows Embedded CE operating system software in a familiar environment.

3 System Scheme Design

3.1 System Function Design

GPRS-based remote wireless communication platform for experimental teaching system integrates advanced GPRS wireless communication technology, computer control technology, data acquisition technology and database technology. Communication terminal is connected to a variety of sensors. Embedded system process the data collected and the data is transmitted to the communication server via GPRS, the real-time operation of remote devices such as wireless communication terminals is obtained to achieve the capabilities of alarm and data analysis. Communication technicians can understand the principles and techniques of wireless data communication based on GPRS through the experiment teaching system.

3.2 Structure of Experiment System

Experimental system consists of three parts: remote communication terminals, GPRS wireless communication network and communication server. Remote communication terminals include the data acquisition and control devices and GPRS DTU (GPRS data transfer terminals). GPRS wireless communication network use existing communication resources. The communication between system communication server and wireless communication terminals containing data collection system is realized by the socket programming. A request is sent out to sever by the communication terminal after applying for a socket. The server applies for a stationary socket and then starts waiting for the request of client terminal which includes connection request and information request by any client terminal. Both client terminal and sever can send and receive data through the socket while the connection request is succeeding. The socket is closed and the connection is moved after communication. The C/S mode is adopted to solve the issue of inter-process communication by socket.

Data package encapsulation and analysis-data should be encapsulated before transmission and the data coming from sever must be analyzed simultaneously. The experimental system is designed with a high-speed UDP transmission. Besides, the UDP packet processing is brought in before the data transmission.

Communication server, the main function of communication server is to achieve the communication for GPRS communication module, including data reception, data display, data storage and the sending of control commands. Therefore, the major task in the communication server is software architecture design and application development. Hardware requirements of communication server: Any computer of communication server must access to Internet like the mainstream PC. Monitoring host of communication server can access to Internet. In this system, ADSL accessing network is adopted to connect Internet and uses dynamic IP access. Software functional requirements for communication server: a user’s name and a password are required to enter the monitoring and management system. The host is responsible for receiving the temporal data coming from every monitoring terminal, analyzing the received data packet and storing them in local database to inquire and management easily. The manager can select one or more channel data for displaying and inquiring.

GPRS wireless communication network, GPRS data communication terminal embedded with AT command set protocol have many advantages, including packaging or analyzing the received data according to the format of UDP protocol, setting the heartbeat interval according to the quality of real-time GPRS network and supporting transport protocol of point to multipoint. Terminal built-in protocol process operating system and application software work independently, without the support of background computer resources; providing transparent, duplex, peer-to-peer data transmission channel; supporting dynamic IP address, DNS, RS-232/422 / 485 or Ethernet interface which can create and maintain data communication links by setting the operating mode automatically, ensuring data channels on-line. Embedded TCP/IP protocols stack which has serial multiplex, TCP/IP, UDP, DNS+TCP/IP, DNS+UDP and other functions.

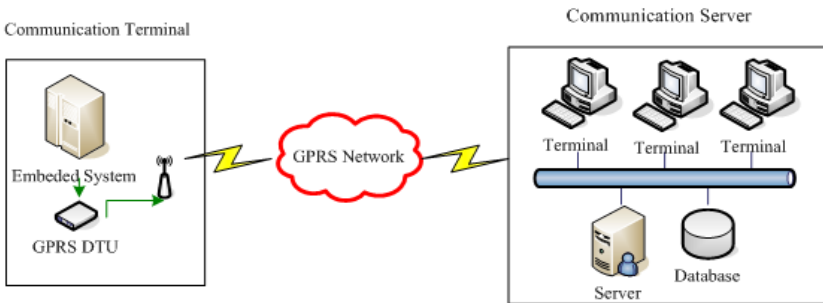


Fig. 2. GPRS data transmission diagram

Remote data communication terminal, data communication terminal is responsible for data acquisition and transmitting to the communication server, communication terminal collect the data and process correspondingly, then transfer to the GPRS DTU through a serial port. GPRS DTU processes data by TCP/IP protocol and transmits to

temperature and humidity measurement is 40°C ~ 125°C and 0 % ~ 99% RH respectively. SIM900 as GPRS wireless module can provide 10 GPRS channel type. The TCP/IP protocol stack is intergraded; TCP/IP AT instruction set is expanding, which facilitated the development of data transmission equipment. ZIF connector is linked with external SIM card. MCU is communicated with SIM900 by sending AT instructions to realize the network connection, data sending, etc.

5 System Software Design

The experiment software system design includes network communication program of the communication server, ARM processor communication program of the ARM communication terminal embedded system and high-speed A/D data acquisition circuit processor, GPRS communication protocol based on TCP/IP and UDP. Data collection terminal needs to obtain the IP address from server, the server sends the local IP in the form of GPRS to data collection terminal. Data collection terminal extracts the IP address, then conducts the local setting and initiates the connection.

Network communication program of the communication server uses Visual Studio2010 C#.NET for developing, Embedded system of the communication terminal uses WindowsCE and C++ for development, it has excellent versatility and portability, if the hardware circuit changes, just need to modify the terminal appropriate hardware circuit driver and time sequence program, then continue to use without modifying the server program.

5.1 Software Design of Data Collection Terminal

The whole data acquisition terminal software includes initial program, sensor acquisition program of the digital temperature and humidity, serial ports program, transceiver program of the network connection command, test program and so on.

Data acquisition program consists of data acquisition and data transfer. Data acquisition obtains 40-bit temperature and humidity data from the sensor, data conversion includes decimal conversion, ASCII encoding and temperature judgments. AM2303 uses single-bus to realize data transmission, one communication needs 5 ms, MCU sending a start signal, AM2303 transforms from low-power mode to high-speed mode, waiting for until the finish of the host start signal, AM2303 sends a response signal and 40 bit data, then triggers a signal acquisition.

Remote communication terminal uses 32-bit ARM processor of high-performance and embedded real-time operating system WindowsCE, and uses GPRS to communicate with the control center communication server. ARM processor uses RS-232 serial ports to communicate with the wireless module SIM900 in the form of AT commanding. If the microcontroller sends commands correctly, the SIM300 module will return "OK", otherwise returned "ERROR" or other commands, the microcontroller judges instructions which returned by the wireless module to determine the further program, until connected to the GPRS network successfully.

5.2 Application Software Design of Communication Server

Communication server PC "Remote Data Communication Software" is the specific software of this design scheme, compiling based on the terminal communication protocol. Entering the data transfer process after the success connection between GPRS and Internet. Therefore we need to design user application layer communication protocol. PC transfers updating code into writing terminal's updating code frame and accesses Internet, connect to the GPRS network, then to the GPRS communication board, transfer data to the terminal external memory, the frame format requires reference to the communication protocol.

The program of the communication server network uses Visual Studio2010 C #. NET for programming design, adding a GPRS wireless module as receiver for the server and using MSCOMM serial console to complete the serial communication, data reading, as well as the analyze and display of real-time and the graphical for the return data, which can also control the data-collection interval of the data acquisition circuit, aiming to remote monitoring and control. Communication server software system creates a database, you can call and view the data, save records of graphics and prints. Software interface is made up of the real-time monitoring, historical data unit and the GPRS connection unit.

In the frame format of the communication protocol, the top five of three data frame is the same. The start of the frame is presented in the form of 68H. Logical address of the communication terminal is used to uniquely identify the initiator and receiver of communication terminal, which includes the urban area code and the terminal addressing code. Master address is used to uniquely identify the master communication terminal object. Control code stands for the implementation of the operation. 3BH represents the updating code download operation. The data length shows the number of the data bytes from this character to the check code. Data frame also includes the current frame number and the data content of the frame. Furthermore, the data length is fixed at FFFH (4K). 00H is padded if the length is not satisfied. The response frame gives the error messages and the next frame number in order to process the following transmission. The checking code and the tail frame have the three common parts. The checking code is the bytes cumulative sum between the header frame and the checking code.

6 Conclusion

The development of experimental wireless communication system is the application of various technologies and combinations of hardware and software systems engineering. The development of electronics and communications is rapid. The work design a wireless communication experimental teaching system based on ARM and GPRS combining with the current wireless data communications technology. Remote communication terminals use high-performance 32-bit ARM processor and embedded real-time operating system-WindowsCE and communicate with communication server in the control center via GPRS. The communication server send and receive data through the Internet and use TCP / UDP as communication protocol, which can further ensure the security of the system by means of data encryption technology.

In addition to adopting ARM processors, the data collection terminal use high-speed floating-point DSP processors as on-site data processing. Then the experimental system can realize real-time image data acquisition and transmission.

The system changes the way of data acquisition, communication and control, most of which are integrated in a single device. It can improve the system stabilities and reduce the system memory-consuming, as well as the power consumption. With the rapid development of electronic technology, MC3 integration (measurement, control, communication and collection) will be one of the directions of the independent experimental systems.

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The Unitary Optimization and Practice in Assembly Language Programming Course

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Abstract. Assembly Language Programming is a theoretical and practical courses, which will help complete the cultivation of students' application ability. Based on requirements of solid foundation and high abilities in training applied talents, systems analysis of teaching effectiveness factors, from the teaching content, teaching process, teaching methods, evaluation criteria to other aspects of an unitary program optimization, and achieved good teaching results through teaching practice.

Keywords: Assembly language, applied talents, unitary program optimization, teaching effect.

1 Introduction

Talents Training in the higher education system and curriculum is an important part of the system [1]. Assembly Language Programming course focused on practical applications, and can be used to complete the course application ability of students. Applied talents should have a solid theoretical foundation, practical application of skills and a strong spirit of innovation [2]. But in actual teaching of assembly language programming process, the teachers focused on teaching the basics of theory in textbook and the practical application ability of students, but teaching of theory innovative teaching is little or no training. Although students had learned assembly language programming courses, passed exams, but in curriculum design, graduate design, when they get the title they still have no idea, even though it can refer to routine rote tasks, but they can not really understand the design ideas and programming skills, can not apply basic knowledge in practical work, finally, there will have a direct impact on student employment [3]. There has a direct relationship with our teaching, which is no need to implement application-based teaching. Therefore, in the teaching process, we have to cultivate talents for the target and carry out application of teaching overall optimization.

2 Main Factors of Teaching Affect

There are four main factors in assembly language programming course teaching reflected in teaching content, teaching process, teaching methods and evaluation.

A. Unreasonable Arrangement teaching content

Existing teaching materials mainly are classified by the method of knowledge points prepared. Such materials compiled for a certain person that has basic assembly knowledge, but for beginners there are many chronological anomaly in these materials. Instance is not representative, fail to reflect the actual value.

B. The target in teaching process is not strong and theoretical and experimental disjunction

It reflected in the knowledge of assembly language that design knowledge points are scattered, and seemingly unrelated, but there is inextricably linked in fact. It is the basis of application capacity-building. In teaching process, teachers have no knowledge points that learning objectives and fully exploit their contacts and practical applications. Theory first, then experiment, theory and practice can not be combine to reduce the role of experiment [4].

C. Limited teaching methods

It reflected in the teachers teaching in the process of theory courses still use the traditional teaching methods, in full accordance with the teaching materials, scripted, mechanical indoctrination, without summary, or guiding students and inspiring students to think creatively.

D. Focus on teaching evaluation assessment of theoretical knowledge, lack of capacity assessment of the application.

It reflected in the assessment of student learning in a closed book exam score-based [5], mainly based on the assessment of knowledge, lack of comprehensive application of basic knowledge of the actual capacity of the assessment.

3 Overall Optimization Program

For the impact of Assembly Language Programming course teaching effectiveness factors, the paper discuss revising course content, improving the teaching process, the design of teaching methods, improving the overall evaluation criteria optimization program, making students form knowledge structure system and improve student learning enthusiasm. Meanwhile, full it can play the students' enthusiasm to learn and master the basic knowledge and improve program design capability to meet the comprehensive requirements of applications and innovative thinking.

3.1 Revised Course Content

Teaching by the IBM-PC assembly language programming (2nd edition) compiled by SHEN Mei-ming, WEN Dong-chan, according to the principles of progressive laws and knowledge apply from teaching content to applied examples in order to revise the design in study of knowledge and achieve easy student learning, understanding and application of talents training provided for the application of knowledge ensure.

A. Adjust teaching content textbooks order

Adjust the teaching content in the following order: Chapter 3, assembly language programming format enable students to learn in advance how to write assembler and

improve the interest in learning. Solving half of the semester passed, they learned a lot of basic knowledge, but do not know how to write assembler. With no worries about the meat bones, Chapter 4 stresses the addressing data-related, because the next point instruction operand instruction addressing modes to apply them. Chapter 5 stresses the order structure of programming. The main content is the data transfer instructions, arithmetic instructions, logical sequence of structured programming instructions and examples. Chapter 6 is about branching process design, mainly related with the transfer of the address addressing mode, an unconditional branch, conditional branch instructions and branch structure of programming examples. Chapter 7 process about the design loop structure, the main content of loop instructions, string processing instructions and the loop structure programming examples. Hundreds of instructions that split into different chapters depending on the application in the talks, to avoid accumulation of scattered memories, instruction to explain the design requirements by the program directly after the application of learned writing assembler instructions, apply their knowledge. Through repeated programming of natural remember instructions, directives, operators and other basic knowledge, not rote memorization, and application flexibility.

B. Design and practical application of relevant examples.

Discard the materials on the example of design and practical application of relevant examples, such as, XLAT instruction given in the life of digital applications such as meter, electronic scale display instance. This reflects not only that the application of knowledge points, but also better able to explain the significance of learning the knowledge. Stimulate student interest in learning and eager they to learn.

3.2 Improve the Teaching Process

The goal in taught process is to systematize the scattered knowledge, and the ability to practice, organic synthesis of theory and practice. To achieve the goal of improving the teaching, the refining process is as follows: Clear learning objectives→Explain the knowledge points→Summarized that contact→Experimental application. Through systemic teaching process, enable students to master a solid theoretical foundation and the practical application of programming skills.

A. Clear learning objectives of knowledge points

Before explaining the knowledge points, we should clear learning objectives firstly, for example, addressing, addressing learning goal is the written format, by addressing the process by looking for specific operands. Thus before study students know before, which is the key, which is needed to understand the knowledge, avoid blind and lectures, and avoid do not know what to study, how to learn.

B. Explain knowledge points and summarize association

Teachers explain step by step according to the knowledge points of learning objectives, the knowledge points are summarized after learning of the target, and then learned the knowledge points, essentially analysis the association between the knowledge points and help students further clear clue, fill in the content, reinforcement learning, let students develop knowledge system structure. For example, learning addressing and comprehensive knowledge of the memory and register, further clarify the purpose of study and the previous knowledge.

C. Experimental application

Knowledge point itself is not the focus of teaching, focusing on how to apply the knowledge points, therefore, in the teaching process we must pay full attention to laboratory class. Change the traditional theory first time after the commencement of the experiment, according to test theory course content organized. For example, the process of assembly program on the machine, addressing theoretical explanation immediately after the experiment, experimental verification of knowledge, help memory, understanding. After instructions explaining, the follow-related design experiment, familiar with format verification instructions and complete the function, meanwhile can train students to develop solving ability, develop programming skills. Through this experiment, students can deepen understand abstract theory, proficient studied knowledge, and can achieve the purpose of integrated design.

3.3 Design Teaching Method

In theory teaching design, for the comparison of different methods of knowledge point, problem-law, case teaching, task-driven method and project-based approach and a variety of teaching methods, enhance memory, abstract thinking, logical reasoning ability, improve their understanding and comprehensive programming skills.

A. Comparative teaching

Comparing the knowledge points of the assembly language and C language has been learned k, deepen the knowledge of the memory compilation, understanding, enhance learning efficiency. For example, in explaining the data type, DB、 DW、 DD、 DQ and DT, etc., it studied the C language programming in the char, int, long and floating point types (float, double) and other data types [8]. Because both C and assembly language programming language knowledge is very much comparable, but not too many applications, will be adhered to trade-off phenomenon.

B. Questions guided method

Through knowledge elicit problems, solve problems, enhance memory. For example, XLAT escape directive, which not only opcode operand, which implied that the operation using the number of questions the source operand and destination operand provided by whom? Explained through the instruction of the implementation process, students will find the source operand is a byte memory cell contents, the destination operand is the AL register. Source operand bytes of memory cell address by whom? Students further reflection, the memory unit should be in for a byte code table memory unit, it is necessary in advance of the implementation of the directive defined in the data section for the code table. The offset address of the memory cell the contents of the BX register and add the contents of register AL to provide, BX register content code table for the first address, AL register, the contents of the memory unit of the distance for the first byte code table displacement. These are the implementation of the directive must be done before the initial operation. Guidance for the issues is resolved by the use of implicit instruction operands and instruction execution to be done before initialization. Use implicit operands can be used to explain the problem to guide method.

C. Example teaching

Do not have specific knowledge to explain too much emphasis on the concept of point, format, requirements, coupled with appropriate teaching examples only, you can play a multiplier effect, through specific examples to explain to guide students to apply knowledge already learned. For example, the explanation and memory addressing modes on the 5, just a typical application example is given, first, addressing the application of better understanding, the second is to illustrate the memory operand, use the 5 addressing modes, in what Can be, three different applications to illustrate how flexible choice of the 5 addressing modes. Application instructions can be part of teaching.

D. Task-driven teaching method

By mission requirements, mission-driven in the integrated application of guiding students learned the basics of the job done. Whether the order of the structure, branch structure, loop structure design or routine design gave students the task of designing a practical program, according to the steps in program design, students in the task-driven, comprehensive application based on previous learned knowledge. Through the completion of the task, and gradually train students to analyze and solve problems and programming capabilities. The method mainly used in the programming section.

E. Project-based teaching method

Actual project is given the task to guide students to more reading, writing, modify the program to further improve their programming skills, to expand the students way of thinking and learning. For example, look at the game again and again crack the crystal, the piano writing computer programs, using DEBUG tools to analyze the threat of buffer overflow vulnerabilities structure of the program, the preparation of the corresponding defensive procedures. This method is mainly used to improve part of the course.

3.4 Improve the Evaluation Criteria

Undergraduate theory courses with normal results of basic evaluation criteria, midterm and final examination results by a certain coefficient of the weighted average, comprehensive assessment of student learning. Experimental evaluation of a separate class, the experimental class performance and completion of lab reports is given corresponding points. Both in theory and practice of evaluation criteria are not able to truly reflect the course "deep foundation, the application of talents and abilities" of the training objectives, the need to strengthen the assessment of student proficiency, the real test of their ability and level out. Assembly Language Programming evaluation criteria a "comprehensive application and basic knowledge "form.

A. Testing basics knowledge

Closed book examinations, there are fill-in type questions, multiple choice questions to determine questions, short answer, program design and other major assessment of students master the basic knowledge, understanding and easy application.

B. Testing comprehensive ability

Examination way include the machine, open-book, ballot programming to each candidate a question, requiring students to design algorithms, programming,

assembly, connection, commissioning, operation procedures. Major integrated use of student assessment based on comprehensive knowledge of programming skills.

4 Analysis of Practice Effect

Design by 2007 undergraduate students and laboratory classes begin regular classes, regular classes with traditional teaching programs, the experimental class used for teaching courses of overall optimization strategy. After 3 years of teaching, teaching effectiveness questionnaire by the students visit, returning the results of statistical data in Figure 1.

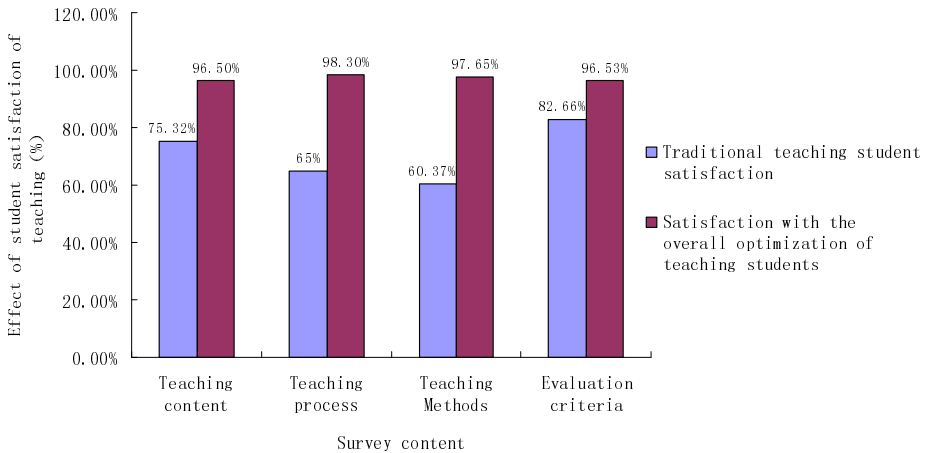


Fig. 1. Statistics teaching effectiveness

Chart 1 analysis shows that amend the content of student satisfaction of teaching from the traditional teaching of 75.32% to 96.50%, indicating that the content of teaching students more easily learn, understand, grasp and practical applications; improve the teaching process, student satisfaction from the traditional teaching 65% to 98.30%, so that students in learning knowledge points clearly to learn what the former, focused, with goals and priorities to learn better than blind study after completing their studies and experiments are summarized to further enhance memory, comprehension, so that More knowledge be rational, easy-to-students develop knowledge of the system structure. Design of teaching methods, student satisfaction from the traditional teaching of 60.37% to 97.65%, indicating that better stimulate students interest in learning, motivation and initiative, helping to train students to analyze, resolve and ability to innovate, improve their overall programming skills. Evaluation criteria after the implementation of student satisfaction from the traditional teaching of 82.66% to 96.53%, indicating that the basic knowledge from the classification standards to understand and comprehensive evaluation of both the practical application of the ability of students, more fair and objective. Thus, the overall teaching strategy achieves optimal training thick foundation, the application of talents and abilities of the target.

5 Conclusion

In this paper, problems in traditional Assembly Language Programming teaching, teaching content, teaching process, teaching methods and evaluation criteria for overall optimization, get better teaching results. But within limited time in order to enable students with systematic knowledge, principled, practical and skills based, students rigorous, systematic, and creative thinking, for further improve teaching effectiveness, the future necessary is optimization of both teaching methods and experimental teaching.

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Exploration and Analysis of Teaching Methods of Higher Vocational Education Curricula

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Abstract. Through the questionnaire survey of 407 students from four different majors of water conservancy department of yellow river conservancy technical institute, it makes clear that what teaching methods higher vocational students prefer; what teaching methods higher vocational teachers mainly adopt for current instructions; what suggestions students always make about current teaching methods so that higher vocational teaching methods can be further reformed and current vocational courses teaching quality can be enhanced.

Keywords: higher vocational education, curricula, teaching methods, questionnaire survey.

1 Introduction

No16 document of higher education bureau of education ministry indicates that aiming at the characteristics of higher vocational college students, train the social adaptability of students, help students set up the idea of lifelong learning, enhance the study ability, learn mutual communication and team cooperation, enhance their practice ability, creative ability, obtaining employment ability and venturing ability, train the comprehensive development socialist builders and successors.

At present, the domestic higher vocational education reform is conducting, especially the curricula reform. The core of curricula reform is how to improve the teaching qualities. But the differences of teaching methods are especially important for curricula teaching quality.

The essence and difficulty of higher education reform is teaching work. Professor Chen Yu, the superintendent of research institute of Chinese vocational of Beijing University says "The essence of vocational education reform is teaching, the difficulty is curricula, the tender spot is the teacher, the higher level is the system. It is clear that the reform of higher vocational needs to be comprehensively conducted. The reform of curricula teaching method is urgent and it is also the stay point of higher education reform. That is because all reforms need to be achieved through classroom teaching.

Hence, asking students for help, the questionnaire survey about higher curricula teaching methods is conducted. The details are shown below.

2 Questionnaire Survey Contents

After analyzing and discussing, 7 questions below are brought forward, the preceding 4 questions have the same options which are 30 different teaching method. The first question is which teaching methods students have heard of, the second question is to investigate which teaching methods teachers currently mainly adopt, the third question is which teaching methods are easy to accept for students, the fourth question is to investigate which teaching methods students think have good teaching effect; the course examination method is a part of teaching method, the fifth question is what examination method is reasonable; the sixth question is investigate which kind of teaching method has better teaching effect in the opinion of students; the seven question is to inquiry what suggestions students have for current curricula teaching methods.

The 30 different teaching methods of the preceding 4 questions contain:

- (1) lecturing method
- (2) multimedia teaching method
- (3) project-oriented teaching method
- (4) task-driven teaching method
- (5) discussing teaching method
- (6) assaulting teaching method
- (7) working process-oriented teaching method
- (8) scene teaching method
- (9) model teaching method
- (10) watching video tape
- (11) process examination teaching method
- (12) classroom questioning teaching method
- (13) autonomous learning ability training teaching method
- (14) encourage teaching method
- (15) case analysis teaching method
- (16) studying boosted by examination teaching method
- (17) role playing teaching method
- (18) brain storm method
- (19) comparison teaching method
- (20) animation displaying method
- (21) demonstration teaching method
- (22) scores-boosting method
- (23) item practice training teaching method
- (24) practice teaching method
- (25) finding mistake teaching method
- (26) interview teaching method
- (27) demonstration method
- (28) match-boosted method
- (29) encouraging innovation method
- (30) post practice teaching method

3 Results and Analysis of Questionnaire Survey

In December 2010 and January 2011, the project team conduct the questionnaire survey to 407 students of four majors which contains hydraulic engineering experiment and detection technology major, water conservancy and hydropower structure engineering major, water conservancy and hydropower construction technology engineering major, hydraulic engineering supervision major. The survey results are shown below:

3.1 Which of These Teaching Methods Have You Heard of?

Survey results are shown in Fig 1.

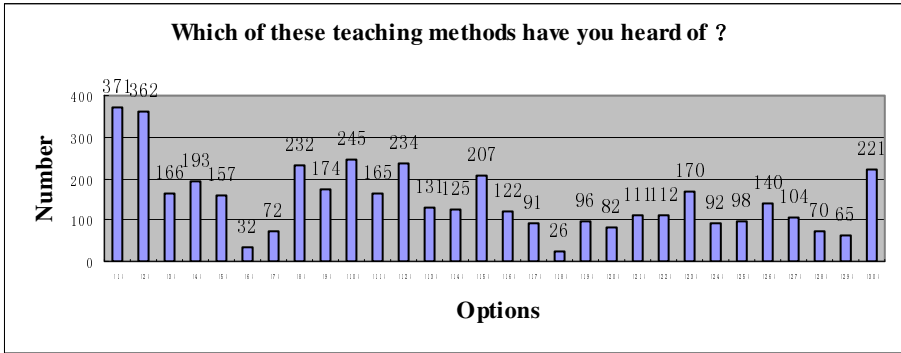


Fig. 1. Survey results of question 1

The survey results show that the teaching methods which many students (above 150 students) have heard of are (1) lecturing method; (2) multimedia teaching method; (3) project-oriented teaching method; (4) task-driven teaching method; (5) discussing teaching method; (8) scene teaching method; (9) model teaching method; (10) watching video tape, (11) process examination teaching method, (12) classroom questioning teaching method; (15) case analysis teaching method; (25) finding mistake teaching method; (30) post practice teaching method.

In recent years, new teaching methods are adopted in higher vocational curricula reform, such as project-oriented teaching method, task-driven teaching method, discussing teaching method, process examination teaching method, case analysis teaching method, finding mistake teaching method and post practice teaching method which are gradually familiar to students. It can be seen that the reform in recent years have developed into the level of students.

3.2 At Present, Which Teaching Methods do Teachers of Every Course Mainly Adopt?

Survey results are shown in Fig 2.

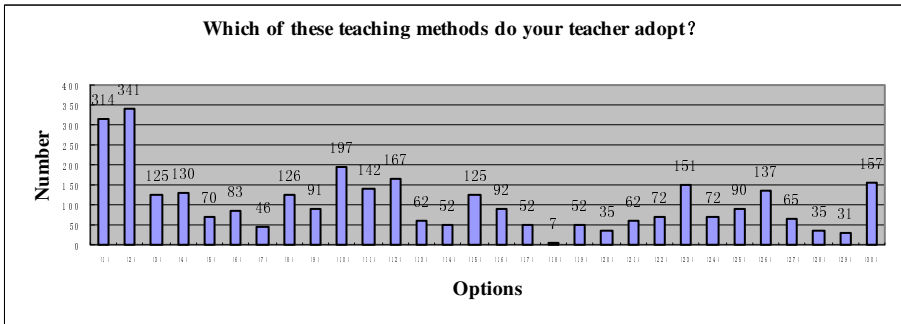


Fig. 2. Survey results of question 2

The survey results show that at present, the teaching methods which teachers always adopt (above 100) are (1) lecturing method; (2) multimedia teaching method; (3) project-oriented teaching method; (4) task-driven teaching method; (8) scene teaching method; (10) watching video tape; (11) process examination teaching method; (12) classroom questioning teaching method; (15) case analysis teaching method; (23) item practice training teaching method; (25) finding mistake teaching method; (30) post practice teaching method.

In the results above, project-oriented teaching method, task-driven teaching method, process examination teaching method, item practice training teaching method, finding mistake teaching method, post practice teaching method, these new type teaching methods are extensively applied. This demonstrates that the reform of higher vocational education has created the initial effect. However, lecturing method and multimedia teaching method are applied most. This phenomenon illuminates that the reform of teaching methods is not deep enough, not thorough enough.

3.3 Which Teaching Methods Your Teacher Uses do You Prefer?

Survey results are shown in Fig 3.

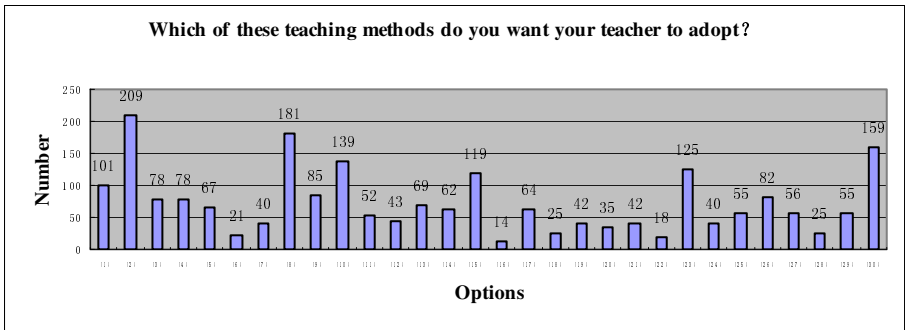


Fig. 3. Survey results of question 3

The survey results show that the teaching methods which students usually like contain (1) lecturing method; (2) multimedia teaching method; (8) scene teaching method; (10) watching video tape; (15) case analysis teaching method; (23) item practice training teaching method; (30) post practice teaching.

From the results above, it can be seen that except for the traditional lecturing method, students especially like the multimedia teaching method, whose sensory impact is strong, scene teaching method, watching video tape, item practice training teaching method which is closely related to working contents and requires practice operation.

3.4 Which Teaching Methods do You Believe Have Better Effect?

Survey results are shown in Fig 4.

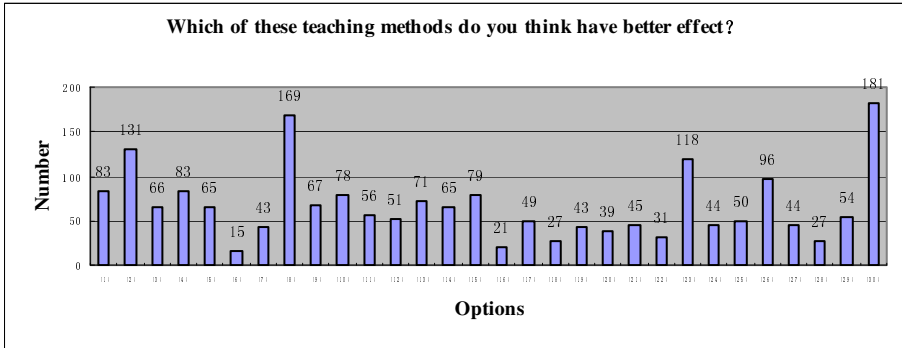


Fig. 4. Survey results of question 4

The survey results show that teaching methods which students believe have better effect (above 90) are (2) multimedia teaching method; (8) scene teaching method; (23) item practice training teaching method; (26) interview teaching method; (30) post practice teaching method.

The results above indicate that scene teaching method, which is close related to working contents, item practice training teaching method, post practice teaching method have better effect. Multimedia teaching method whose visual effect is excellent is able to display a large quantity of actual engineering photographs and make some intricate problems simple. Interview teaching method is convenient to measure the actual level of students in case of copying practice task and encourage students to complete study tasks.

3.5 Which of These Examine Methods do You Think Are More Reasonable?

Survey results are shown in Fig 5.

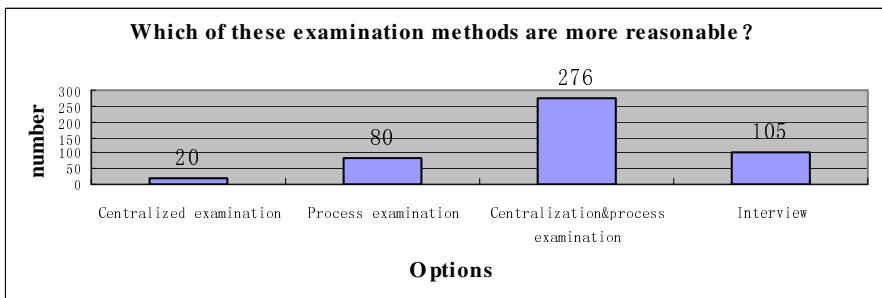


Fig. 5. Survey results of question 5

The survey results show that in the opinions of students, the most reasonable teaching method is to combine the process examination with centralized examination. The second reasonable is interview, 80 students believe process examination reasonable and only 20 students believe centralized examination reasonable. It can be concluded that combining the process examination with centralized examination is the most reasonable because it not only prevent the deviant phenomenon that students daily do not work and only temporarily study hard before the examination but also prevent the unreasonable phenomenon that just one examination determines the final result.

3.6 Which of These Teaching Methods do You Think Are More Reasonable?

Survey results are shown in Fig 6.

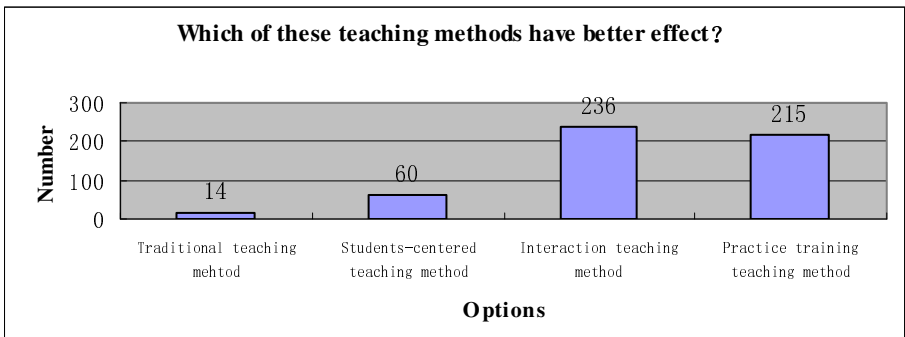


Fig. 6. Survey results of question 6

The survey results show that 236 students believe teaching methods concerning interaction have better effect and 215 students believe item practice training teaching method have better effect, 60 students appropriate autonomous learning teaching method, only 14 students appropriate traditional teaching method. It can be seen that students demand the increase of the interacting segment and want to participate in the classroom teaching actively; otherwise, they also appropriate practice training teaching method. Seldom do students choose teaching methods in which they can play a leading part It can be concluded that students want to participate in classroom teaching meanwhile they do not like the traditional method that mainly students read books and teachers lecture as a assistance. It is believed that the lecturing of teachers is helpful for learning and understanding of problems to students.

3.7 What Are Your Suggestions about the Teaching Methods of Every Course?

Survey results are shown in Fig 7.

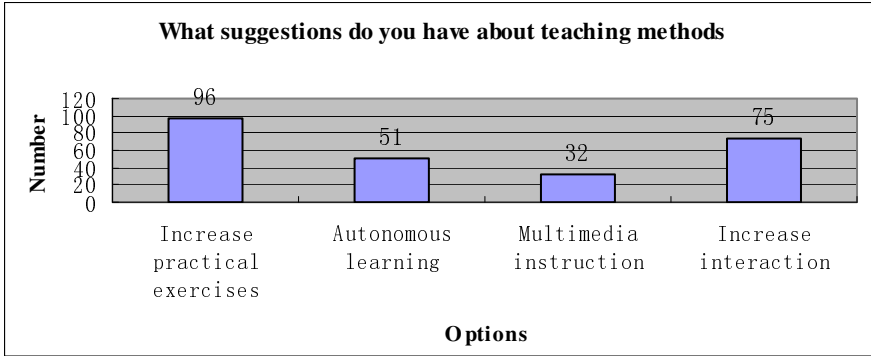


Fig. 7. Survey results of question 7

The survey results show that suggestions of students can be summarized as 4 sorts: 96 students (the most) suggest increasing the practice exercises, 75 students suggest increasing the interaction teaching segments, 51 students suggest autonomous learning, 32 students suggest multimedia teaching. It can be seen that students hope to increase interaction segments and participate in the classroom teaching energetically; otherwise practice training is also popular to students.

4 Conclusions

By analyzing of the questionnaire survey results, some conclusions can be drawn:

(1)Through efforts of several years for higher vocational reform, the idea and philosophy reform are accepted by most of teachers and students, project-oriented teaching method, task-driven teaching method, process examination teaching method, case analysis teaching method, item practice training teaching method, post practice teaching method, etc, these new methods are widely applied.

(2)Lecturing method and multimedia method are still used most widely. Some teachers still adopt the traditional teaching method and the reform is not deep enough.

(3)The examination pattern which combines the process examination with centralized examination is comparatively scientific and reasonable. It is appropriate to be used in the examination of every course.

(4)Students have the demands that the practice contents and interaction segments should be increased so the independent study ability can be exerted and their enthusiasm and initiative can be mobilized. Finally, the study and teaching quality of higher vocational curricula can be enhanced.

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A Study on the Capacity Elements of Civil Engineering Applied Talents

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Abstract. By applying the methods of investigation and comparison, this paper analyzed the capacity elements of civil engineering applied talents and proposed professional competence factors and non-professional capacity factors. The former includes construction capability, design capability, managing capability. And the latter includes humanities quality, teamwork and interpersonal skills, adaptability and learning ability, innovation ability, etc. Then elaborated the training methods of these capacity elements correspondingly. It may provide references for the training of civil engineering applied talents.

Keywords: civil engineering applied talents professional competence non-professional capacity.

1 Introduction

In March 2011, the two sessions (the National People's Congress and the Chinese People's Political Consultative Conference) was hold in Beijing and passed the "Twelfth Five-Year Plan for Economic and Social Development" [1]. The plan sets out the main task of economic constructions, including expanding domestic demand, strengthen infrastructure construction, speeding up the construction of new countryside, and steadily promoting urbanization construction. And most of these economic constructions are related to the civil engineering, that's to say our country will need more civil engineering applied talents who adapt to social needs in the "Twelfth Five-Year" period.

The training quality of college's civil engineering talents is directly related to the contributions that the graduates will make to the social construction. 2003 issue (X J K 03CG014) [2], which is one of the Hunan Education Science the "The Tenth Five-Year" plan issues, has conducted a survey of 60 enterprises which graduates during 2003 and 2005 worked for. From the feedback information of the employers, we may conclude that employers tend to value the person with a strong professional competence and strong comprehensive capabilities. So colleges and universities should adapt to the needs of society, regard the demand as a guide to develop the civil engineering talents, and implement the "soft and hard" talents training strategy. The so-called hard is hard power, namely professional competence, and the so-called soft is soft power, namely non-professional capacity. Most of the professional competence and non-professional capacity are based on the knowledge and exercises, and they are the distillation of knowledge and practice we learned in school. So, what kinds of

professional competence and non-professional capacity do the civil engineering talents need? Now, we will do some analysis with these issues, hoping that it can provide some inspiration for colleges to train civil engineering talents.

2 Elements of Professional Competence

This paper will analyze the civil engineering personal elements of professional competence by combining the teaching and education experiences of School of Urban Construction, Yangtze University(The educational reform test “Industry-School Cooperation, Work-Study Alternating” has been implemented since 1997,and it was listed as the "Ninth Five-Year National Cooperative Education Pilot Project" by the Ministry of Education) and the employers’ capacity requirements for civil engineering applied talents together. Most colleges set the target of training civil engineering talents as to train advanced engineering and technical students who can construct, will design and understand the management. The following will analyze from three aspects.

The elements of professional competence discussed here are built on the basis of the knowledge of civil engineering theory courses [3]. These basic courses include: Mechanics, Foundation, Masonry Structure, Reinforced Concrete, Steel Structure, Engineering Drawing, Civil Engineering Construction, Project Management and other related courses. Solid theoretical foundation is the fundamental to improve the professional competence. As for the specific curriculum, the more practical and realistic, the better, we are not to repeat them here.

2.1 Elements of Construction Capability

Civil construction requests that civil engineering graduates should have a wide range of capabilities, mainly including the following three levels: (1) The ability to read engineering drawings. The basic requirement of civil construction for the civil engineering graduates is the ability to read common engineering drawings. Reading engineering drawings have several stages, but the lowest requirement is able to read the engineering drawings basically, otherwise we cannot guide the construction. To achieve this capability, we should base on theoretical knowledge, complemented by knowledge of reading engineering drawings and repeated trainings. And training should target at the actual engineering drawings in order to help students to understand the engineering drawings from the shallower to the deeper gradually. (2)The ability to guide construction. On the premise of understanding the engineering drawings, some practical experiences are required for us to reach the level of guiding the construction and putting the reasonable project intention that the engineering drawings expressed into practice. To help students gain the engineering practical experience, School of Urban Construction, Yangtze University, requests students to take part in the “Work-Study Alternating” every summer holiday from freshman year to senior year, namely to go to some related enterprises to participate in engineering practice during the summer vacations. From the feedback information of the students who had participated in the “Work-Study Alternating”, we can see that the practice effect is obvious and very fruitful, students’ engineering sense and practical ability had improved significantly.(3)The ability to deal with the construction site problems. Civil

construction cannot always be so smooth, various problems will appear, and we should learn to deal with site problems with our knowledge. This is a high-level capacity of construction. Many civil engineering graduates, who had already worked for several years, still feel helpless about some engineering problems. Capacity in this area is the experience. Of course, students in school are impossible to have experiences without working, but a lot of practical experiences in engineering can be taught, most of civil engineering teachers in our school are the designers and supervisors of Design and Research Institute of Yangtze University (Grade A). They usually intersperse the engineering experiences and the solutions of engineering problems in the process of teaching of theoretical knowledge. "Dual career-type" teachers [4] are very important for the teaching of engineering experiences.

2.2 Elements of Design Capability

As for the design capability, I would like to analyze it from the following four aspects: (1) Application capability of various civil engineering calculation and design software. We should master some softwares proficiently, such as AUTOCAD, Matlab, SMSolver, TArch, PKPM, Tssd and so on, and this is just the beginning of design. While offering the traditional theory courses, schools may set some of the civil engineering design software courses to help students to keep up with the current pace of modernization of civil designs. (2) Engineering intent expression ability. Being able to express the engineering intent correctly and rationally by using the design software is a process from theory to practice, which involves not only the combination of software knowledge and software operations but also the combination of software and the actual. This kind of ability can be achieved initially through the course designs, such as the course design of building architecture, the course design of Concrete floor, the course design of steel door and the course design of Concrete frame structure. (3) The capacity of designing engineering drawings. This is the most important element of design capability and the core of the design. And also, it is a high-level capability involving the application of textbook knowledge and the application and reading of kinds of design specifications. This ability can be obtained through doing projects with teachers or practicing in institutes. "school-enterprise cooperation" model is a very good method to train students' ability in this aspect. (4) The ability to read professional documents and look up all kinds of civil engineering standards. This is a requirement for designers and also the essential capability for designers to improve themselves.

2.3 Elements of Management Capability

Some scholars have put forward the "Civil Engineering and Project Management Integration" training model [5]. It is a good attempt. Those civil engineering talents should understand the management, for it is a tendency. If civil engineering graduates not only are good at design and construction but also understand management, then this will be a great advantage.

Management capacity is mainly reflected in the following three aspects. (1) The management capacity of project bidding and contract. Here we don't request that civil engineering personnel must participate in all the processes of the bidding and contract management, but require a general understanding of these to be aware of these and make decisions. (2) Human resources management and organization and coordination

capacity. This is the base of management. A project cannot be done only by one person, so we must coordinate all the relationships between the workers, the bosses, the supervisors and the material suppliers. (3)The project management capability. The management capacity on the ongoing project is the concrete embodiment of the project quality and economic benefit. In the process of the management, we should have a whole concept of the whole project to control it in its entirety, in particular, should have an approximate grasp of the budget, although not very accurate, but about the same. This has a great impact on controlling costs and increasing economic benefit. (4)The mastery of the related building laws and regulations. Ignorance of the laws will cause serious economic losses for civil engineering personnel themselves and others and the society, even threaten their personal safety. Management capacity in this area mainly requires to reserve the appropriate knowledge in management through the platform of the school, by the experience of being student leader or participating in community cultural activities and other means.

3 Elements of Non-professional Capacity

3.1 Humanities Quality and Ability

The humanities quality training on civil engineering applied talents should be an important aspect of training on science and engineering students. But now the phenomenon of "Weigh Science Light Art" is serious in society, and colleges do not pay enough attention to the education in this area. As for the building itself, the architecture is just one of the performances of humanities [6]. So, humanities quality is particularly important. There are many aspects of human qualities, including moral, law quality, psychology, artistic quality, literary quality, professional quality, social responsibility, etc. Among these, moral, literary quality, social responsibility is several important aspects of the humanities qualities which civil engineering talents should have.

Here, we will discuss it from the following aspects. (1)The good moral quality is the first condition which the employers required the graduates to have. We often say that the selection criterion for personnel is the "ability and political integrity", but mainly is moral. This is reflected in that employers attach great importance to the performance in school of the graduates. They would listen closely to the school organization's and teachers' evaluation of the student. And also it reflected in that they tend to choose students who are party members, outstanding student leaders or had received honorary titles. (2)Literary quality is actually very important, but engineers have not paid enough attention to it. They believe that strong technology, successful management and being able to make a lot of money are enough. But the literary quality decides the development height and the depth of thinking of a person, it plays a decisive role in one's content and self-cultivation. (3)Social responsibility is also a very vital aspect, especially in the current society; people now generally have low moral, poor sense of social responsibility. If a person has a strong sense of social responsibility, then it will benefit not only the projects, but also the enterprises and the society. A number of related humanities courses that school offered to enhance the humanistic qualities are very helpful, but it's more important for students themselves to exercise and develop in this area consciously.

3.2 Teamwork and Interpersonal Skills

Nowadays, the cooperation and partnership no matter between countries, enterprises, Individuals or political, economic, cultural science and technology are becoming closer and closer, even more in modern construction. So, we can find that successful companies put great emphasis on the construction of enterprise culture, the unity and cooperation between employees and the collective strength. What reflected in the employer's requirements for civil engineering graduates is a global sense and holistic thinking, strong teamwork, being good at dealing with the relationship between collective and individual, being able to play their own role properly for the same goal and making efforts for every step of the enterprise. And employers also require students to master communication skills, interpersonal skills and to enhance self-binding in order to create a relaxing and harmonious interpersonal relationship in the collective. Students should make good use of the platform of school to exercise and improve themselves in these areas.

3.3 Adaptability and Learning Ability

(1)Adaptability is the basic requirement for college graduates, especially for civil engineering students. Because of the high turnover of civil work and the unfixed workspace, we usually should contact with a lot of people and things. So, not being able to integrate into the current life will affect the work greatly. The so-called survival of the fittest means that only the ones who adapt to the environment quickly could survive better and develop better. (2)Learning ability, mainly referring to the independent learning ability. Nowadays, the education levels of civil engineering are different from different colleges, and this causes the different capabilities of civil engineering graduates in different colleges. But usually, this difference is obvious just in one or two years after graduated, after that, the main determining factor of self-development is the independent learning ability. Civil engineering is a very practical subject with odd, complex and mixed knowledge, but what we learned during the four-year school time is limited, so the learning and enrichment of too much knowledge are obtained in the process of work. Moreover, there are so many industry standards in civil engineering, but what we learned in school are mainly the principles, so the learning and remembering of the standards is a very important part of work. As the standards are updating continuously, we can't learn standards once and for all, we need to learn continuously. Only by learning, can we keep up with the times.

3.4 Innovation Ability

President Jiang once said that "Innovation is the soul of a nation's progress, and the inexhaustible motive force for national prosperity."Prime Minister Wen focused on accelerating the pace of training creative talents and the strategy of achieving a powerful nation by relying on talents in The Explanation of The Twelfth Five-Year Plan for Economic and Social Development [7]. These show that innovation is so important to civil engineering graduates. From the current development trends of civil engineering industry, we can see that green building, energy saving, optimum design, optimization of construction will be or already is a dominant direction of civil engineering industry. This requires civil engineering talents to give full play to the

subjective initiative and creativity in order to meet the needs of engineering projects in these areas. At the same time, society is progressing and developing constantly, only by carrying out technological innovations constantly, can our nation stand out among the nations. Technological innovations also need innovation. There are plenty of opportunities to train the elements of this capacity. Such as the various competitions in school, the Structure Design Competition in Central South China, the National Concrete Design Competition, the National College Students Innovative Experiment Competition and the Technological and Cultural Festival. These competitions are very helpful in cultivating innovation.

4 The Conclusion

We may conclude from all the aspects of civil engineering personnel capacity factors analyzed above that there are so many capabilities that civil engineering professionals need, not only basic abilities and professional qualities, but also high capacities and non-professional qualities. These elements of capacities cannot be trained just in a period of time during the four years of university study overnight. Students themselves can consciously strengthen self-training in various aspects, and teachers may also consciously guide students step by step in these aspects to help them improve gradually. Through the joint efforts of teachers and students, the gap between civil engineering graduates skills and employers' requirements for human capacity will be narrowed gradually.

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The Comprehensive Evaluation of University Teachers Teaching Quality Based on Entropy Theory*

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Abstract. This paper designs the university teachers teaching quality evaluation system from the characteristics of the teaching quality, the more the selected Indicator, covering all aspects of teaching embodied, which has more credibility. Establishes a entropy comprehensive evaluation model for university teacher teaching quality evaluation. Then, the model was applied to a university, to evaluate the university teachers. Evaluation results more desirable.

Keywords: University teachers, Teaching quality, Comprehensive evaluation, Entropy.

1 Introduction

University teachers teaching quality is a higher survival, how to conduct effective assessment of teaching quality, a true response and level of teaching ability of teachers will improve teaching quality better, as a problem which is worth to study. Evaluation of teaching quality is not the single factor evaluation, the quality of teaching needs to reflect the multiple aspects, a comprehensive evaluation. In this paper, the literature widely accessible on the basis of its kind, established the Teaching Quality Evaluation System, and based on entropy theory Teaching Quality evaluation model, on this basement, it evaluates the Teaching Quality and has some practical significance.

2 University Teaching Quality Evaluation Index System

To evaluate the teaching quality, teaching quality needs to reflect more the aspects of a comprehensive evaluation. To this end, need to establish teaching quality evaluation index system. when we design the university teachers index system, there are several design methods have focused on different ways, generally speaking, teaching quality comprehensive evaluation index system, available from schools and departments for the performance of the personal qualities of innovation, research, teaching capacity and evaluation of teaching ability.

First, teaching quality, reflected in the teachers for schools and departments on the service and contribution. In general, the school organization of the teaching and

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research activities are based on a certain system on top of teaching philosophy and teaching, teachers can actively participate in the academic schools and departments and group activities, teaching and research work in the sense of responsibility and collective sense of honor the more intense the higher the quality of teaching generally; At the same time, teachers receive more research funding, the higher the quality of its theory, the corresponding higher the quality of teaching.

Secondly, the quality of teaching is also built on top of a high personal qualities. In general, the work of teachers of high modest enterprise strong initiative, will put their work in teaching higher demand, will continue specializes in scientific and technological knowledge and improve their teaching.

Third, the performance capacity is also an important prerequisite for quality of teaching, teaching the basic requirement is the need to impart knowledge, to show students out of learning to become consultants, able to attract students and a sense of humor.

Table 1. University Teaching Quality Evaluation System

| Level indicators | two indicators |
|--|--|
| Services for schools and departments(C1) | Participate in academic and group activities(C11) |
| | The ability to obtain research funding(C12) |
| | Sense of responsibility and collective sense of honor(C13) |
| Personal qualities(C2) | Work initiative(C21) |
| | Initiative(C22) |
| | Modest(C23) |
| Performance capabilities(C3) | Expression(C31) |
| | Consultant capacity(C32) |
| | Sense of humor(C33) |
| Innovation and research(C4) | Innovative(C41) |
| | Imagination and creativity(C42) |
| | Logical thinking(C43) |
| | Academic research(C44) |
| Teaching ability(C5) | The depth of knowledge and learning(C41) |
| | Language skills(C41) |
| | Teaching work and enthusiasm(C41) |
| | Research capacity(C41) |
| Evaluation of Teaching(C6) | Students scoring(C61) |
| | Peer review(C62) |
| | Investigation graduation(C63) |

Fourth, improving the quality of teaching also depends on innovation and research ability, scientific research and innovation ability, the course will teach a vivid image, can be more effective, as reflected in the innovative spirit of imagination and logical thinking ability, creativity, and other academic research Aspects.

Fifth, the teaching ability is the basic guarantee teaching quality, teaching ability of teachers can be reflected in the depth of knowledge and learning language skills and enthusiasm of teaching load and other aspects of survey research capabilities. Finally, the evaluation of teaching effectiveness, teaching quality is the final judge of the level of evaluation, evaluation of students' rate the teaching effectiveness can be evaluated from the peer assessment and graduation rate the follow up investigation of other aspects.

Based on the above understanding, with reference to other scholars of the target setting, but also with its own management theory and practice of education indicator system to determine the following indicators, see Table 1 University Teaching Quality Evaluation System.

3 Based on Entropy Theory University Teaching Quality Evaluation Model

Comprehensive evaluation is the objective side of things from a different make a general assessment of the data. Evaluation is often the object of study, is a natural, social, economic and other areas of similar things or the same thing at different times of the performance, generally include: cluster analysis and evaluation, the study is to classify things; of the same kind according to size, strong Row along the pros and cons of the weak; or similar things with reference to the evaluation criteria, making the overall evaluation of a single thing.

Evaluation of this article belongs to the second, on the same things - the quality of teachers ranked according to the level of the pros and cons along. In the comprehensive evaluation methods, the choice of many methods, factor analysis, fuzzy comprehensive evaluation method, etc., due to the quality of teaching there is great uncertainty, we use the metric system is not suitable for the size of the multi-objective level of certainty Evaluation methods - entropy evaluation, established based on the entropy theory teaching quality evaluation model. The introduction of entropy's concept is to form a comprehensive evaluation of multi-objective decision evaluation model. Specific steps are as follows:

(1) With n indexes to evaluate the quality of m University Teachers. Hypothesis: $x_i k$ is the actual value of the teachers k evaluation indexes; x_i^* is the ideal value of evaluation index i (max).

(2) Calculate the entropy, with an index to evaluate a university teacher

$$e(d_i) = -\frac{1}{\ln m} \sum_{k=1}^m \frac{d_{ik}}{\sum_{k=1}^m d_{ik}} \ln \frac{d_{ik}}{\sum_{k=1}^m d_{ik}} \quad 0 \leq e(d_i) \leq 1$$

(3) According to the entropy to determine the weight of each index

$$\theta_i = \frac{1}{n - Ee} [1 - e(d_i)] \quad , \quad \sum_{i=1}^n \theta_i = 1$$

(4) Sorting and conclusions Make entropy evaluation. Sk where the smaller, Sk is the higher the quality of university teaching.

4 The Entropy Assessment Process of University Teachers' Teaching Quality

According to teaching quality entropy evaluation model, university teachers in 2008 meet a comprehensive evaluation of teaching quality. Specifically includes the following steps:

4.1 Data Collection

According to previously established index system, to a university in 2008 for 10 teachers scoring ability to the table 2 data collection, a teaching quality score of the data table (omitted).

Table 2. Teaching quality score of a data table (omitted)

| | C11 | C12 | | C62 | C63 |
|--------|--------|--------|--------|--------|--------|
| T1 | 8 | 8 | | 7 | 9 |
| T2 | 9 | 9 | | 8 | 9 |
| | | | | | |
| T9 | 8 | 8 | | 8 | 8 |
| T10 | 9 | 10 | | 8 | 8 |

4.2 Calculate Entropy and Entropy Weight Entropy Values

Calculate entropy and Entropy weight Entropy values (C11 to C63) were, 0.971,0.781,0.905,0.969,0.820,0.681,0.954,0.367,0.842,0.959,0.948,0.930,0.061,0.55, 0.127,0.153,0.151,0.003,0.664,0.872.

Entropy weights (C11 to C63) were ,0.042,0.024,0.103,0.101,0.054,0.053,0.071, 0.082,0.093,0.075,0.032,0.056,0.045,0.024, .021,0.025,0.012,0.051,0.025,0.011.

4.3 Comprehensive Evaluation of the Entropy

Finally, make the entropy evaluation. Teaching quality can be sorted (Table 3).

Table 3. Ranking on teaching quality

| sort | teacher | Entropy Sk | sort | teacher | Entropy Sk |
|----------|---------|------------|-----------|---------|------------|
| 1 | T1 | 0.00212 | 6 | T6 | 0.00522 |
| 2 | T2 | 0.00312 | 7 | T3 | 0.00532 |
| 3 | T10 | 0.00312 | 8 | T7 | 0.00565 |
| 4 | T8 | 0.00433 | 9 | T5 | 0.00576 |
| 5 | T4 | 0.00442 | 10 | T9 | 0.00585 |

5 Conclusion

This article designs the teaching quality evaluation system from the teaching quality of the characteristics, and the establishment of institutions of higher learning based on entropy theory of teaching quality evaluation model. A college in 2008 with a teaching on the quality score of 10 based on the quality of these teachers were quotient. Looking at the results from the comprehensive evaluation, it can reflect the teaching quality of the actual level better and access to the relevant experts. Shows that the method of evaluate the teaching quality is an ideal choice.

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Discussion about Training Project for Excellence Engineers Education in Department of Mechanical Manufacturing and Automation

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Abstract. The Ministry of Education launched the first batch of “education and training programs of excellence Engineers” project in June 2010, and Tsinghua University and other 60 universities approved to become the first project implementation units [1]. This measure is of great importance to carry out our long-term development of higher engineering education reform plan and promote our engineering education to a higher grade. The core objective of this project is to train a large number “qualified engineers” to meet the needs of modern manufacturing and production, guarantee the support of intelligence for building an innovative country and developing modern industry, and finally enhance our science and technology competitiveness and overall national strength in the next few years. This request that we should overcome the drawbacks of the original teaching system, focus on developing the innovating ability of students, and establish the open innovative teaching programs and models emphasizing school-enterprise collaboration and stressing practice in the professional planning and construction[2]. To this end, we conduct a useful thought and discussion in the process of developing training programs.

Keywords: excellent engineers, existing drawbacks, training project, cooperative relation.

1 The Defect¹s of Existing Teaching and Training Method and Drawbacks of Implementation

Formerly known as Mechanical Manufacturing Engineering and Equipments, our department was founded in 1956 and is the first mechanical manufacturing undergraduate professional of our Ordnance Systems, who was able to award a master’s degree in 1978, named the key disciplines in 1987, able to award a doctor’s degree in 1933, selected as the advanced department training doctors and able to implement postdoctoral education in 1998. At present, the department of Mechanical Engineering has 50 professors or associate professor, two Changjiang Scholars, one Outstanding Youth Fund winner, one Master Teacher of Beijing and two New (Inter)

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Century Excellent Talents in particular, along with nearly 800 undergraduate, graduate and doctoral. As a traditional department established by the first “211 Project” and “985 Project”, we are pride of the solid research foundation and distinctive features. But we had pay too much attention to cultivate “preeminent talents” or so called “entrepreneur leaders” and ignored to culture “ordinary engineers”. Correspondingly, there are too many theory courses and so few practice courses in the Teaching and Training Project.

At the present time, the practice courses mainly include demonstrations of principles, curriculum designs and manufacturing practice and so on. Due to the deficiencies of space, equipments and other apparatus, students could not do experiments in a satisfied way. In some case, students cannot do experiments personally. Meanwhile students nearly cannot get in touch with self-designed experiments, apparently burying their enthusiasm and innovation. As for curriculum designs, the main contents is NC transformation of general machine tools and design of Control System. The rigid approaches and ideas cannot extend students’ ideology or optimize design cogitation. It is desirable that the manufacturing practice has never been neglected. We have long-term stable cooperative relation with the second automobile plant in Hubei and Luoyang Tractor Co. Ltd. However, as the growing automation, many traditional production lines are transformed into closed controlled production lines and a lot of clamping, positioning parts cannot be observed. Many processing lines have been removed as product adjustments, such as the crankshaft, connecting rod production lines.

2 Cultivating Program for Excellent Engineers

There is no doubt that we should highly value practice courses. Specifically, we should utilize the cooperation with enterprises and factories to make up our weakness [3,4]. The new cultivating program suggests that undergraduates should carry out basic theory learning in the first three years and implement production practice, integrated design and graduate design courses last year. The initial training plan is shown in Table 1.

Table 1. Cultivating program for excellent engineers

| Teaching phase | Content in specific | Course constitution |
|--|---|---|
| Mechanical manufacturing engineering fundamentals and initial skills | Basic professional knowledge and social knowledge | Mathematics (Calculus, Linear Algebra, Mathematical Statistics, Complex Function), Physics, Chemistry, Humanities and Economic Management |
| | Initial operational expertise and skills, the development trend of mechanical engineering | Engineering Graphics, Theoretical Mechanics, Mechanical Manufacturing Technology, Machinery and Equipment Design, Mechanical and Electrical Integration and other core basics |

Table 1. (continued)

| | | |
|--|--|---|
| | Electromechanical systems theory, the initial skills to solve engineering problems | To be familiar with the structure and characteristics of mechanical and electrical systems. To understand the mechanical product assembly, special parts machining, heat treatment technology, the basic technical content, methods and characteristics. To learn to understand, analyze and solve process issues |
| | Product quality control in basic knowledge and skills to solve practical problems of the initial | To get familiar with mechanical processing equipment, machine tools and other familiar structures and control systems technology, to get capable of turning, milling, drilling, etc. to be familiar with control servo drive systems and components of the working principle and control technology |
| | Basic knowledge of computer applications and the ability to use the preliminary engineering software | To learn the basic knowledge of computer applications and use of CAD, Pro/E, ANSYS software to solve engineering problems |
| Mechanical product design, operation or maintenance of a systematic problem solving practical engineering training | To know about the market, the user's needs and technology development, to implement system demonstration of mechanical and electrical products and the overall program demonstration | To learn technology economics, the quality of engineering and other courses, to get in participation in product development method program demonstration project |
| | The capacity of involving in the project and project management training | To learn project development and management courses, to implement factory practice |
| | To develop effective communication and interpersonal skills, good word ethic, the responsibility for professional, community and environment | To learn product design, manufacturing, testing and other engineering documents compiling, to obtain certain occupational health and safety and environments laws, regulations and standards of production, to abide by professional ethics and their respective professional system of Professional Conduct |

3 Conclusions

Despite the “excellent engineer” is fresh, we are actively exploring approaches to cultivate preeminent talents. At present, we have long-term stable cooperative relation with Beijing Sany Heavy Machinery Co. Ltd. and Luoyang Tractor Co. Ltd. I am confident that we could make progress and achieve success after effective reformation and corresponding effort.

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Software Testing Training in Vocational Technical Education

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Abstract. This paper analyzes the current software industry needs and requirements of test engineers, according to social needs and the actual situation of our school to develop a direction to carry out software testing training in vocational and technical education teaching programs.

Keywords: software testing, vocational technical education, teaching programs.

1 Introduction

With the rapid development of China's software industry, software product quality control and quality management is becoming the core of enterprise survival and development. Software at the factory in order to ensure the "health state", almost all IT companies in the pre-release software products require a lot of quality control. Software quality control is an important part, is to have a high-quality software testing professionals [1]. Develop the current shortage of software testing professionals, has become China's software business imperative. Can be expected, software testing will be the 21st century demand for China's IT industry professionals one of the most prosperous career.

The current gap in our software professionals as much as high as 400,000, of which the software testing talent gap will be more than 200,000 in the next five to ten years this number will continue to increase. However, the domestic software industry, software quality control because of the awareness of the important role of late, has not yet formed a systematic software testing professionals demand supply chain, resulting in the current software companies want to test the recruitment of qualified personnel was "the daughter of hard to find" the embarrassing situation [2].

As in recent years, the pace of development of domestic IT industry in general lower than the national university to train each computer and related professionals in the growth rate, resulting in a number of university graduates employment problems. At the same time, IT industry, demand is still growing and constantly changing industrial structure, in some areas there has been a shortage of qualified personnel, such as software test engineer. This requires that all schools of higher education and expansion of vocational and technical education in a timely manner changes in teaching content, to develop appropriate socio-economic development professionals. With the actual situation of Xiangfan University, to carry out software testing talent education, can

make the computer professional is much more dynamic, open, both in time and space with the changing socio-economic development to maintain close contact. And making the computer science students have a stronger resilience of work and social adaptability, to broaden the student's employment opportunities [3].

2 The Goal of Software Testing Training

Xiangfan Vocational and Technical College School of personnel training is intended primarily for the application of social training of skilled talent. Therefore, our school should be based on our current status and development of software industry trends, targeted to train students in all aspects of quality, time to grow up in the completion of their studies to become a qualified software test engineers [4]. According to the current software industry needs and status of vocational and technical education, we propose the direction of focus in software testing students in the following areas of knowledge and abilities:

2.1 Theory of Software Testing

Software testing software testing theory is the direction of the foundation. No theoretical guidance, the students will not have the ability to test the software nature of the increase. Through the study of software testing theory, students can learn the technical knowledge of software testing framework, to understand the nature of software testing techniques, understanding the principles of software testing tools. At the same time, software testing theory is the test case design, test requirements analysis, test program design and other technical basis.

2.2 Project Experience

Theory can not be achieved only qualified software test engineers. We must work through actual business scenarios to simulate the actual test items and training, and accumulated practical project experience, familiar with the project during the common test techniques, processes, personnel coordination problems, and mastery of the relevant solution, it enables students to work into the role quickly, shorten the adaptation period.

2.3 Professional Quality Training

A good engineer requires not only sophisticated technology, but also the need for good vocational skills. Through hands-on, practical projects, classroom discussions, online learning, and professional quality training to students from the task of goal setting, personal time management, teamwork and communication, conflict and emotional processing, etc., to get the required test engineer jobs professional quality training.

2.4 Team Spirit

Expanding the scale of software makes software testing is no longer a one-man operation, but in the process of teamwork to complete. Therefore, in teaching the

course, participants will be divided into several teams, each team will be based on course content and instructor of the arrangements, through technical seminars, and other practical means of cooperation to complete a task and projects. In this way the students can develop the spirit of teamwork and cooperative work.

2.5 Ability to Learn

As the software industry, technology updates very quickly, to make himself not to be eliminated, we must continually improve themselves through learning. Through the project training, computer operation, online learning and discussion, so that students develop the habit of self, and mastery of effective self-study methods and tools, so invincible in his career.

For students with these qualities, complete the personnel training of software testing direction, we must have a full rich educational content.

3 The Software Testing Talent Education Major Teaching Content

The main software testing professionals teaching content can be divided into three parts [5]: First, the basis of computer technology, the second is software testing based on three high-level software testing technology.

3.1 Basic Computer Technology

Primarily through computer technology-based teaching of computer technology to learn the basics of software and hardware system for further study and a basis for software testing technology. After completion of this part of the study, students can more fully understand the composition of computer hardware systems and software systems knowledge, you can master the computer and network-related operations can be completed independently of computer software installation, configuration and unloading work. This part of the contents include basic computer, computer hardware, computer software, computer network infrastructure, software, technology infrastructure, application development foundations.

3.2 Basis of Software Testing

Mainly through the basic teaching of software testing software testing basics of learning and understanding of comprehensive knowledge of software testing architecture for students to lay a solid basic skills. After completion of this part of the study, students can complete the basic software testing tasks. This part mainly includes the entry field of software testing, software testing basic theory, the software testing process, the mainstream of software testing, software testing tools, stand-alone software testing technology, distributed software testing technology, database software testing, software interface specifications, software test case design.

3.3 The Advanced Software Testing

Advanced software testing techniques mainly teaching students advanced software testing by learning theories and techniques to master a variety of advanced software testing methods and tools. After completion of this part of the study, students can participate in various types of software testing to complete the task. This section covers the cross-platform software testing techniques, object-oriented software testing, automation testing theory, software testing needs analysis, software design test scripts, test software program design.

In addition, the software testing project management and team management and other related content knowledge for students to expand space for further development of students lay a solid foundation.

You can see, the content of education software testing professionals is still quite rich. At the same time, various theories and techniques have a certain relationship. Therefore, in order to enable students to effectively learn the appropriate knowledge, we must content designed for those teaching a reasonable standard of lesson plans.

4 Teaching Programs of Software Testing Training

Software testing career and technical education in the direction of the main theoretical course will be completed in two academic years or so. Students learn the major computer science courses, through two school targeted for software testing technology to learn and master the basic theory of software testing and knowledge, to master the mainstream software testing tools to use, learn about software quality management theory and methods to understand the future direction of software testing technology, so that with the basic software test engineer job quality.

4.1 The Main Software Testing Courses

After some well-known domestic universities computer science and advanced training curriculum of vocational education research, we developed a software testing for my school to carry out the direction of the teaching curriculum.

4.1.1 Computer Technology-Based Courses

(1) Computer Culture: This course covers the basics of content including computer, Windows use, Office software use (including Word, Excel, PowerPoint), use of computer networks and so on.

(2) Computer Systems Technology: This course introduces the hardware and software systems of basic knowledge, including computer hardware within the main structure and assembly techniques, basic knowledge of computer operating system, Windows basic configuration, system software with common software installation, configuration and uninstall.

(3) Computer Network Technology-based: This course introduces the basics of computer networks, computer networks commonly Equipment, computer network configuration and other basic knowledge. This course is mainly to prepare for the test environment.

(4) software technology base: This course is mainly taught in computer programming basics, including basic knowledge of data structures, database fundamentals, software development processes.

(5) program design: This course teaches how to use a simple C language program development for the subsequent test scripting and test software programming basis.

4.1.2 Software Testing Foundation Course

(1) software testing basics: This course covers the contents include an introduction to the field of software testing, software testing basic theory, the software testing process.

(2) Windows-based software testing: This course teaches how to build and maintain Windows-based operating system test environment. Understanding Windows development environment and application programming interfaces, to understand the internal object and run Windows mechanism to understand the Windows message mechanism to understand the memory leak and detection technology, understanding the causes of Windows software error. To effectively design a Windows application software test cases, develop test tools and test scripts in preparation.

(3) Ergonomics: This course introduces software interface specifications to enable students to learn about software availability, ease of use of such knowledge.

(4) Software Testing: This course content consists mainly of basic software testing part of the main technical, mainstream technology such as software testing, software testing tools, stand-alone software testing technology, distributed software testing technology, database software testing, software test design. Through the study of knowledge, so that students can master the basic software testing process, test strategies and methods to understand, to understand the development of test plans and test cases designed to test the implementation of the plan in accordance with test cases, identification and optimization of defects, defect tracking report completed to assess test results and improve the testing process.

(5) software testing course design: the design of this course the actual testing environment using simulated manner. Through this course students will learn the process involved in the previous test skills, test methods and other flexible use of knowledge points to achieve a combination of theory and practice of teaching. Thus ensuring the real point of the book to digest the knowledge to master, and thus enhance the comprehensive ability to software testing purposes.

4.1.3 Advanced Software Testing Course

(1) Linux and embedded software testing techniques: This course teaches the mainstream Linux operating system and embedded operating system and Windows operating system software testing in the similarities and differences. Through this course students learn to build and manage Linux-based operating systems and embedded software system test environment, familiar environment, development processes and tools.

(2) **Advanced Software Testing:** This course covers object-oriented software testing, automation testing theory, software testing needs analysis, software design test scripts, test software programming, and more. Through these elements of learning, students are able to use automated testing tools WinRunner, LoadRunner, TestDirector, respectively Software functional testing, performance and stress testing software.

(3) **Software Testing Management:** This course content includes professional quality software test engineer, software testing project management and team management and other related content. The content is to enable students to addition to the technical aspects of literacy, it also has a good professional qualities. Meanwhile, the students into the workplace and have some work experience, you can to senior management positions or senior test engineer development. Knowledge of this course can lay a solid foundation for.

(4) **Advanced Software Testing Course Design:** This course designed to simulate the actual testing environment for issuing multiple software versions, and each version of a virtual reality of the situation in the testing process be customized to adjust to ensure that students with routine testing to create a environment similar to the scene. Training through this project students will be involved in the learning process at this stage of the application system functional testing, performance testing, back-end database testing, security testing methods and flexible use of knowledge points, and project management and automated testing tools used in project training process, to achieve a combination of theory and practice of teaching.

4.2 Teaching Process

Software testing course for the direction of the association between certain, we follow a certain sequence of curriculum arrangements to enable students to successfully master a reasonable knowledge of these courses [6]. Relationships between the three stages of the curriculum are shown as followed figures.

The relation of basic computer technology courses is shown as figure 1:

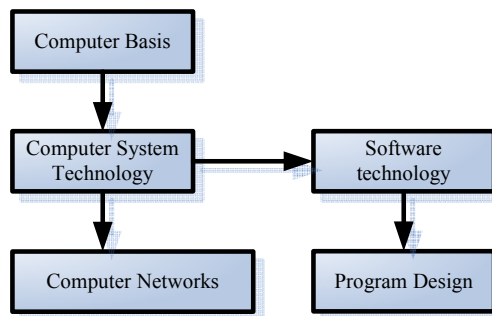


Fig. 1. The relation of basic computer technology courses

The second phase, software testing foundation courses, is shown in figure 2:

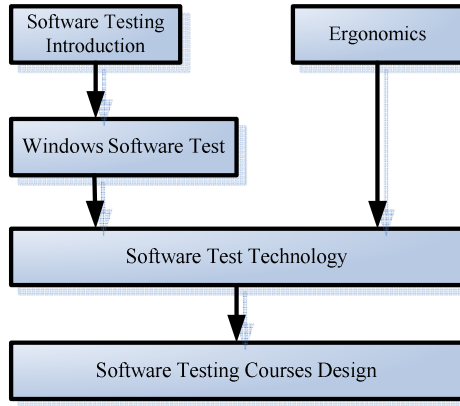


Fig. 2. Relation of basic software testing courses

The relation of advanced software testing courses is shown in figure 3:

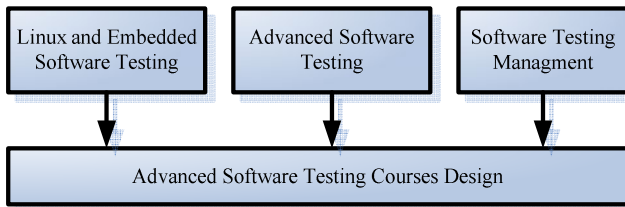


Fig. 3. Relation of advanced software testing courses

According to the relationship between the various programs as well as the specific content of the curriculum, we developed a software testing direction and the course of the theory of class hours on the machine table arrangements and lesson plans. You can see, we have arranged for operating part of the number of hours of practice and theory course quite a few hours, if coupled with curriculum design, and hours of practice over theory class. This arrangement is to enable students to learn in school during the more opportunity to practice out of school when he has considerable experience as a software test engineer.

5 Conclusions

We have absorbed a number of well-known universities and vocational training courses on the basis of software testing, summed up a set for the actual situation of our school's teaching programs. The teaching program will be my school computer science advanced in the training direction of software testing software testing talent lay a good foundation.

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Bilingual Education Practice in Computer Science and Technology

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Abstract. This paper firstly discussed the characters of bilingual education and the implement necessity in computer science and technology lessons. Secondly, the bilingual education practice experience in computer major lessons was summarized with the author's personal practice. At last, some suggestions related to the keep deepen the bilingual education were given.

Keywords: Bilingual education, Computer science and technology, Practice experience.

1 Introduction

As China's economy continues to develop, and the deepening integration of world economy, culture, education, increasingly frequent exchanges and education for the world and the future development of higher education in our country is a necessary requirement. International institutions of higher learning have become an important manifestation of the level of education, international communication skills has become the information age and college students to meet the challenges of economic globalization should have the ability to one. How to train college students to become bilingual with international communication skills who is worth exploring higher education is an important issue. Vigorously promote bilingual education in colleges and universities, is to train excellent, internationally competitive talents. Some international interoperability, communication and strong professional and academic as soon as possible with international standards, computer science education that is so.

2 Meaning of Bilingual Education

2.1 The Meaning of Bilingual Education

The so-called "bilingual teaching", the famous British Longman Publishing House "Longman Dictionary of Applied Linguistics" to the definition given is: The use of a second or foreign language in school for the teaching of content subjects. [1] (can be

used in schools for the second or foreign language teaching of all subjects.) concrete can be understood as: the use of mother tongue in teaching, while also depending on the circumstances, to varying degrees, to use another common language as the medium language for teaching.

The actual meaning of bilingual education by country, different regions and different. Some immigration countries bilingual education in order to better reflect its diverse communion. As in Canada, bilingual education generally refers to English-speaking countries in French in the form of teaching. Another example is the use of parts of China's Xinjiang Chinese, Uighur bilingual teaching, which is to safeguard the reunification of the motherland and national unity. This paper to discuss bilingual education at an educational process, in addition to other Chinese, planned, systematic use of English as a pedagogical system. Including the use of English textbooks in English writing on the blackboard in English layout and finish the job, and the use of Examination in English, English teaching and other forms.

2.2 The Bilingual Education Model

Bilingual education abroad to carry out earlier, models are not the same. Recent use of bilingual teaching model [2] There are basically three types:

2.2.1 Immersion Mode (Immersion Model)

In schools using this model, almost all of the curriculum entirely in the target language of instruction for students is no exception. All school activities are all about teaching a foreign language, and even homework, exams so. Almost not use their mother tongue in schools, allow students to immerse themselves in the vulnerable language.

2.2.2 Transitional Bilingual Model (Transitional Bilingual Model)

In this model, in order not to subject knowledge by students to learn the nature of the impact, appropriate use of language of the course, but also efforts to promote students' target language gradually pass. In this mode of teaching in mother tongue and foreign language to each other more flexible body language, but also to facilitate the non-target language-speaking teachers to perform such bilingual teaching.

2.2.3 Hold Mode (Maintenance Model)

Greater emphasis on this model applied in the target language while learning to understand language to maintain and exchange process. In this mode, more emphasis is the teaching of foreign language teaching organization, the infiltration of foreign language subject terms, subject to express concepts and formulas, and some foreign language interpretation.

China is the Chinese as the main language of the country, unlike Singapore, India is a bilingual country, both Chinese and foreign language environment is not, so China's decision to bilingual teaching and learning environment of bilingual education in China is mainly in the form of hold mode.

3 Bilingual Education in Computer Science

3.1 The Advantages of Bilingual Education

3.1.1 Bilingual Education Can Improve Students' English Proficiency

The current teaching of English in our colleges and universities form of relatively simple, usually for teaching English and speak English. Language and application of touch, and thus their interests can not be mobilized, and English proficiency of students is difficult to substantially increase. In the process of bilingual education, textbooks are in English with writing on the blackboard, the teacher lectures a considerable proportion of English. As the learning needs of students naturally will have to learn English, motivation and interest, motivation and interest in this than in the pure language courses on the prone and more durable. Therefore, bilingual education can lead students in a comprehensive and lasting learning English, so as to achieve the purpose of improving the standard of English.

3.1.2 Bilingual Education to Promote Professional Courses

In bilingual education, the general use of the original foreign materials, foreign materials prominent feature is the practical, quick content updates, and these are also years of teaching in the weak link in China [3]. The use of foreign materials and the use of bilingual education can be reduced to some extent, domestic and foreign universities on the part of students' learning differences.

3.2 The Characteristics of Computer Science

Mainstream technology in computer science are concentrated in the origin and development of the United States, currently the most advanced computer technology and the majority of products produced in the United States, a large number of advanced technical papers and other information are written in English. And regardless of the operating system command, or high-level programming language, are based on English language evolved. Although the current computer technology, while China has made considerable progress, but compared with foreign advanced technology in many ways still a large gap. Therefore, we learn the latest knowledge of the computer industry is the most effective way to direct access to foreign literature.

From the perspective of industrial economy, computer and related industries in China and abroad, one of the industries most closely linked. Whether it is reading information on foreign products, or directly with foreign technical staff or dealing with customers, the computer industry employees are required to have considerable international communication skills.

From the education perspective, the latest and most classic of computer materials are mostly produced in the United States, and has been widely used in the United States. Most of China's computer materials are foreign materials translation, adaptation, selection, to have self-innovative materials and rare. Uneven level of simultaneous translation and translation of terminology differences between the mainland and Hong Kong and Taiwan are also larger issues such as domestic students to study computer technology has brought no small trouble. Therefore, rather than allow students to see

these difficult to understand the "piracy", it is better for students to make the best of circumstances directly read English textbooks.

3.3 Bilingual Education in Computer Science Need to Take

From the above analysis of the advantages of bilingual education and computer science point of view the characteristics of its own, used in computer science education, bilingual education is not only feasible, but very necessary. This is from the Indian software industry development can also be seen.

India is a multi-ethnic country, due to historical reasons, it's official language is English. The English language is the national good quality, the technical staff in India absorb advanced foreign technology and technical exchanges with foreign countries to provide a barrier-free communication. Two decades, India's software industry has been developing extremely rapidly, the software of the world's software production has nearly 20% of the total, after the United States became the second largest software exporter. For another example, employees at Microsoft in China and India, a considerable number of employees, but in high positions in management, Chinese employees are lagging far behind the number of Indian employees. Chinese employees in English communication skills and cultural understanding in the areas of English and Indian employees of the gap is an important reason for these phenomena.

Looking at Taiwan's higher education, many college graduates or graduate students through the CET six other tests, the English still could not use it freely. Data are very difficult to read English, let alone with foreign exchange experts. This will work for students and academic progress is undoubtedly a huge obstacle.

Therefore, the introduction of computer science education as quickly as possible bilingual teaching is very necessary. Since 2004, our school some teachers began to adopt bilingual education, in this regard have considerable teaching experience, teaching in the future will continue to encourage the promotion of bilingual teaching.

4 Preliminary Summary of Teaching Experience

I now serve as "UNIX operating system" and "Network Security Design" bilingual teaching two courses. In the process of teaching, I deeply felt the special nature and complexity of bilingual education, while bilingual education for further summed up some experience.

4.1 Training Objectives and Concepts

Bilingual education bilingual education must first clear training objectives. Bilingual education is twofold in nature, one is access to expertise through teaching, and the second is to develop and improve the ability of students to use language. For this goal, many students and even some teachers there is misunderstanding, bilingual education is equivalent to the English. Strictly speaking, bilingual teaching by trained personnel should be the comprehensive development of versatile talents, not just the only test of English foreign language professional elite. Therefore, the implementation of bilingual education for students in the beginning, the goal should be clear, so that students

understand the purpose of bilingual education, put right attitude towards learning, take the right way of learning. This is a prerequisite for the success of bilingual education.

4.2 The Choice of Curriculum and Teaching Materials

4.2.1 Course Selection

Bilingual education at this stage is still at the exploratory stage, currently applies only to a small number of courses, most teachers are not enough rich experience. Taking into account the actual situation of students, we selected the implementation of bilingual teaching courses very carefully. Most of the professional basic courses, such as data structures, difficult, difficult to use even for Chinese learning, not to mention English. And many of these programs or follow-up curriculum, if teaching is not good, will directly affect other courses taught. Therefore, we recommend the professional direction of the curriculum implementation of bilingual education. On the one hand these courses highly practical and theoretical difficulty is not very high, the use of English teaching requirements for students not particularly high; the other hand, these courses are not based courses, taught in degree of difficulty a little light even though it will not affect other programs teaching. "UNIX operating system" and "Network Security Design" that is the choice of two courses to follow this principle.

4.2.2 Materials Selection

English bilingual teaching materials is the carrier, so the choice of materials also need to be very careful. The difficulty of teaching, the capacity to be the actual situation for the national higher education. In order to achieve the desired results, our use of bilingual teaching materials are photocopies of the foreign version of the famous classic. While these materials have been selected after numerous experts, the other of these materials are also many domestic Chinese teaching reference materials. Therefore, these materials can be used to ensure maximum effectiveness of bilingual education and bilingual education to reduce the risk. Based on this principle, our "UNIX Operating System" course selection is "UNIX: The Textbook" (Mechanical Industry Press), "Network Security" course selection is "Network Security Essentials" (Computer famous textbook series , Tsinghua University Press).

4.2.3 Assessment Methods

How effective is bilingual education, to use certain assessment tools to measure. Bilingual education determines the specificity of evaluation of bilingual teaching methods with traditional assessment methods are different, not simply that the original translation of Chinese papers can be [4]. Consideration from the goal of bilingual education, computer science courses with a strong practical feature, we developed a bilingual curriculum for the comprehensive assessment approach.

Assessment of the two goals of bilingual education, a mastery of professional knowledge, a profession in the ability to use English. According to this goal, we mainly through four ways to assess students. First, the final exam, paper title in English, require students to have to answer in English. Of course, since the level of English language, after all, and a wide gap, so the exam more difficult than the same course in Chinese papers slightly simple. The second is the English translation of professional literature, teacher selection and curriculum-related teaching the latest technical

information in English, according to the number of students divided into different translation of content distribution to students. Translate the contents of each student is different, so you can ensure that students can independently complete. Third, the experimental operation, the English test given to guide teachers, guidance by the students in the experimental steps, teachers of the operating conditions of the student to give the experimental evaluation points. Fourth, homework, homework topics from the after-school problems in the selection of materials, and require students to answer in English. End of this course each student by the instructor based on the results of the four parts of the comprehensive performance evaluation. Of course, the final results in four parts in the ratio is different. According to their importance and objectivity, the ratio of four parts were 50%, 20%, 20%, 10%.

5 Computer Science the Concept of Bilingual Education Further

Bilingual education for teachers, curriculum, teaching materials and students all have very high requirements. At present, there are still a lot of bilingual education need improvement.

5.1 The Strengthening of Teachers

The key to success or failure of bilingual education teachers, otherwise nominal, less than the effect of bilingual education [5]. At present our school to engage in one of the few bilingual education teachers, teacher capability single, professional teachers, poor English, General English teachers also do not understand professional, which to some extent limit the conduct of my school bilingual education. To develop and establish a high-quality bilingual education teachers. Therefore, we must train bilingual teachers as an urgent task, the early establishment of bilingual education teacher training system. The most effective way for international exchanges of teachers, professional teachers will be sent to study abroad. This would enable teachers to access to the latest academic disciplines, to understand the strengths of foreign higher education; the other hand, can quickly and effectively to improve the level of foreign language teachers to be able to come back a better implementation of bilingual education.

5.2 Supplementary Teaching Materials

Although the domestic has now introduced a number of classic English teaching abroad, but relatively speaking, the availability of teaching resources is still very limited. Especially the supplementary materials, such as experimental guidance materials in the country is difficult to see. We encountered such a problem, the current practice is to translate Chinese to English material to use material. But, after all, is not authentic English materials, or will affect the effectiveness of teaching. Therefore, conduct in-depth bilingual education, teaching resources must address the problem.

5.3 The Curriculum, Teaching Standards

As the bilingual teaching materials and teaching and traditional teaching methods are very different, so the need to develop curriculum, develop teaching standards, the

organization of interaction between teachers and improve the overall level of bilingual education. Otherwise, their own way, the effect of bilingual education can not be guaranteed.

6 Conclusions

Bilingual education carried out by my school teachers and students welcomed by many teachers to actively explore and practice in teaching and accumulated valuable experience. Students also hope to have more programs using bilingual education. Bilingual teaching in the future, we will actively carry out exchanges and inter-practice teaching activities, continue to enhance and promote bilingual education, develop a truly international communication skills and computer expertise to the compound talents.

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Introducing Computer Simulation Technique into the Teaching of *Theory of Machines and Mechanisms* Course

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Abstract. Introducing computer simulation technique and MATLAB software (CST&MS) into the teaching of *Theory of Machines and Mechanisms* is to combine the traditional item-based teaching with the innovation and reform of the teaching contents, teaching material compiling, teaching methods as well as the assessment means required by *Theory of Machines and Mechanisms* course so as to improve students' awareness of innovation and their competence of doing innovative research.. This paper reports such a CST&MS-based approach to *Theory of Machines and Mechanisms* course, mainly its rationale, modality and achievements.

Keywords: computer simulation, MATLAB, teaching, *Theory of Machines and Mechanisms*.

1 Introduction

As a vital foundation course in machinery major, *Theory of Machines and Mechanisms* possesses essential status and effect in cultivating overall quality and innovation ability of students, therefore the teaching of it plays an increasingly important role. For many years, conventional teaching of *Theory of Machines and Mechanisms* is mainly knowledge-based with an overwhelming attempt to highlight students' understanding of basic knowledge, but neglecting their practical capability in engineering and deprived innovation spirit and ability [1].As a result, it makes it fairly difficult for the students to meet the requirements of high quality innovation talents in society.

Computer simulation technique has been applied comprehensively and profoundly in various domains along with booming information technology in present days. Consequently, it has become an inevitable trend for the reform of the teaching of *Theory of Machines and Mechanisms* to integrate computer simulation technique with research-based teaching and students' extracurricular self-driven exploration.

2 Innovative Approach to Theory of Machines and Mechanisms Course

To meet the social requirements for mechanical innovation talents, an innovative approach to *Theory of Machines and Mechanisms* Course was devised based on

advanced teaching conception in order to highlight the basic theoretical knowledge in the course and foster students' overall competence in engineering practice, computational analysis, IT application, and creative designing. This approach is based on computer simulation technique and MATLAB software, hence named as CST&MS-based approach. It is a research-oriented teaching method, supervised by teachers but carried out by active students via a series of extracurriculum research projects. Its rationale is as follows.

2.1 Designing and Constructing a Holistic Teaching System

The new system has reformulated teaching program of *Theory of Machines and Mechanisms* course, reconstructed research-based teaching system which consists of classroom instruction, experiment teaching, extracurricular practice, combined with training and innovative design contest, as depicted in Fig.1. It has forged an organic connection between capability development and teaching links, accomplished teaching targets jointly. Via this reformed system, the issue of cultivating simplicity and teaching isolatism has been solved consequently.

2.2 Reconstituting the Teaching Model

A three-dimensional teaching model has been constructed by means of the application of computer simulation technique and MATLAB to extracurricular research-based practice items, which are carried out by teachers' supervision, students' main role-playing and independent exploration. This model is supported by classroom teaching and after-class research projects, as showed in Fig.2, which make it possible to incorporate theory with practice alongside with all the teaching elements, such as classroom learning and autonomous learning, traditional content and modern technology, thus it builds up an easier autonomous learning contexts and boosts students' learning interest in the course and their autonomous learning competence.

2.2.1 Consolidating Capability Development on Computer Application

Blend modern analysis and design methods such as computer simulation technique and MATLAB into traditional approach to *Theory of Machines and Mechanisms* course dimensionally, and make it a part of all the teaching activities. Accordingly, teaching group has programmed more than 50 computer applications and adhibition models classifiedly to assist classroom instruction and extracurricular practical items. In here, computer acts not only as an accessory appliance to teaching, but also an independent study and research tool for students. Students are required to address analysis and design issues in *Theory of Machines and Mechanisms*. Requirement details include:

- (1) Utilizing MATLAB to compose programs of analysis and design of mechanism.
- (2) Carrying through modeling and simulation of mechanism by ADAMS software.
- (3) Drawing kinematic sketch of mechanism with AUTOCAD.
- (4) Composing research report by WORD, etc.

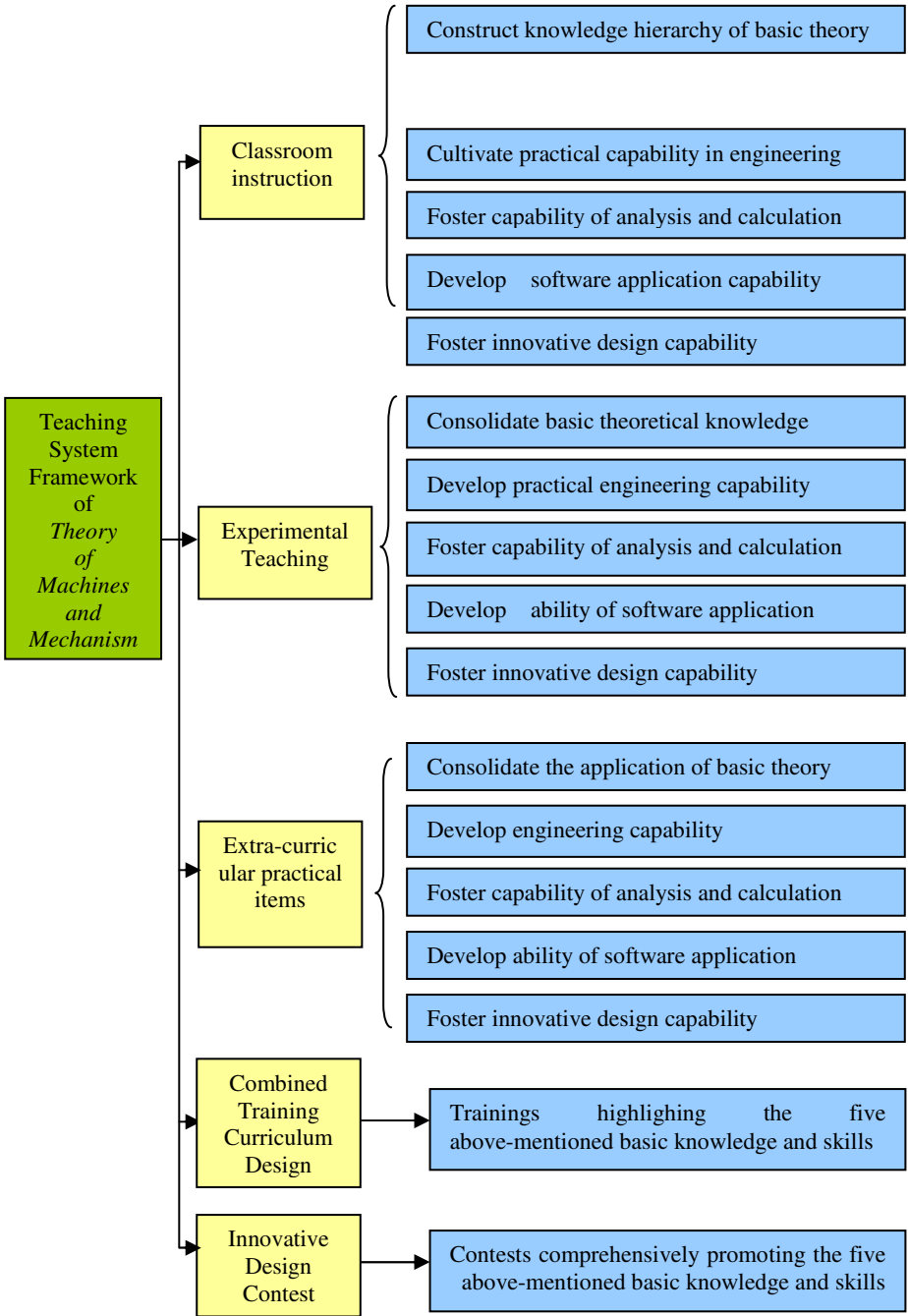
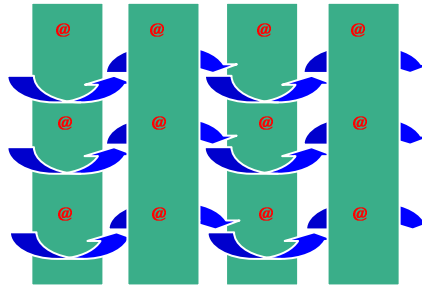


Fig. 1. Research-based teaching system framework of *Theory of Machines and Mechanisms*



■ Perpendicular trend of course teaching, ~ Horizontal trend of item teaching,
 @ Perpendicular penetration of computer application

Fig. 2. Three-dimensional research-based teaching model

The application of computer simulation and MATLAB in the course teaching not only fosters the study and research capacity of students with computer and advanced software, but also lays foundation for learning other courses, curriculum design, graduation project and even scientific research after graduation. For the first time at China’s university, MATLAB has been run through teaching process of *Theory of Machines and Mechanisms* on all sides.

2.2.2 Implementing the Extracurricular Project-Based Practice and Highlighting the Practice Ability Training

The implementation of extracurricular project-based practice can be divided into four stages. Firstly, combining curriculum content, the teacher should edit hundreds of design topics about engineering and industry .Then the students choose the topic by group. Secondly, the groups should do the research, which includes reviewing related literatures, discussing issues, establishing mathematical models, designing and analyzing mechanism by means of modern analysis and design method such as computer simulation and MATLAB software. Thirdly, students should write research reports according to the request of scientific papers. Lastly, the teachers are supposed to check and evaluate the research works of students in the form of reporting, discussing and open reply.

Like a bridge, extracurricular project-based practice links the knowledge of all scattered chapters of this course and the following related courses up, links theory and practice up, links the ability of mastering the knowledge and training up [3]. It aims at training the students’ ability of discovering and exploring something actively and constructing and integrating the knowledge independently in the process of accomplishing the task.

2.2.3 Emphasizing Scientific Training of Engineering

Extracurricular project-based practices emphasize the training of students’ scientific accomplishment. For example, In the process of program design, the students should program according to the design specification. In the writing process, they must follow the requirements of scientific paper. The participant students had neatened their research reports up combining with the extracurricular practice projects, consequently,

7 related articles have been published by professional and core journals as research papers from 2009 to 2010.

2.2.4 Constructing the Auxiliary Teaching Platform of Network Course

The teaching method has constructed auxiliary teaching platform of network course which includes learning modules of the basic theoretical knowledge, comprehensive network training and virtual network experiment, thereby providing students with all kinds of good learning resources and favorable learning environment. Consequently, it achieves the organic union of classroom teaching and independent after-class scientific exploration.

2.2.5 Establishing the Guidance of Comprehensive Quality and Carrying out Process Assessment

Research-based teaching has been adopted in accordance with the idea of promoting the harmonious development of human beings. However, the development of individuals is an extensive subject. The diversity of evaluation is essential to implement research-based teaching. In the assessment process, we have adopted the process evaluation methods and reduced the previous dominating proportion of final exam, which may strengthen the process evaluation and combine it with the final exam. The final score consists of four parts, such as regular class performance and assignments, experiment, extracurricular practice and final exam. The main forms and methods of assessment are as follows: class questioning, assignments, experiment, program design, research report, statements, written reply, etc. Assessment emphasizes investigating students' ability of analyzing, reasoning and solving practical problems through teaching and learning.

3 Achievements

The teaching model has been embarked on through the teaching of *Theory of Machines and Mechanisms* course to undergraduate students who major in mechanical engineering since year 2007, bringing about lots of considerable achievements. Moreover, this model has been highly appreciated and widely applied to other mechanical courses, which are essential parts of *Outstanding Engineers Cultivating Plan* in our university.

3.1 Effects of the Implementation of CST&MS-Based Approach

As a main teaching reformation achievement among provincial elaborate courses, the CST&MS-based approach to *Theory of Machines and Mechanisms* and *Mechanical Design* has been recognized and recommended by provincial teaching experts through elaborate course assessment. It has also aroused much interests and favorable comments from the experts at national symposiums and provincial forums, e.g. *State Mechanical Course Report Forum* organized by *High Education Press* in 2011, *Mechanical Teaching Deans Forum of Jiangsu Province*, etc. In addition,, it has been lauded at our university website and enjoyed a great popularity since then.

3.2 Textbook Compiling

Based on the framework of CST&MS-based approach and its achievements, the teaching staff have compiled three main textbooks, One is named *MATLAB auxiliary analysis of Theory of Machines and Mechanisms* for the extracurricular project-based practice, which is funded by Jiangsu Provincial Education Ministry in 2009 to compile excellent textbooks for key university courses, and the others are called *Learning Guidance and Problem Settlement of Theory of Machines and Mechanisms*, and *Combined Training of Machine Design* for the basic theory and comprehensive training.

3.3 Students' Experience

The implementation of this brand-new approach to *Theory of Machines and Mechanisms* helps students develop their autonomous learning and research competence. Generally, their capabilities have been greatly enhanced in the following fields.

- (1) Mastering the skills in utilizing reference room, library and network resources to explore the information they need.
- (2) Deepening their understanding of the course contents.
- (3) Mastering mechanical analysis and design via computer simulation technique and excellent software such as MATLAB.
- (4) Cultivating capability of autonomous learning and doing research.
- (5) Becoming good at composing research report and academic papers as well.

3.4 Innovation Competition

In the *Third University Mechanical Design and Innovation Contest (2010) of Jiangsu Province*, the students who benefited from the new approach to *Theory of Machines and Mechanisms* and *Mechanical Design*, won four awards, including one second prize, three third prizes; In the *Three-dimensional Digital Contest of Jiangsu Province*, the students won a special-class award, two first prizes and two second prizes; In the *fifth Freescale national university intelligent car competition in Eastern China (2010)*, the students obtained a second prize.

4 Conclusion

Research-based teaching concept highlights student orientation and effective way to improve students' comprehensive quality and innovative capability so as to meet the social requirements for creative talents cultivated at universities. This CST&MS-based approach to *Theory of Machines and Mechanisms* course illustrates such research-based course teaching at universities. Definitely, there are much more to be done in the future.

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Supporting Instructional Software Engineering Activities Using CODILA: Some Latin American Experiences

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Abstract. Computer science students must be able to support the global software development phenomena; therefore they should enhance their teamwork, communication, negotiation, leadership and collaboration skills. It pushes the educational institutions to rethink the way in which they are transferring the soft skills, e.g. collaboration capabilities, to the new software engineers. Advances in developing platforms, wideband communications, global markets, technological trends and outsourcing promote the conception of a global software engineering. Trying to help address this issue, this paper describes the results of two experiences where a CODILA (Collaborative and Distributed Learning Activity) was used to solve a software engineering problem in a distributed way. These experiences involved students and instructors of eight Latin American universities. We have measured the development of collaboration skills and satisfaction level of computer science students participating in these distributed collaborative practices, and the obtained results are highly encouraging.

Keywords: CODILA, distributed CSCL experience, interaction and communication design, experimental software engineering.

1 Introduction

Every day the software development becomes more global and characterized by the participation of geographically distributed teams. The use of techniques and tools for collaborative work is a key issue for many software organizations. This scenario

induces to consider the formulation of distributed practices to validate the application of collaborative techniques in actual teaching and software development scenarios [3]. Research and experimentation in collaboration applied to software development should focus on several factors, such as negotiation among participants and stakeholders of the project, the use of new engineering processes, and the evaluation of new platforms and collaboration media.

The design of development teams according to the work in software projects, is an example of the importance of software engineers formation. As an engineering discipline, software engineering has a strong emphasis in the application of knowledge and preparation for professional scenarios.

Global Software Development (GSD) is inherently difficult. Problems with coordination, motivation, and use of technologies often cause projects fail. However, GSD is a reality that is here to stay, and therefore we must learn how to execute such projects efficiently and successfully [1].

The paper presents the results of two distributed collaborative experiences that are aligned with the activities involved in a GSD. In these experiences we have used the CODILA model in order to support the interactions among the participants.

Next section introduces the CODILA model, and briefly describes some features of this model from previous applications. Sections 3 and 4 describe the experiences in which the CODILA model was used to conduct distributed learning activities in software engineering. Section 5 discusses some considerations derived from our work, and finally, Section 6 presents the conclusions and the further work.

2 CODILA Model

The GSD demands the redesign of the software engineering curriculums in most universities. These curriculums should consider the transference of particular skills and abilities to the students according to this new distributed work context, e.g. collaboration, communication, negotiation, leadership and teamwork.

The CODILA model [4][5][6] is a generic framework that supports distributed collaborative teaching/learning practices in several knowledge areas. This model promotes that teams of students acquire knowledge and collaboration skills through collaborative work; i.e. learning by doing. CODILA is a generic model that can be used to address the challenges involved in the GSD.

The use of this model requires the participation of geographically dispersed students and also instructors. Students must cooperate to solve a problem, and the instructors have to monitor and support that process. At the moment CODILA has been used to transfer knowledge and soft skills related to software engineering. Several Latin American universities have participated in these experiences.

CODILA was applied in first time in 2008 [2][7]. The obtained results have been systematically good from the participants' perspective. They have highlighted the fact that interacting with partners from different geographical places is an interesting and rich experience. They have argued that CODILA help them to enrich their social skills, such as to propose and defend their ideas, participate and negotiate, leading groups and provide support to other partners. However, the participants have also said the technology required to support the collaboration process is not mature enough,

which jeopardizes the results of these experiences. Communication problems were identified as the main obstacles for the collaboration performed not only by students, but also by all participants. At the moment, the experiences of using CODILA evidence its contribution to the development of interaction and communication skills of Latin American students. These collaborative skills will be mandatory for a successful participation of students and software engineers in GSD process. Next two sections describe the experiences in which CODILA has been used.

3 First Experience: Measuring the Quality of Software Requirements Specification

This experience was performed in August 2010. The knowledge to transfer in that experience was the requirements quality. In order to do that, a CODILA was designed to measure the quality of software requirements specifications (SRS). The distributed experience intended to communicate a method to measure the quality of SRS documents. Thus, students were able to identify which are the principal issues and considerations that make part of SRS's quality. The SRS quality measurement process involved at least three dimensions: representation reliability, conceptual reliability and viability of implementation. These dimensions together represent the quality of a SRS document.

The CODILA used in this experience considered a JIGSAW¹[8] activity during the local and the distributed practice, with the idea to encourage students to collaborative learning principles such as equal participation, positive interdependence and individual responsibility. The students were grouped in teams of three people each. Some teams were composed of students from the same university (i.e. co-located teams) and other involved people from different institutions (i.e. distributed teams).

Team members collaborated in order to evaluate the quality of a given SRS document. Then, the results were delivered to the instructors coordinating the experience. After this exercise, were compared the results obtained by collaborative teams that worked in co-located way (i.e. students from the same university) versus distributed collaborative ones (i.e. composed by students from different universities).

The students' work involved two sequential activities: a local and a distributed practice. The *local practice* helps students to assimilate the knowledge delivered by the expert (i.e. an instructor) about the topic involved in the CODILA; in this case, the quality of SRS. This local practice is a problem solving activity that involves 90-120 minutes of teamwork. Teams are composed of three members each.

The *distributed practice* involves at least one week of teamwork, but the teams are composed by students from different institutions. This practice has a common goal and involves three sequential phases: (1) individual work, (2) collaborative session and (3) integrative work. During the first phase each member becomes responsible of to complete a part for the assignment. During the second phase the team performs a collaborative session to understand and validate the work done by the other teammates. Finally, during the third phase the individual works are integrated and adjusted to form a single product. That product is the outcome of the activity and therefore is delivered to the instructors to be evaluated and graded.

¹ JIGSAW Web Page: www.jigsaw.org

Table 1. Universities and students involved in the experience

| <i>Quality of SRS documents</i> | |
|---|-----------|
| Number of Students | 52 |
| EAFIT University – Colombia | 11 |
| Technological University of Panama – Panama | 21 |
| University of Quindío – Colombia | 20 |

As was mentioned before, this activity involved the analysis of three quality dimensions related to a SRS document. This experience was coordinated by instructors from San Juan National University (Argentina). Computer Science students from three Latin American universities participated in this experience. Table I summarizes the students participation in this activity.

During the local practice a quality dimension is assigned to each student. Therefore the students have to analyze a SRS document from such perspective, and make a diagnosis of the document quality.

During the distributed practice all students (belonging to co-located and distributed teams) met with the partners who had assigned the same SRS quality dimension for the analysis. These groups of people sharing the same quality dimension were named “specialist groups”. Members of these groups have to discuss and negotiate their individual diagnosis they obtained during local practice.

In the distributed stage participated 9 co-located teams and 8 distributed teams. The communication support was provided by several platforms, such as Microsoft Live Meeting to deliver the introductory lecture, and AULANet to support the delivery of the teamwork outcomes. Moreover, the students used some additional tool to support their interactions, e.g. MS Messenger, Skype and GoogleTalk. Students were free to select the most appropriated tool to perform the interactions among them.

Table 2. Average scores of the collaboration and satisfaction items

| <i>University</i> | <i>Modality</i> | <i>Item</i> | <i>Average Score</i> |
|------------------------------------|--------------------|---------------|----------------------|
| Technological University of Panama | <i>Co-located</i> | Collaboration | 4,6 |
| | | Satisfaction | 4,2 |
| | <i>Distributed</i> | Collaboration | 4,1 |
| | | Satisfaction | 4,4 |
| University of Quindío | <i>Co-located</i> | Collaboration | 4,0 |
| | | Satisfaction | 4,0 |
| | <i>Distributed</i> | Collaboration | 3,9 |
| | | Satisfaction | 4,4 |

Table 2 presents the average grades obtained in the satisfaction and collaboration items according to the students’ opinion. These results are classified by the modality of collaboration used by the participating teams (i.e. co-located or distributed interactions). The grades are in a range of 1 to 5. Analyzing these results we can see that there is not a significant difference in the students’ satisfaction level, independently of the collaboration style adopted by the teams. Something similar

happens with the final score obtained by the teams. In both cases; i.e. co-located and distributed teams, the average score was 8.1 (in a scale of 1 to 10).

4 Second Experience: Developing a Software Architecture

The second distributed collaborative experience was performed in October 2010. Its main goal was to specify a scenario of architectural specification where students become experts in a quality attribute (e.g. security, performance and maintainability). Students had to define an initial architecture for a software product whose specifications were previously defined by instructors.

In this experience the students negotiated with their partners for conceiving software architecture that aboard the above quality attributes. It was not a trivial work because each quality attribute have a set of tactics and architectural drivers, and it generate conflicts between quality attributes of each student. For these reason instructors designed the experience only with distributed practice. Each group involved three students, and a quality attribute was assigned to each team member.

Table 3. Universities and students involved in the second experience

| <i>Software Architecture</i> | |
|---|------------|
| Number of Students: | 103 |
| <i>Track 1:</i> | 53 |
| University of Chile (Chile) - <i>UChile</i> | 8 |
| University of Quindío (Colombia) - <i>UQ</i> | 19 |
| National Autonomous University of Costa Rica - <i>UNA</i> | 26 |
| <i>Track 2:</i> | 50 |
| Technological University of Panama - <i>UTP</i> | 18 |
| Pontifical Catholic University of Chile - <i>PUC</i> | 22 |
| University of Cauca (Colombia) - <i>UCauca</i> | 10 |

Table 3 presents the number of participants by university. Due to the high participation of students from Latin American universities, the instructors decided to create two tracks: *Experimental Track (track 1)* conformed by UNA, UChile and UQ Universities, and *Control Track (track 2)* conformed by PUC, UTP and Unicauca Universities. Teams belonging to the *Track 1* were formed using a heuristic that allows designing teams according to the participants' psycho-social profile. The teams of *Track 2* were conformed using a random distribution. As a result of applying the experimental instrument to students of *Track 1*, three subgroups were created: i) *optimal groups* (7 teams) where students have the best skills for teamwork; ii) *balanced groups* (6 teams) where students demonstrated good-regular skills for

teamwork, and iii) *low cohesion groups* (5 teams), where students had lower skills for teamwork.

Table 4 presents the scores obtained by the software architectures proposals delivered by students. These scores show that scores obtained by experimental groups (*Track 1-1, 1-2 and 1-3*) were similar or higher than those obtained by control groups (*Track 2*).

Table 4. Average scores of the students in the software architecture experience

| <i>Track</i> | <i># of Students</i> | <i>Average Score</i> | <i>Mode</i> |
|--|----------------------|----------------------|-------------|
| Track 1 | 53 | 4,4 | 5,0 |
| <i>Track 1-1 (optimal groups)</i> | 21 | 4,7 | 4,5 |
| <i>Track 1-2 (balanced groups)</i> | 18 | 4,1 | 5,0 |
| <i>Track 1-3 (low cohesion groups)</i> | 14 | 4,1 | 1,0 |
| Track 2 | 50 | 4,1 | 4,0 |

Moreover the average score of *low cohesion groups*(*track 1-3*) were similar to the score of teams belonging to *track 2*. This is an interesting observation, because this track (1-3) presented the major level of desertions and conflicts between students. These situations were expected by the instructors considering the results obtained during the application of experimental instrument. Scores obtained by *optimal groups* and *balanced groups* were slightly higher than scores of teams belonging to the *Track 2*.

Table 5. Average of collaborative dimensions for second experience

| <i>University</i> | <i>Teamwork</i> | <i>Leadership</i> | <i>Negotiation</i> | <i>Empathy</i> | <i>Satisfaction</i> |
|-------------------|-----------------|-------------------|--------------------|----------------|---------------------|
| Track 1 | | | | | |
| <i>UChile</i> | 3,9 | 3,0 | 3,9 | 3,9 | 4,1 |
| <i>UQ</i> | 3,9 | 3,3 | 3,9 | 3,9 | 3,7 |
| <i>UNA</i> | 3,9 | 3,8 | 3,9 | 3,9 | 2,9 |
| TOTAL | 3,9 | 3,4 | 3,9 | 3,9 | 3,5 |
| Track 2 | | | | | |
| <i>PUC</i> | 4,0 | 3,0 | 4,1 | 3,8 | 3,5 |
| <i>UTP</i> | 4,3 | 4,1 | 4,5 | 4,3 | 4,4 |
| <i>UCauca</i> | 3,9 | 3,1 | 4,8 | 4,3 | 4,5 |
| TOTAL | 4,1 | 3,4 | 4,4 | 4,1 | 4,0 |

In order to measure the satisfaction and development of social and collaborative skills of the participants, we designed a survey with questions that addressed several aspects of the collaborative work; e.g. teamwork, leadership, negotiation, empathy and satisfaction. Students had to rate the performance of their team in term of these aspects, and also the whole experience. Table 5 presents the obtained results in a scale of 1 to 5. The average of *Track 2* were superior to *Track 1* due to conflicts presented

between students belonging to the *low cohesion groups*. In addition there is a high degree of satisfaction on these dimensions; it can be seen in the average value close to 4.

5 Discussion

Analyzing the experiences presented in Sections 3 and 4, we can see the influence of pedagogical aspects in the distributed practices. This aspect is an open issue that should be explored by the scientific community. However, applying a model to encourage CSCW-L practices allowed the students to enhance skills required to conduct distributed interaction in a GSD scenario, for example negotiation, communication, interactions and self-adaptation depending on the circumstances of their peers, such culture and differences between time zones.

The design of interactions among students based on second experience (Section 4), and the incorporation of instruments for characterizing students, has allowed the research team to identify students and groups whose behavior and performance were significantly lower due to incompatibility between team members' profiles. In GSD environments the team members' profile is an important tool, because it can predict interaction level among the participants.

The research group showed that the complexity of the topic selected for the second experience (i.e. Software Architecture) was higher than the topic chosen for first experience (i.e. measurement of the SRS quality). This fact was reported by students, who felt that a single lecture session was not sufficient to address the complexity of such topic.

In a posterior feedback session with students, they expressed their satisfaction with the design of interactions and communications for the first experience (CODILA+JIGSAW). The incorporation of a local practice and a session of specialists group allowed the students to have some preparation before addressing a distributed context composed of partners with different perspectives. The specialists session allowed students to exchange different viewpoints, concepts and opinions with peers of the same specialty. Thus, they strengthened and validated their own arguments.

6 Conclusions and Further Work

This article presents the results of applying CODILA in two particular instances, as part of the software engineering learning process carried out by computer science students of eight Latin American universities. The experimentation scenarios involved in these experiences consider complex interactions between co-located and distributed students. CODILA have shown to be adaptable to support strategies for promoting interaction and communication between the participants.

Application of CODILA evidences its contribution to the development of collaboration skills in students that work together with distributed partners. Results presented in this work reflect that CODILA promotes the interaction (in distributed contexts) between people immersed in experimental software engineering practices.

The effectiveness of CODILA as support of GSD teaching/learning experiences must still be validated through new experiments. The adaptation capability of CODILA must be verified in order to establish the maturity level of the future distributed collaborative experiences. The collaborative activities reported in this article are part of a Latin American initiative that tries to establish a co-laboratory² to teach, test and research on experimental software engineering.

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² Latin American Collaboratory of eXperimental Software Engineering Research – www.lacxser.org

The Problems and Countermeasures of Oral English Teaching in Colleges

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Abstract. With the development of the society, English listening and speaking ability is being paid more and more attention. As a result, oral English teaching in colleges and universities has also been the focus of the teachers and students. This paper first analyzes the present situation of oral English teaching in colleges; then summarizes the existing problems; and finally proposes corresponding countermeasures. The aim of the paper is to improve oral English teaching, cultivate oral communication skills of students effectively and comprehensively improve the English proficiency of college students.

Keywords: oral English teaching, countermeasures, teaching mode, teaching method.

The famous American language educator Wilga M. Rivers' statistical result about the proportions of listening, speaking, reading and writing when people communicate in languages shows that listening accounts for 45%, speaking 30%, reading 16% and writing 9%. But listening and speaking, which account for the largest proportion in communication, become the biggest obstacle in the English learning process of Chinese college students. Nowadays, many college English teachers still adopt traditional teaching mode, which puts too much emphasis on the teaching of basic knowledge of the language. The students accept the skills of vocabulary, reading and writing mechanically and passively, and everything they learn is centered on the CET4 and CET 6 exams, but seldom have the opportunity to speak English. As a result, even though they pass the CET4 and CET 6 exams, they still can't even introduce themselves in English during a job interview.

With the social development and the demands of high-quality personnel, the Ministry of Education issued College English Curriculum Requirements(for Trial Implementation) in 2004, which says:"The aim of college English teaching is to cultivate college students'capability of integrative application of English, especially listening and speaking ,and enable them to effectively exchange information in English, both spoken and written, in their future work and social communications, at the same time, enhance their autonomous learning competence, improve their overall cultural attainment, to meet the nees of China's social development and international exchange." So doing a good job of teaching spoken English, cultivating students' oral communication ability to meet the needs of society is the urgent task of society and colleges.

1 The Problems with the Current Situation of Oral English Teaching in Colleges and Universities

However, the present situation of oral English teaching in most colleges and universities is still not optimistic, there are many problems existed in it, the problems are mainly as follows:

1.1 The Problems with Teaching Mode and Teaching Methods

At present, college oral English teaching class is too large, there are usually 50 to 60 students in each class, which makes it difficult for the oral English teachers to organize and control class activities, and the opportunity and time for everyone to speak English are greatly reduced. In addition, under the influence of traditional grammar teaching and discourse teaching, a lot of spoken English teachers themselves can not quickly adapt without this mode of teaching. They don't know how to prepare lessons and how to carry out classroom design, so they organize classes arbitrarily and without a clear arrangement and aim. At the same time, they can't understand the difference between oral English teaching and intensive reading teaching. So they just copy the teaching methods of intensive reading of explaining sentence patterns and translating sentences, which results in the teacher speaks from beginning to the end of the class, while students have no chances to open their mouths to speak English. By and by, the oral English classes become more and more boring, which makes students lose interest in oral English class.

1.2 The Problems with Oral English Teachers and Their Qualities

Faculty unstable and teachers' quality being not high are two questions which have been always bothering oral English teaching. This is reflected in two aspects: The first situation is to let foreign teachers teach oral English. But after all, the number of foreign teachers is limited and they usually can't stay very long at the same college, besides, compared with Chinese English teachers, they don't know what problems the students have in their study and life, also do not quite understand China's national conditions, so it is very difficult for them to teach oral English with a well-defined objective in mind. As a result, the teaching effect can not be very satisfying. The second situation is to let excellent Chinese English teachers teach oral English, this is also the approach taken by most universities. Yet college English teachers have too many classes but little opportunity for accepting further education and training. Most college English teachers themselves haven't the opportunity of going abroad and experiencing the culture, customs and religions of English-speaking countries, which will inevitably lead to a serious shortage of qualified teachers.

1.3 The Problems with Textbooks

Firstly, our current English teaching materials are not substantial in content. Strictly speaking, oral English teaching theory discussion which is full of college English features is the blind point of the current English teaching and research activities. Secondly, because the current English teaching materials are not substantial in

content, some teachers advocate not use fixed teaching material, but collect subjects which the students are interested in for them to exercise. By doing so, on the one hand, we can stimulate the students' interests, on the other hand, the oral English class may become very arbitrary and can not make students receive systematic language training.

1.4 The Problems with Students' Understanding of Oral Class

The students' active participation in oral class is the key to success. However, teachers often find the phenomenon of students not speaking, speaking less or blabbering. This shows that there are many mental errors towards oral class in the minds of students. Firstly, some students have a sense of inferiority. Students with poor oral English are afraid of making mistakes, teacher's criticism and mockery of their fellow students. The result is their oral English can never get improved. Secondly, some students dare to open their mouth to speak English, but they think that as for speaking English, the faster, the better. But the English they speak are full of grammatical errors and poor choice of words. Thirdly, most students expect to improve their oral English in entertainment, so they take an attitude of speaking for fun in the oral class and just want to discuss topics that they are interested in. If the topic they are talking about is not interesting, they know very little about it and what they speak has no real significance.

1.5 The Problems with Social Environment

China has carried out the policy of reforming and opening up for 30 years and the foreign exchange has been constantly expanding and deepening. However, college students still have very few exchange opportunities with people from English-speaking countries. Except in the big cities like Beijing and Shanghai, most students seldom have the chance to communicate with native speakers in English. This is because, on the one hand, we have too many college students; on the other hand, economic conditions, social conditions, and many other factors have also restricted the oral communication.

2 The Countermeasures to the Problems in Oral English Teaching

We have analyzed the problems existed of oral English teaching in colleges and universities. Next we will discuss some countermeasures to these problems. The countermeasures are as follows:

2.1 Enrich Teaching Forms, Create Language Environment and Change the Old Teaching Mode

In oral English class, students should be the center, not the passive recipients, but the leading characters of the class. The role of the teacher is to guide students and design activities. In order to maintain the diversity and interest of oral class, the teacher

should use different teaching forms in different classes, such as dialogue, group discussion, story telling, role play, talking about pictures and questions and answers. These methods should be used interchangeably. When using group discussion, the teachers should change group members regularly to let students have chances of speaking with different people, which can help to increase freshness. Oral exercises in class alone is not enough to improve oral English, the teachers should also create more English-speaking environments for the students, for example, set up English corners, English salon, giving English lectures, English-speaking contests, English discussions, organize English parties, and so on, so that more students have the opportunity to practice speaking the language in the communication environment. Thus the language information senders and receivers can share the success of communication and achieve the purpose of oral English proficiency.

2.2 Stabilize Teaching Force and Improve the Quality of Teachers

A stable and qualified teaching force is beneficial to the development of oral English teaching. Colleges and universities should take measures to ensure long-term teaching plans for foreign teachers, at the same time, develop a stable force of oral teachers. Colleges and universities should also increase financial and material resources and relax the policy of teacher education to let more oral English teachers have the chance of going abroad for further study. Through training, the teachers can improve their spoken English, broaden their knowledge and master the rules of English teaching.

2.3 Optimize and Select Appropriate Teaching Materials

The preparation of teaching materials should not only follow the laws of language learning and teaching principles, but also should reflect the teaching method and conform to the principle of “close to the era, meet the needs of communication and pursue truth”. From the purpose of cultivating students’ language skills, it is good to use a fixed textbook. By using such a textbook, the teacher can provide students with some language materials. This is helpful for students to accumulate language materials and also helpful for teachers to control the teaching process. Using a fixed textbook does not mean copying the book completely. The teachers should remove the exercises that the students are not interested in and the contents that the students have mastered. Combine the current hot topics with the students’ real life to create more novel and unique teaching contents.

2.4 Correct Attitudes towards Learning

Students’ learning attitude is an important factor which affects oral English learning. Teachers should guide students to change the misconceptions of oral teaching and let them recognize that the purpose of spoken language class is, after all, to learn, that the accumulation and use of language can only be achieved by relying on the systematic study and practice. If they can’t correct their attitudes toward oral class, even if they have very good textbooks, excellent teachers and rich variety of teaching methods, they still can’t improve their oral English. When students dare not open their mouths to speak English, teachers should express the feeling information of encourage, trust

and respect through their words and facial expressions to help students build self-confidence and overcome inferiority complex. In the early stage of the oral training, teachers can encourage students to use their oral vocabulary in the text and sentence structure to reduce the errors of expression. Later, teachers can gradually increase the difficulty of the exercises, by using this progressive approach, the students can improve their oral English step by step. When teachers find students blabbers, they should tell the students that speaking fast does not mean fluency, only based on accurate pronunciation and correct grammar, can one speaks good English.

2.5 Combine Speaking with Listening

When the students have nothing to say about a subject, it is mostly because the input of relative corpus is not enough and know little about the background knowledge. so oral teaching should be closely related with listening training. Listening is the basis of speaking. The listening materials are close to real life and thus have strong features of spoken language and can help students learn everyday English and master the rules of communication, also can enable students to understand cultural practices and habits of western society. With adequate mastery of the language material input, output will be easy. For some of the more difficult topics and activities, teachers can ask students to write down key points first, then speak after careful thinking, thus they can express more profound ideas.

2.6 Improve the English Teaching Evaluation System and Focus on Oral Test

Test can promote teaching greatly. Colleges and universities should formalize and systematize oral examination and fix it as a learning outcome measure. This will help improve students' initiative of learning oral English. In midterm and final exams, teachers should strengthen the oral test for students. Teachers can test the students through questions and answers, repeat, monologue.

2.7 Enhance the Understanding of Western Culture

During the teaching process, teachers should not only attach importance to language learning, but also attach importance to cultural understanding. When comes to the difference between Chinese and western culture, teachers should guide students to hold discussions about the differences and relations between the two cultures, replenish the necessary contents of customs and habits of western society and behavior patterns, to enhance the cultural sensitivity of students. Make full use of modern teaching methods, such as multimedia, foreign language films and television, to let the students learn some things that can not be found in books. If possible, teachers can invite foreign teachers to give lectures on cultural practices. Or teachers can compile books of introducing western cultures to enhance students' understanding of cultural content. Language learning can contribute to the improvement of cultural literacy, develop good way of thinking, then improve the speaking ability and cultivate intercultural communication ability.

3 Conclusion

Colleges, teachers, students and many other factors restrict the oral English teaching, which makes the majority of teachers face a severe test. So oral English teachers should try to create conditions, using effective teaching methods to improve teaching quality, to explore boldly and meaningfully for students to improve English speaking ability. There is no doubt that to achieve the purpose of oral English teaching, the most critical aspect is the students. As long as the students learn hard and master scientific language learning methods, through long-term effort, they will be able to obtain good results.

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The Application of Multimedia Technology in College English Teaching

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Abstract. With the development of modern information technology, the involvement of multimedia in college English teaching has become an inevitable trend. It provides more choices for college English teaching. It can easily arouse the students' interest and cultivate their imagination and creativity. This article analyzes the theoretical basis for the application of multimedia technology to the teaching of English, discusses the advantages of multimedia English teaching as well as the shortcomings of it. As college English teachers, we should try our best to overcome the disadvantages and make full use of the strong points of multimedia technology.

Keywords: multimedia technology, college English teaching, teaching mode.

The use of multimedia computer to assist language teaching and learning activities is usually called MCALL(Multimedia Computer –Assisted Language Learning). It reflects a new philosophy of teaching, and has become the primary means of modern English teaching, and plays an important role in improving the quality of classroom teaching. The traditional teaching method is the teachers teach knowledge to their students, while the students accept knowledge passively by means of books, teachers' words and teachers' writing on the blackboard through watching, listening and writing by hands. This way of teaching not only fails to show a dynamic, content-rich information, but limits the students' initiative, self-play and the ability to create. Multimedia English teaching has the advantages which traditional teaching method doesn't have. With the continuous development and improvement of multimedia technology, the introduction of multi-media teaching in college English teaching has been more and more widely.

1 The Theoretical Basis for the Application of Multimedia Technology to English Teaching

The concept of teaching English through multimedia in a network environment is not imagined, but has a solid theoretical foundation. It mainly comes from the constructivist learning theory, which is a social science theory that rose in modern European and American countries since the 1990s.

It was generated with psychologists' intensive study of the law of human being's cognitive learning process, and is a main branch of Cognitive Learning Theory. Constructivist learning theory is based on its unique concept of knowledge. It criticizes behaviorism for its taking knowledge as final conclusion and truth. The constructivist view of learning is that the world is an objective reality, but the understanding of the world is a personal decision. Knowledge is neither a pure and objective reflection of reality, nor an accurate representation of objective reality. It is just an interpretation, an assumption, not the ultimate answer. Knowledge is not a panacea, but requires re-processing and re-creation of the original knowledge according to specific context of the problems. In addition, knowledge is not possible to form an entity outside of the specific individual. Thus, constructivist learning is not knowledge transfer made by teachers to students, but a process that the students construct their own knowledge. Learners are not passive absorbers of information, on the contrary, they should take the initiative to construct the meaning of information. This construction can not be replaced by others. Learning is not passively receive information to stimulate, but actively construct meaning based on their experience, background, active external information. Constructivists also believe that learning is always associated with certain social and cultural background (i.e., situation).

Learning in real situations so that students can use their existing cognitive structures of the relevant experience to learn to assimilate this new knowledge in order to give a sense of new knowledge. It can be seen, constructivist learning theory emphasizes that learning is the learner's own behavior, it is the activities that need learners' active participation, rather than learners' passive behavior. It is the reconstruction of the objective world based on the learners' own prior knowledge and the learners gain knowledge in the process of construction. It emphasizes the main role of the learners, not only requires students to change from passive recipients of external stimuli and the object of inculcation of knowledge into the main body of information processing and the active builders of knowledge, but also requires teachers to change from imparters and delivers of knowledge into the learners, into helpers and facilitators of active construction of meanings. Constructivist learning theory also emphasizes learning situation. Learners' learning in real situations is conducive to learning and digestion of new knowledge.

In recent years, with the rapid development of science and technology, due to their low teaching efficiency, the traditional English teaching methods became more and more unsuitable to the needs of the current reality. Compared with traditional teaching, the core of constructivist concern is how to encourage active learning, improve self-learning ability, reduce the gap between school learning and real life. Constructivism sharply criticizes the notion of the traditional teaching and make a new interpretation to learning and teaching. A series of ideas which are put forward based on this theory is of great significance to the reform of the traditional college English teaching. The implementation of the network environment of college English teaching is the practice of the new teaching concept of constructivism.

2 The Advantages of the Application of Multimedia Technology to English Teaching

2.1 The Information Input Is Compact and with High Quality and Large Quantity

The use of multimedia eliminates manual time, greatly accelerates the teaching process, improves the amount of information per unit area, increases the teaching capacity, improves teaching efficiency and ensures the quality of the classroom. For example, when explaining knowledge related to languages, just by a click, the main points that the teachers want to teach will be presented on the screen clearly and the students can understand them at a glance. When explaining rhetorical knowledge, the explanation can be combined with example sentences and the material is new, accurate and convincing, which can impress the students deeply. In addition, the advantage of integration of multimedia information expands the students' perception of time and space, enhances the students' level of understanding. The effects of multiple stimulus help the students understand and accept knowledge, improves learning efficiency and promotes students' self-learning capabilities effectively.

2.2 The Text Image Is Clear and Intuitive with Rich and Diverse Styles

Multimedia turns the tiny words on the blackboard or whiteboard into clear and big characters, colorful pictures or celestial music, which greatly stimulate the students' interest and initiative in learning. Once during the U.S. Pulitzer News Awards, there was a well-known news photographer who made a famous comment that "A news photograph is worth a thousand words ." Likewise, our multimedia teaching content with image and sound has a depth that can not be reached by language to the "negative" ---- the minds of students.

2.3 The Students Participate Actively and Is Helpful to Cultivate Students' Self-Learning Ability

In " Decision on Deepening the Reform of Education and Promote Quality Education" issued by the State Council, it says "let the students feel and understand the process of knowledge generation and development, cultivates the students' scientific spirit and innovative thinking habit. focuses on the students ability to process and collect information, the ability to gain new knowledge, the ability to analyze and solve problems and the ability to express in language skillfully as well as the ability to unite, to cooperate and to participate social activities". To develop and improve students' self-learning ability is a vital, urgent research subject, is the need of social development. Modern information technology provides favorable conditions for the formation and development of self-learning ability, creates a student-centered, personalized, intelligent learning environment. In the information age, the basic requirements of the quality of talent is to be able to learn, to be able to choose and to be able to use modern information technology.

2.4 It Is Easy for Teachers to Update Lessons and Exchange Viewpoints

Multimedia teaching is a reform to the lessons' preparation. It requires the teachers to understand a certain amount of new knowledge about multimedia, network and other aspects of courseware production. This undoubtedly enlarges the teachers' work load. However, once the prepared lesson material stored in the computer, it is easy for the teachers to make up and update the material later. A few disks or a cd-rom can store a whole textbook's teaching materials, which is easy to carry and easy to communicate with colleagues and peers. In addition, the multimedia facilitates the establishment of the expansion and improvement of item pool, which makes examinations more scientific, flexible, practical and safe.

2.5 Timely Exchange of Information

We can send and correct students' homework through email and answer the students' questions through the Internet. By doing so, we can exchange information with the students timely. Some teachers even set up their own websites to send homework, discuss questions and answer the students' questions online.

3 Some Points to Be Desired in Multimedia Teaching

Multimedia teaching is still in the process of experiment. There are also shortcomings in this kind of teaching mode. Next we will discuss some points to be desired in it.

3.1 It Ignores the Teacher's Leading Role

Teaching is an art, in which the teachers are both directors and actors. In the teaching process, teacher's personal charm and explanation with rich taste of emotions can infect the students, and the interaction between teachers and students can mobilize the students to actively participate in the teaching activities. This interaction between teachers and students can not be replaced by any form of electronic media. But in the process of multimedia teaching practice, many teachers not only move the content of the text into the computer but also attach words explaining and the analysis of sentences, so in the teaching process, the teachers become computer operators. In the classroom, the teacher's operation become the center of the teaching activities. The friendly verbal exchange between students and teachers as well as students and students changes into a man-machine dialogue. This kind of teaching mode can not be recognized by students. We should emphasize the teachers' leading role in the process of multimedia teaching.

3.2 It Lacks the Atmosphere of Teacher-Student Interaction

The multi-media teaching needs an operating platform, so sometimes the teacher may busy himself with the operation while the students listen passively. The interaction between teachers and students is not as flexible as the traditional teaching method. The teachers are likely to replace the dominant position of students and become the main

occupant of teaching time. The loss of dominant position makes the students become bystanders and passive listeners. The bilateral activities of classroom teaching becomes less and teaching efficiency feedback is not timely.

3.3 The Multimedia Teaching Requires the Students to Have Higher Will Power

The use of multimedia and network provides most students with the opportunities of independent study, which exercises their creativity and initiative, but its success depends to some extent, on the enthusiasm of learners. Yet there are many students who in the past were far too dependent on classroom teaching, so in a long time, it is difficult for them to adapt themselves to this kind of learning form, which is reflected in that many students don't know when and where they should take notes, so they don't take notes at all but just listen, and in the process of listening, they are easily to become absent-minded and don't listen to the teachers at all. This phenomenon will affect the teaching effect greatly. So the students must have higher self-control in multimedia classroom than in traditional classroom.

3.4 The Quality of Multimedia Courseware is Mixed, Which Affects the Teaching Effect

In the process of multimedia teaching, the multimedia courseware plays a very important role and its quality affects the teaching effect directly. In the production process of courseware, some teachers pay excessive attention to the novel form and add too many images and animations in the courseware, which lead to the phenomenon of confusion and chaos. As a result, the students just enjoy the design and animation of the courseware, but ignore the teachers' explanations and key knowledge points. This is contrary to the cognitive rule that in a certain period of time, when recognizing things, the students can only receive the main message of the things and ultimately affect the actual results of teaching.

3.5 The Classroom Teaching Lacks Creative Flexibility

As the multimedia courseware is completed before class, but the teachers often need to make some adjustments or add improvisation in class. Yet these adjustments or add improvisation can not be expressed in the multimedia courseware, which will affect the teachers' creativity and initiative in class. Although the multimedia teaching can present visual image to the students and has a strong visual impact as well as is informative, it is too fast and the time for students to think is comparatively less, so it has some bad effect on students' active listening and active thinking.

4 Conclusion

The introduction of computer multimedia to the teaching of college English is inevitable. The involvement of multimedia in college English teaching has brought both opportunities and challenges to the reform and development of college English

teaching. The correct understanding of the use of multimedia courseware is a prerequisite to full play the role of multimedia courseware and to improve the college English teaching. Only a proper understanding of multimedia technology in the college English teaching and appropriately apply it to the college English teaching, can multimedia better serve our education and teaching. Finally, the vast information resources of network and superior multimedia features offer the possibility to improve the quality and efficiency of college English teaching. What we face is a highly information-oriented era of education, to carry out multi-media teaching is the needs of the times, and also is a natural choice of school teaching.

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Cultivation of Innovative Consciousness and Ability of Students in Application Undergraduate Course Teaching

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Abstract. This paper links up the study and practice of teaching innovation and management in undergraduate course teaching, and introduces some methods and suggestions of cultivation of innovative consciousness and ability of students in application undergraduate course teaching.

Keywords: Innovative consciousness, Practice ability, Application Undergraduate.

1 Introduction

Education science divides college education into three parts: the imparting of knowledge, the developing of quality and the cultivation of ability. Knowledge represents the understatement to properties of things and their relations, which is received from the previous; quality is the accomplishment of one aspect or the general performance of the qualities of all aspects, which is formed by oneself. Ability means the individual's psychological characteristics or skills needed in completing a certain activity, which comes from practice and affects society. They three are closely related and complementary to each other.

As the foundation of higher education, in the teaching process of undergraduate course education, the complementary relationship of the imparting of knowledge, the developing of quality and the cultivation of ability should be expressed, and its core and purpose are the cultivation of innovation consciousness and ability.

This paper links up the study and practice of teaching innovation and management in undergraduate course teaching, and introduces some methods and suggestions of cultivation of innovative consciousness and ability of students in application undergraduate course teaching.

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2 The Importance and Urgency of the Cultivation of Innovative Consciousness and Ability

21st century is a hopeful new century, which “is characterized by informatization and globalization and bases on knowledge to compete”, and in this century “Technology, information, knowledge and culture determine the national power and the individual’s life quality.” The wide use of computer, the informatization of social production and life, the crossover and integrating of science and technology, and biological engineering results have more and more influence on the development of science and human survival, and the co-optimization of human and nature increasingly attracts more attention and is becoming the sign of social civilization. These figures of this new century will heavily affect the culture, economy, morality and conception. Therefore, the competition in polity, economy, science, military and other fields is the competition of national power, and in the final analysis, is the competition of talent.

In the notification of *Teaching Contents and Curriculum Reform Plan for Higher Engineering Education in 21st Century*, the state education commission points out: this plan “is based on the thought, which is proposed by Xiaoping Deng, that education should faces the modernization, the world and the future”; the goals are to make the teaching contents, course system and teaching methods of China's higher engineering education more close or reach the world level, and to make the students' knowledge and ability structure adapted to the development of socialist market economy and scientific technology, especially improving the student’s engineering practice ability and innovation ability. The cultivation of innovative consciousness and ability of students is put onto an important position.

All of these are pressing for the application undergraduate education to reform the teaching contents and curriculum system and talent fostering mode, widen professional caliber, adjust the students’ knowledge and ability structure, and focus on the cultivation of quality, innovative consciousness and ability of students.

3 Connotation of Innovative Consciousness and Ability

The talent with innovative consciousness and ability is a talent possessing knowledge, quality and ability. In terms of cultivation of innovative consciousness and ability of application undergraduate students, the following aspects should be paid attention:

1. Comprehensive analysis ability. It refers to an ability to apply the acquired knowledge to analyze natural scientific phenomena and engineering problems, and explain, analyze and synthesize, then to solve practical problems. In order to improve this ability, a wide breadth of knowledge, sharp thinking, strong foreseeability, and a good innovative mental quality are needed.
2. Organization and management ability. It means to reach the expected goal through organization and management. As the development of scientific technology and society, this ability becomes more and more important. According to the experts’ investigation and analysis, almost 50% of college students in developed country with advanced technology are mainly engaged in coordination, public relations and management after graduation.

3. Self-study ability. It means the ability to acquire knowledge through one's own efforts. In 21st century, science and technology highly cross and synthesize, and new technology and developments emerge in endlessly, to adapt to the development of society and keep pace with the progress of time, self-study ability is important. College students should have strong and vigorous interest to learn and the ability to acquire new knowledge continuously through hard study.
4. Expression ability. It represents the ability to express one's own thoughts through words and language. Human's activities need to be expressed by words and language. Expression ability can be divided into subjective expression, objective expression and scientific expression. Scientific expression is one for experts and it is the supreme manifestation of expression ability.
5. Innovation ability. It is the ability to propose new thoughts new discoveries and conventions on the basis of previous knowledge and skills. Without rich knowledge as foundation, innovation ability is like water without a source, but knowledge is unequal to innovation ability. Innovation ability is a combination of innovative consciousness, innovative thoughts and innovative practice. Innovative consciousness is the sharp and strong interest and motivation; innovation thoughts mean an imaginative, novel and distinctive thinking mode; innovative practice is the activity which combines the spirits of diligent and brave to explore for new knowledge, undaunted by repeated setbacks and sacrifice with strict scientific attitude.

4 Approach to Cultivate Innovative Consciousness and Practical Ability

It is a leap for education thought to enhance students' innovation consciousness and practice ability and break through narrow vocational education idea in higher education. It will cause a series of reforms in major setting, curriculum system, teaching content and teaching method.

4.1 Widen Major and Strengthen the Basis and Student's Flexibility

The purpose of reforming curriculum system is to change student's knowledge structure and its premise to adjust major setting, so the situation that the choice of major is too narrow and major division is too small should be changed. At present, on the basis of the leading professional directory, a new directory should be put forward, completed and enriched, and then compare it with graduate students' directory, so it can be corresponding to foreign undergraduate students' directory and also reflects the characteristics of our country. Strengthening the basis means to enhance the basic curriculum and the teaching and reformation of technique-based curriculum. According to the peculiarities of our university, recently the construction of mathematics, foreign language and computer curriculum has been emphasized. These curriculums are supported to be changed from teaching conditions, curriculum and teaching effects; at the meantime, the statue and importance of the basic curriculum and the technique-based curriculum in talent cultivation are emphasized.

4.2 Improve the Students' Humanistic Quality and Make Use of Non-intellective Factors

Students' humanistic quality attracts more and more attention of the education field and society. Although from the 80s, the cultivation of students' ability has been put forward, it gained little. One of the reasons is the ignorance of students' humanistic quality. The quality is the accomplishment of one aspect or the general performance of the qualities of all aspects and ability means the individual's psychological characteristics or skills needed in completing a certain activity. So besides the plentiful knowledge, excellent humanistic quality is also needed in the cultivation of innovative consciousness and ability of students. The contents of humanistic quality of students vary, including politic, philosophy, economy and literature and art, and must be expressed by reforming teaching content and curriculum system. One of the methods is to strengthen and reform on the basis of "two courses", to reduce the courses which are repeated in middle school and combine the improvement of humanistic quality and reformation of "two courses". The second method is to add some literature and art selective courses. Pay attention to the training of the students' patriotic spirit, high responsibility and ambition, rich fighting spirit and good creative mental quality. Making full use of these non-intellective factors is vital and can not be ignored.

4.3 Reinforce the Practical Teaching Link and Train the Students' Practical Ability

Our electric and information engineering department contains four majors: automation, electrical automation, electric information and communication engineering, and the graduates have strong practical ability and analysis and solving ability. Therefore in the practical teaching links we currently mainly arranges experiment, practice, taking part in scientific research, large assignments and course design, graduation design and graduation thesis. Besides, our department also builds up an efficient practical teaching system. Meanwhile, according to the peculiarities of every major, we construct several practice teaching bases, which play very important role in cultivation of students' practical ability.

Our department also arranges students to take part in many college students' technology competition, for example, mathematical modeling and national undergraduate electrical design contest. Our leaders, department office and student affairs office all pay much attention on these activities and guarantee the funds and equipment, which fully mobilize the enthusiasm of the students, and we have obtained some achievements. The students generally reflected through the competition and activities they have learnt much knowledge that can not be acquired in class and their practical ability and problem solving ability have been greatly improved.

But only a few of students can take part in these activities, the benefited range can be expanded combined with daily teaching work. Therefore the following aspects should be emphasized in daily teaching:

1. Track the development of the discipline, combine with the upgrading of electronic technology, update the teaching contents in time and add new technology. The rapid development of electrical technology makes it easy to add new contents in teaching, enables the students to learn about the frontier of the field, broaden the students' knowledge, and arouse their interests in learning.
2. Combined with the ongoing research project, guide the students to discuss together to analyze the key points and difficulties in research, enables the student to have certain perceptual knowledge of the scientific practical research.
3. Give the students some designing topics related to the project, so as to give full play to students' imagination and the ability to solve problems.
4. Require the students to write papers attached to part of the professional class content. This can not only train the students' literature search ability, but also improve the students' ability of scientific papers writing.
5. Select some students to participate in scientific research. This can avoid the teachers' wasting of energy on simple jobs and also give the students a good opportunity. What is more important, the students can learn how to find questions, how to analyze and how to solve in practice.

5 Conclusion

It is a long-term and systematic project to cultivate the innovative consciousness and practical ability of students in application undergraduate course teaching. We think and try in daily teaching tasks and gained some results, and have got the students' positive response. We still face the important work that how to develop it further and how to benefit more students.

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Several Countermeasures to Improve the Teaching Effect of College Professional English

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Abstract. This article discusses the importance of the professional English teaching work of universities in our country and the problems existing in the current professional English teaching process, and puts forward on some practical solutions. This article specifically expounds the detailed measures to the problems such as improper selection of course contents, low quality of teachers, inappropriateness of teachers' teaching method and low study interest of students. And it will have some reference value on the professional English teaching work of ordinary higher institutions.

Keywords: Professional English, Existing problems, Teaching effect, Countermeasures.

1 Introduction

Along with the progress of the society and the strength of the reform and opening to, the communication between our country and the outside world is increasingly frequent, and English that is one of the important tools to communicate with foreign countries has also been paid more and more attention to. College professional English courses opened in ordinary higher institutions are significant moves to improve the international competitiveness of the undergraduates on basis of public English, and are essential part of the undergraduate professional courses teaching link [1].

2 Major Problems Existing in the Professional English Teaching

2.1 Improper Selection of Course Contents

The proper or improper of course selection in the professional English teaching process directly affects the quality of the teaching effect [2]. However many problems exist in the selection of professional English teaching materials or literature materials in some universities, such as teaching materials do not coincide with the professional, the difficulty of teaching materials is improper, and the content of literature materials is unilateral etc.

2.2 Low Quality of Teachers

At present, a significant proportion of the college professional English teachers' quality is not high. On the one hand, their English level is not good enough to finish the interpretation of vocabulary and reading and translation of the articles; on the other hand, their professional knowledge not excellent enough to explain when meeting the actual problems in the article and to teach students more professional knowledge[3].

2.3 Inappropriateness of Teachers' Teaching Method

Most of the professional English teachers do not teach from the perspective of students in teaching process[4], leading to inappropriateness of teachers' teaching method; such as some teachers explain too meticulously, carefully analyze the main body of the articles, the use of structure and phrases, and the meaning of words, teach professional English as public English, so as to lose the significance of professional English teaching; part of the teachers explain the English knowledge in the articles too simply or don't explain at all[5]. And even some teachers completely teach in Chinese and teach professional English as pure professional class. The two extreme practices will not make good teaching effect undoubtedly.

2.4 Weakness of the Students' English Foundation

Most of the students' English foundation is weak, from primary school to junior school, from high school to college, whether vocabulary, grammar or sentence structure has been their weaknesses. So we can imagine professional English also is bound to become one of their weaknesses.

2.5 Low Study Interest of Students

Low study interest in professional English is a very common phenomenon, especially more common in science and engineering colleges. The reason for this phenomenon are many, but they can be summarized in two: one is that the majority of students have insufficient recognition of the importance of professional English learning English and think of no use to learn English, in addition to reading graduate school or engaging in scientific research; another one is that most of the students' English foundation is too weak to study, resulting in a difficult idea of abandonment.

2.6 Students' Lack of Professional Knowledge and Failure to Integrate Theory with Practice

Even for the professional English articles of the science class, there are still quite a considerable number of students failing to understand the meaning of sentences or paragraphs, and the translation of sentence is multifarious and difficult to be close to the true meaning[6,7]. Such as the water pollution problems, most of the students can master the meaning of "Point" and "Non-Point", however, the understanding of "Point" and "Non-Point" in the text are vastly different, and the accurate translator is

little. The reasons are mainly that professional knowledge is not mastered solidly enough and cannot be used in solving practical problems.

3 Countermeasures to Improve the Professional English Teaching Effect

3.1 Clearing and Definite the Orientation of the Professional English Courses

It is one of the most important issues to clear and definite the orientation of the professional English courses, which determines the training objectives and training methods of the students. The goal of college English teaching described in the “College English Curriculum Requirements (For Trial Implementation)” issued by the ministry of education in 2004 is as follows: “the goal of college English teaching is to cultivate students’ integrated English application ability, especially listening and speaking ability, to enable them to conduct oral and written exchange effectively by using English in their future work and social interactions, and enhance their independent learning ability, improve the comprehensive cultural literacy, in order to adapt to the social development and international communication needs.” And in the “teaching outline of professional English” of most ordinary higher institutions, professional English is described as a curriculum that is a combination of English and professional knowledge, to gradually cultivate students’ proficiency in reading, translating English professional articles and books on the basis of “College English”. Therefore, the orientation of the professional English courses is more in favor of professional knowledge, so we can say professional English is not simple English, and also is not “professional plus English”, but is the professional courses based on the knowledge of English

Given this understanding, we should put English teaching and imparting professional knowledge as an organic whole, and more focus should be put on the later one.

3.2 Improving the Quality of Course Materials

In the process of teaching, the selection of course materials should follow the principle that is from easy to difficult and step by step. And avoid exposing too professional English literature to students just at the beginning, so as not to reassure the students’ study enthusiasm and affect the study effect. The professional English teaching work in the writer’s college is divided into two semesters to be completed, most of the teaching materials are science articles in the first semester, and in the second semester, teaching materials are given priority to professional articles, and at the same time the latest literature other than the teaching materials is added according to the practical situation, to enable students to understand the hot spot content of the current academic research.

Simultaneously, the courses should try to avoid monotonousness of the content caused by the interest preference of the teachers, to make the class content involve as much research field as possible, so as not to reduce the students’ knowledge.

3.3 Improving Teachers' Comprehensive Quality

The enhancement of teachers' comprehensive quality is undoubtedly an important measure to improve the college professional English teaching and learning effect. In terms of college, professional English teaching task should be arranged to teachers who has good English foundation, solid professional knowledge, and rich experience; On the teacher concerned, they should do love their work, strive to improve their English and professional knowledge level, prepare lessons earnestly, and carefully accomplish their teaching work.

3.4 Changing the Traditional Way of Teaching

In view of the particularity of professional English, it is obviously not appropriate to use the teaching methods of traditional public English or common professional class, thus the introduction of new teaching methods is imperative. According to Years of professional English teaching experience, the writer summarizes a teaching method that the students are willing to accept, that each student reads and translates a sentence of English text, and explain the inherent professional knowledge by turns, Simultaneously the teachers point out the inappropriate places in the process of students' explaining in time, and explain the deep professional knowledge. As the continuity of the English articles, each student can not accomplish the "reading - translation-explaining" task just stick to his one original sentence, but must understand by means of context. Therefore, this virtually allows students to complete a certain amount of learning tasks independently, and to achieve a better teaching effect. In addition, some of the professional audio-visual materials can be applied in the process of teaching, teaching through lively activities.

3.5 Cultivating Students' Interest in Study

Aiming at the phenomenon that students do not attach importance to learning English, we should be targeted to take appropriate measures to solve and increase their interest in learning. For the students whose attitude is not correct, the uncertainty of the employment direction after graduation should be let them know, professional English may not be useless; And for the students whose foundation is weak, we should make them fully understand that professional English is not only the study of pure English, but also the study of professional knowledge, so as to enable them to re-establish the confidence of learning professional English and improve the learning interest.

3.6 Strengthening the Practical Application of Professional Knowledge

In the process of teaching, most of the students are too rigidly adhere to the literal meaning when translating the original English text, just to be able to complete the translation sentence by sentence and word for word, which separates the consistency of article, so that does not know what is said after translating a paragraph. For example, students are familiar to the "water eutrophication" phenomenon in water pollution, but when this content appears in the English article, even though some students can translate out the meaning of each sentence, they don't know that the whole paragraph is the description of the "water eutrophication" phenomenon. So

attention should be paid to cultivating students to grasp the meaning of the whole articles, and improving their ability to understand English literature combined with practical professional knowledge.

4 Conclusions

Teaching work of college professional English has a long way to go, only the college teachers think from students' perspective, can arouse students' enthusiasm and make them benefit to the maximum. At the same time, the students should cooperate with the teachers closely together, search loopholes in the process of teaching, and look for solutions, so as to complete the teaching task, and develop qualified personnel in accordance with social need.

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The Role Change of College English Teachers under the Circumstance of Web-Based and Multimedia College English Teaching Mode

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Abstract. Since 2004, the Education Ministry of China has published the College English Curriculum Requirement, a new round reform of college English teaching had been taken place. One of the most important parts of this reform is to change the traditional college teaching mode and build web-based multi-media teaching mode. This article mainly discusses the features of web-based multi-media teaching mode, the factors of promoting the role change and the new role of college English teacher.

Keywords: teacher's role change, web-based multimedia teaching, college English teaching.

1 Introduction

With the rapid development of the technology of web and multi-media, the web-based instruction has been widely used as method which assists English teaching in the modern universities. The latest English Language Teaching(ELT) theory emphasizes that the language learning progress is an interactive process not only between teaching and learning, but also between teachers and students. Therefore, it is necessary for college English teachers to change their roles under the circumstances of web.

2 The Features of Web-Based Multi-media Teaching Mode

The College English Curriculum Requirement issued by the Education Ministry of China requirement universities and colleges to widely use advanced information technology, develop and build kinds of curriculum based on computer and web, provide nice language learning environment and condition for students. It affirms the idea of web-based multi-media teaching mode, requires universities and colleges should take full advantage of modern information technology, apply the new English teaching mode based on computer and classroom, improve the traditional teaching mode which centered by teachers teaching. This new teaching mode should based on

modern information technology especially the web tech, to make the teaching and learning of English to be independent of time and place restriction.

The web-based multi-media teaching mode broaden the time and space of English teaching. With the development of China's web technology and teaching software, the advantages of web-based multi-media teaching mode has emerged. One of the remarkable advantages is that English teachers can make lively teaching environment through web and multi-media teaching method, this has greatly improve the efficiency and quality of college English teaching. Multi-media teaching mode applies letters, images, pictures, flash, video and audio files to stimulate students' visual sense, to make the English teaching more interesting. It can also increase the students' interest of English learning. With the assistance of web and multi-media, the teachers' role is changing from the pure lecturer and leader to diversity.

3 The Factors Lead to the Role Change in Web and Multi-media Language Teaching

3.1 The Reassign of Teaching Authority Leads to the Role Change

Compared with the traditional teaching mode, the web and multimedia forms a new education environment, teacher is facing the situation of sharing authority with the web.

To the function structure of authority, the traditional teacher's single authority is developing to the multi-polar authority shared with the web. To the function time of authority, the teacher's authority is no longer limited by the time and space on campus. To the function ways of authority, the face-to-face communication between teachers and students tend to diversified. Therefore, under the circumstances of web and multimedia, students and teachers have more equal opportunities to share the resources of authority. In this way, the resources of authority can be fairly reassigned. However, because of students and teachers have the equal opportunities, the teacher's authority in teaching will fade away. So it is necessary for the teachers to make to role change from the controller of students' learning to the guide and participant of students' learning.

3.2 The Adjustment of the Center of Teaching Activity Leads to the Role Change

Before the application of web and multimedia, the teacher plays a single role of knowledge provider in the traditional teaching mode, to operate teaching activities circled with lecturing, this traditional teaching mode would lead the students to accept knowledge negatively and neglect the active self-learning. The web and multimedia teaching mode applies audio, image and video materials, provides an interactive live learning environment, activates students' sense, arouse students' learning interests, improves the students' knowledge-acquire efficiency. By using this mode, the web and multimedia conveys the knowledge to students instead of teachers, while the teacher's job is to design how to lead students to adopt, understand knowledge. The center of teaching activities has transferred to students. Therefore, teachers have to

make the role change from the knowledge disseminator to the leader of students' active learning.

3.3 The Teachers' Emotional Factors Lead to the Role Change

The emotional factors are important in the progress of language learning: depression, self-enclosed, boring feeling will seriously affect the learning efficiency, while concentration, positive and confident feeling will inspire and even enlarge the learning potential.

In the traditional teaching mode, teachers can activate the class atmosphere and lead students to involve in teaching activities through teachers' own personality and positive teaching method. However, because of the present technology level is not advanced, the teaching which finished only by using web and multimedia lacks of emotion communication. This leads to the emotion barrier. Therefore, in the web and multimedia teaching environment, teachers should make good use of the web skill, teachers should become the host of classroom to overcome the emotion barrier, realize emotion communication.

4 The Role Orientation of College English Teacher in the Web and Multimedia Teaching Environment

The web and multimedia technology bring lots of advantages to English learning, yet, teachers need to re-examine and re-orientate their role in new teaching environment, in order to make the web to provide efficient guidance and assistance for students' English learning.

4.1 The Teacher Becomes the Assistant and Promoter in Terms of Cultivating Students' Learning Autonomy

The web and multimedia teaching mode represents a brand-new teaching mode in college English. This mode requires to highlight the dominant position of the learner. It also aims the formation of students' personalized learning method and the development of students' self-learning ability. The formation and development of learning autonomy requires teachers' guidance. The student's learning activeness combines with the teacher's guidance can form positive and efficient teaching activities. Many students are enthusiastic for multimedia teaching at the beginning, however, after a period of time, they lost the enthusiasm when they find the actual learning result is far from their expectation. Teachers' professional knowledge and experience can help students to correct the attitude toward learning, get the right direction, master some learning skills, understand the features and rules of language learning, to enable students to practice self-learning better.

4.2 The Teacher Becomes the Organizer and Designer in Teaching Progress

In the mode of multi-media teaching, teachers also shoulder the responsibility of assigning in-classroom learning activities and assisting off-classroom learning

cooperation. Generally speaking, multimedia assists English learning can be divided into three categories: individual activity, pair activity and group activity. Teachers need to introduce the detailed program of activity to students, clarify the category of activity and indicate the importance of this activity in improving English learning. To some specific activities, teachers should explain the detailed rules, or divide the class into groups if it is group activity. After students confirm their responsibility, teachers may give orders. For the off-classroom self-learning activities, it is teachers' responsibility to assist students to conduct activities through different ways and platforms and to coordinate students' activities. When students encounter problems, teachers should participate and solve the problems actively as the middle-man.

4.3 The Teacher Becomes the Participant of Students' Learning Activities

Multimedia teaching mode is interactive, teachers should design some teaching activities requires cooperation and participate. It could positively affect students' participation, improve the teaching effect. It also requires teachers to be aware of continuous learning and refresh their knowledge, to face various challenges in the future.

4.4 The Teacher Becomes the Verifier and Assessor

In the multimedia teaching mode, students have more freedom, more space and more content in self-learning. Teacher need to focus on students' leaning progress and content, to activates students' learning enthusiasm as well as observes their learning progress. It is necessary for teachers to correctly assess students' learning result, so teachers can carry out the next teaching program. It requires teachers to do more research in assessment to find more efficient ways.

5 Conclusion

In a word, in the environment of web and multimedia teaching, students are the main body, teachers provide guidance. Teachers fully activate students' enthusiasm in English learning by setting language environment through multimedia, to make students change from the negative learner in traditional teaching mode into active learner in web and multimedia teaching mode. Multimedia teaching mode brings more challenges to teachers, they need to function more actively and play more various roles than in traditional teaching mode to meet the need of time requires college English teacher.

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The Construction Conception of Three-Dimensional Teaching Materials of Database Technology and Application

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Abstract. As one of the core course in the basic computer teaching system, the reform of teaching mode of "database technology and application" course must put forward new requirements for course teaching material. "Database technology and application" is a core course in the of college computer teaching. It belongs to "data management and information process" and the two knowledge fields of "system development and industry application". To better achieve the trend of "for application, highlight the practice, integration, and network", the Construction of Three-dimensional Teaching Materials of the course is very important. According to the specialty requirements and the features of computer course, the basic computer course system includes 3 levels of course, and there are 7 kinds course in the second level. The construction of three-dimensional teaching materials that have "paper textbooks-online learning activities-learning assist CD-experiment and practice system" is needed for every kind of course.

Keywords: Database technology and application, Three-dimensional Teaching Materials, College computer teaching.

Along with the development of social informatization, the further development of college computer basic teaching are the trend of "for application, highlight the practice, integration, and network". In order to carry out the spirit of "training and improving the learning ability through the computer and multimedia courseware and the use of network data for undergraduates" that the ministry of education pointed out in 2007, the teaching reform of basic computer courses is imperative under the new situation. As one of the core course in the basic computer teaching system, the reform of teaching mode of "database technology and application" course must put forward new requirements for course teaching material.

1 The Course in the Positioning of the Knowledge System

In August of 2009, the basic computer courses teaching commission of state ministry of education points out and build the "4 fields \times 3 levels " of knowledge system and experiment system of basic computer teaching, and scientifically describe the basic teaching requirements of professional core courses for all kinds of specialty.

Table 1. The knowledge unit of the course

| Levels Knowledge unit Field/Sub-fields | Concept and basic (F) | Technology and method (T) | Synthesis and application (C) |
|---|--|--|--|
| Data management and information processing — — Data organization and management | D1F11 Database system D1F12 Data mode D1F13 Relational database D1F14 Database security D1F15 Data warehouse | D1T11 Standardization theory D1T12 SQL language D1T13 Transaction processing D1T14 Database design D1T15 Database management and maintenance D1T16 The database system development technology | |
| System development and industry applications -System development | A1F11 Software development process A1F12 Software system structure A1F13 Software tools and development environments A1F14 Project management and quality control | | A1C11 Information system development A1C12 Application system integration |

Table 2. The experiment unit of the course

| Levels Knowledge unit Field/Sub-fields | Concept and basic (F) | Technology and method (T) | Synthesis and application (C) |
|--|---|---|--|
| Data management and information processing--Data organization and management | D1B11 The basic operation of the database D1B12 SQL use D1B13 Data integrity and security | D1S11 Database maintenance D1S12 SQL programming D1S13 Database programming D1S14 Database analysis and modeling | |
| System development and industry applications --System development | A1B11 Demand analysis design | A1S11 Database application system analysis and design | A1A11 Management information system design and development |

"Database technology and application" is a core course in the of college computer teaching. It belongs to "data management and information processing" and the two knowledge fields of "system development and industry application". With the specialty except of medicine, agriculture, forestry as an example, the knowledge unit and experimental unit of the course are showed in table 1 and table 2.

2 The Construction of Three-Dimensional Teaching Materials of the Course

"Database technology and application" course include many basic concepts and terminology, also asked the students to understand and master the necessary knowledge and skills of database design and implementation. To better achieve the trend of "for application, highlight the practice, integration, and network", the Construction of Three-dimensional Teaching Materials of the course is very important.

According to the specialty requirements and the features of computer course, the basic computer course system includes 3 levels of course, and there are 7 kinds course in the second level. The construction of three-dimensional teaching materials that have "paper textbooks-online learning activities-learning assist CD-experiment and practice system" is needed for every kind of course. Each part of teaching materials will do his own job, and play different roles:

- Paper textbook: Microsoft Access (2007) is a tool of database management and development in paper textbook, and paper textbook is written by using heuristic case teaching method and combining with national level exam outline. The knowledge and skill of very chapter is draw out by the way of familiar task, novel project, problem solving for students, and make the students can master the application skills and knowledge of the course through solving the actual task.
- Online learning activities based on the network: In order to meet different learning habits and different levels of students, encourage students to autonomous learn and expand to learn, and provide students with an ideal digital learning environment relying on the information resources platform to build course teaching resources of the network.
- Learning assist CD: Learning assist CD is the expansion of paper textbook. The key knowledge and difficult operation of every chapter in the resolving process are included in CD with the original documents. It can let the student directly know the whole work of solving process. When Students watch the emphasis and difficulty through video, they can operate by using computer, and finally achieve the goal of solving the task.
- Experimental and practice system: Objective of the system is to strengthen the training of application ability as the core of the practice teaching. The experiment and practice contents, computer skill practice test should be made. Through the combination of experiment and test, student can be guide to complete experiment and practice, and improve student the computer operation and application ability.

3 The Design of Three-Dimensional Teaching Materials of the Course

Although each part of three-dimensional teaching material does his own job, each part link and mutually infiltrate with one another. They constitute diversified teaching resources and make basic computer teaching more adapt to the 21 century personnel training needs. The construction of the three-dimensional teaching material can form the teaching resource that include paper textbook, online learning activity guideline, learning assist CD, experiment and practice instruction, and test resources at last.

3.1 The Design of Paper Textbook

Microsoft Access (2007) is a tool of database management and development in paper textbook. Also the teaching standard and experimental standard are provided in paper textbook. The paper textbook is written by using heuristic case teaching method and combining with national level exam outline. The paper textbook in design and arrangement has the following features:

(1) Ensure the advanced nature of the paper textbook content

Microsoft Access (2007) as a database management system development tools, it can make students better master the popular advanced development tool and development method that use the tool.

(2) Establish the reasonable teaching standard and experiment standard

Teaching standard and experiment standard are provided in paper textbook, and can be used for different teaching requirement of teachers and students. Related catalogue of the course is showed in table 3:

Table 3. Teaching standard and experiment standard of the course

| | |
|------------|--|
| Chapter 14 | Teaching standard |
| 14.1 | Course overview |
| 14.2 | course content and Hours distribution |
| 14.3 | Learning evaluation and assessment |
| Chapter 15 | Experiment standard |
| 15.1 | Experiment overview |
| 15.2 | Experiment content and Hours distribution |
| 15.3 | Experimental environment and experimental method |

(3) The clear knowledge description

The form of 3 levels directory is used in the paper textbook. For example:

| | |
|---|---|
| Course Name •Database technology and application | |
| Chapter 5 Access2007 System overview | Key word: System overview |
| 5.1 Access2007 New features | Key word: New features |
| 5.2 Access2007 installation, start and exit | Key word: Access2007 installation, start and exit |
| 5.3 Access2007 Working interface | Key word: Working interface |
| 5.4 Access2007 Operating environment | Key word: Operating environment |
| 5.4.1 Access2007 Development environment Settings | |
| 5.4.2 Access2007 Navigation pane | |

(4) Heuristic teaching method

Heuristic teaching is the most fundamental to mobilize students' learning initiative and enthusiasm. Heuristic teaching can make student master more knowledge and skills. Heuristic teaching include discussion, heckle and parables. Through the parable way in this paper textbook, can lead student to understand and apply the knowledge of the course. After decomposing each operation steps, can let student have chance of comprehensive practice. This is the key from "the teacher questions" to "the students' self inspired". Also it is conversion from "learn to" to "will learn". After student master the method of solving one kind of the problem, the students' ability of solving problem and thinking can be promoted.

(5) Case driving teaching

A complete case (college tuition management system) is been throughout in the whole teaching process of the course. The basic process of the system design and development are described in textbook. It include requirements analysis, data module design (design E-R diagram), database design (design data dictionary, and the establishment of the relationship between tables), programming (the design of related objects and using in Access2007), system integration (including: switch panel and menu integration, macro comprehensive application etc.), database security settings and management.

(6) Rich expand case and professional application with organic union

According to different specialty, the design idea of management system development will be provided with the example of task that student familiar with and is interesting in. It can lead students to cross and mesh professional knowledge and information technology, and let students perceived information technology. Related to the course catalogue, see table 4.

(7)Theoretical teaching arrangement accord with practice arrangement

According to theoretical knowledge structure and the order of each section of practice, the directory structure of textbook is more reasonable arranged, as far as possible to make students more quickly master knowledge unit and make knowledge theory and practice teaching be more closely combined.

Table 4. Development Practice topic selection

| | |
|------------|--------------------------------------|
| Chapter 13 | development Practice topic selection |
| 13.1 | Library management system |
| 13.2 | Wage accounting system |
| 13.3 | Retail management system |
| 13.4 | golf club member management system |
| 13.5 | Hotel management system |
| 13.6 | Fair volunteer management system |

3.2 Autonomous Learning Activities Guidelines Based on the Network

Making full use of the advantage of updating convenient, quickly transferring, large capacity, the diversification of present the way of resource, the teaching content is arranged according to the following modules folder. The autonomous learning activities module based on the network is showed in table 5.

Table 5. Autonomous learning activities module based on the network

| Module name | Module requirement |
|--|--|
| 1 Introduction and the author | Describe the information of authors, covering for knowledge and the case for discipline |
| 2 Tasks and knowledge | Describe the case of learning tasks and package involved knowledge points |
| 3 The original document and complete documentation | Case design and production process, must provide the original document and make complete documentation |
| 4 Task analysis | Described the process of solving problem how to use the knowledge skills |
| 5 Detailed illustration Knowledge and courseware | Provide the simple operation method involved and knowledge teaching electronic lesson plans |
| 6 Knowledge demonstration | Use Adobe Captivate 3 or Camtasia to record knowledge points operation process, and generate 800 * 600 or 640 * 480 format Flash files |
| 7 To solve the task by example | Use Adobe Captivate 3 or Camtasia to record step process of solving the task, and generate 800 * 600 or 640 * 480 format Flash files |
| 8 Expand knowledge | Provide the knowledge or web links which students expand learn how to use |
| 9 Extended practice | According to the knowledge of this task, design some comprehensive exercises, and cultivate students' innovation ability and individuation development |
| 10 National grade exam counselling | Provide exam outline, all answer questions and analysis, simulation test etc. |

Through the information resources platform, the teacher will update and expand the study content according to the feedback of the study information of student. Through the online learning activities, students can browse the guide of learning method from teacher, and view homework and suggestions of every learning stage that teacher gave. Through the interaction BBS, between students and teachers, between students and students can do at this course of study to discuss problems.

3.3 Learn Assist CD

Learn assist CD is the expansion of paper textbook. The key and difficult operation of each section of the task in the process of solving will be made for a CD that matches the original documents. It can let the student directly know the process of whole task solving.

3.4 Experiment and Practice Guidance

To lead the student to carry on the experiment task, and guide students through the experiment and practice can improve the computer operation and application ability of students. The course's experiment and practice are divided into two phases: the basic operation stage and comprehensive designed experimental stage. The basic operation stage is that the students review knowledge after student study the theory. It is the most basic requirement of experiment. The comprehensive designed experimental stage is that under the guidance of teachers, student can apply all knowledge to design and build application management information system, and finally submission system design report. The course experiment practice plan directory is showed in table 6.

Table 6. The course experiment practice plan

| | |
|------------|--|
| Chapter 16 | the experiment scheme of database technology and application |
| 16.1 | Create database |
| 16.2 | Create table |
| 16.3 | Query design |
| 16.4 | Window design |
| 16.5 | Report form design |
| 16.6 | Macro application |
| 16.7 | Data access page design |
| 16.8 | The application of VBA |
| 16.9 | Comprehensive experiments |

3.5 Question Bank

The following requirements of question bank should be reached:

(1) To provide different difficulty of practice, in order to suit different learners and different learning stage;

- (2) To provide different situation of practice, help the transfer of knowledge;
- (3) To provide timely feedback, the detailed explanation and the correct answer can be provided, and can help learners to understand and correct the mistakes;
- (4) To provide comprehensive practice;
- (5) To provide all good case.

4 Conclusions

The rapid development of the computer network for the development of education has brought great opportunity. As the reform of college basic computer course, the diversity teaching as a new teaching form will become a reality that traditional teaching methods cannot be achieved. The reform of college basic computer course is education innovation for the students' individual development.

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Strengthen the Step of Practical Teaching to Enhance the Graduates' Ability of Analyzing and Solving Actual Civil Engineering Problem

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Abstract. The graduation practice is a key step of practical teaching to train students' comprehensive ability and an important means by which theory combined with practice turns into practical ability. Under the background of the current market economy and the higher education policy from focusing on the elite to the mass, the traditional practice pattern urgently awaits to reform. In this paper, by analyzing and summarizing a successful practice, the reform of practice pattern is investigated from selecting practice location, the training content, cross-practice group arrangement etc aspects. This graduation practice has achieved the desired practical effect on training the students ability to solve practical engineering problems, has won the praise of internship enterprise. This graduation practice pattern for engineering graduates is worth applying and promotion.

Keywords: graduation practice, practice pattern, training content, reform.

1 Introduction

Graduation practice is an important practical teaching step for the cultivation of engineering majors' practical competences and their abilities to analyze and resolve problems using fundamental knowledge acquired. It is not only an important item of the education scheme and teaching plan of four-year universities, but a key index of teaching evaluation for four-year higher education institutions. Meanwhile, it is also a significant transitional period between campus education and social work, which combines classroom acquisition and social practice. Accordingly, it is necessary and meaningful to enforce graduates' practice so as to guarantee and improve teaching quality and fully carry out quality-oriented education [1-6]. However, under the present environment of marketing economy and with current higher education shifted from elite to mass, the traditional modes of graduation practice, like assembled visits, can no longer meet the new development of situation. Therefore, it is high time that current graduation practice is reformed and new modes be explored and education quality of higher-level engineering personnel be guaranteed. The paper investigates the reform of graduation practice pattern through analyzing and summarizing a successful graduation practice.

2 Practice Basic Conditions

- (1) Practice period: between 2005.2.28 and 2005.3.20, total three weeks.
- (2) Practice place: ①Fujinba Hydroelectric Power Station C2 bid package(includes plant and ship lock). ②Weituo Hydroelectric Power Station. ③Southwest Hydraulic Research Institute. ④CQJTU Hydraulic Laboratory.
- (3) Practice department: the Armed Police Hydroelectric Detachment Fujinba projects management department.
- (4)Graduate major, student numbers and instructors: Water Conservancy and Electro-power Engineering, 25 graduates, Prof. Zhang and Dr. Yang.

3 Practice Pattern and Training Contents

This graduation practice includes two steps of the field work and the visiting practice, the field work adopts cross-practice group, and the visiting practice involve attending lectures, on-the-spot visiting and reading engineering drawing, etc.

(1) Field work contents: all students are divided into four teams that respectively is the quality safety team, the material experiment team, the engineering surveying team and the reinforced concrete casting team. When a team of students had accomplished practical assignment, they would enter next practical term, every student would go through the whole training of four practical teams in the end.

The practical assignment of every term is as follow:

①The quality safety team: to take the reins of quality control contents and range required in construction stage, which comprise technical disclosure, material, machinery equipment, surroundings, metering, working procedure, change in the work and quality safety accident handling, and also to know and apply construction technology criterions well.

②The material experiment team: to design mixed proportion of HPC , to know method and step of the test block manufactures and experiment well, to have acquaintance with construction technology, testing method and strength criterium of roller compacted concrete or other material, and to examine 7-days concrete intensity in search of the optimum mixed proportion of HPC.

③The engineering surveying team: To master the total station operation, buildings orientation measurement, surveying calculation and adjustment computation, earth provedrecipe measurement and calculation, etc.

④The reinforced concrete casting team to compile unloading list of reinforcing steel, to know reinforcing steel processing technology of straightening, derust, cut, stretch, bending, welding and binding, to have a knowledge of processing machine, form work, fixing and removal, concrete mixing, carriage, pouring, vibrating and the placement, concrete strength check and maintenance.

(2) Visiting practice contents: to hear special reports, to read project design drawing, to collect data about construction management plan and construction budget. The purpose is as follows:

- ① to know hydro-complex's typical character of hydrology, geology and topography.
- ② to know hydro-complex layout, hydraulic structure pattern and constitutes.
- ③ to know constructional detail of hydraulic structure such as plant, inlet, outlet, dam, spillway, ship lock, scour outlet, corridors, stilling basin and substation, etc.
- ④ to know hydro-complex's construction scheme.
- ⑤ to know budgeting rule and means.

4 Analysis of Effects on Practice

4.1 Based on the Actual Project, the Graduates had Improved the Ability of Identification and Application Drawing and Known the Project in Depth by Means of Visiting Construction Site, Attending Lecture about This Project and Reading the Design Drawing

Drawing is the language of engineers. As engineering graduates, reading design drawing as well as visiting construction site and hearing lecture is not only an essential teaching step, but also is of important role to learn how to correctly express the design of scientific thought for graduation design or career in the future. This practice received good results, because these students of the quality safety team found out some design errors and won a favourable reception from the project department

4.2 Based on the Construction Project, the Graduates Were Fully Familiar with the Construction Process and Construction Technology Management and had Improved Capacity of Adapting to Different Construction Steps by Means of Cross-Practice Group

25 students were divided into four teams such as the quality safety team, the material experiment team, the engineering surveying team and the reinforced concrete casting team. Using cross-practice group, the majority of students had experienced a major part of technical management and familiarized with the whole construction process, construction plan, construction measures and construction specification requirements so that the graduates' capacity of design and construction had improved greatly.

4.3 Relying on the Actual Construction Project, the Graduates Had Improved Their Ability to Solve Actual Engineering Problems Using Basis Professional Knowledge by Means of Combining Construction Practice and Construction Techniques and Economic Problem Solved

(1) Carried out optimization experiment of water-cement ratio so as to saving cement. Aimed at the problem that the mass concrete pouring consumed too large amount of cement during power station construction, the optimization experiment of water-cement ratio was made by students of the material experiment team in order to saving

cement. Each groups of three students chosed a mix ratio to make a testpiece and tested 7-days concrete strength so as to looking for the optimal water-cement ratio. Through this experiment, students had consolidated knowledge learned, and established saving material and lowering construction cost consciousness.

(2) Established earthwork calculation program to improve efficiency

In the past earthvolume was calculated by means of hand drawing and manual calculation method based on slice principle by the Armed Police Hydraulics Detachment project manager, which calculation time was long, low efficiency, easy to go wrong. With the assistance of Dr.Yang, the earthwork calculation program was established for the Armed Police Hydraulics Detachment to simplify the measurement work and to improve greatly the efficiency and accuracy of the survey team. Furthermore, the students had been trained to solve engineering Practical problems and been praised by the Armed Police Hydraulics Detachment.

(3) Carried out the process optimization of reinforced steel and weighing experiment to establish students' consciousness of reducing waste and lowering construction cost.

The just plants foundation construction of Fujinba Hydroelectric Power Station required up to 4,000 tons of reinforcement. In order to saving steel, under the guidance of Prof. Zhang, the material experiment team has performed reinforced steel process optimization with linear programming theory. In addition, Prof. Zhang also guided the students completed the steel weighing sampling test. By steel weighing test, the fact was discovered that various types of steel unit weight are lower than the theoretical unit weight, and error weight percentages is close to the allowable value, even above for individual type. The Armed Police Hydraulics Detachment usually was only concerned about the steel tensile and flexural strength, while ignored the steel weight test. The results made up the management of vulnerability to avoid heavy losses for the contractor, so the Armed Police Detachment leaders attached great importance and given a higher rating. Meanwhile, the students had build awareness of cost control and generally reflected that this is a meaningful test.

4.4 Combined Field Work with Training Student's Good Quality of Hard Working to Improve the Ability of Graduates to Adapt to a Harsh Environment

As the Armed Police Hydropower Detachment project department could not solve accommodation problem of teachers and students, we had to lodging in Taihe town where is more than 2km from construction site. We asked students to get up at 6:30 every day, had breakfast at 7:00, walked 300 meters to the ferry pier at 7:15, boated and walked more than 2km to the construction site, had dinner at 5:30 pm and then walked back Taihe town. Some students were tired in the first week, but in the second week the students had accustomed and gradually developped the quality of hard up. On the way of commute to work, no one took three-wheeled motorcycle, thus the determination and perseverance of students had rather been exercised.

5 Experience and Suggestions

5.1 Choice of Site and Well-Designed Arrangements for Graduate Practice Are the Important Basic Works for Teaching and Research Division and the Guarantee of Good Practice Effect

The grade 2001 was the first graduates of Water Resources and Hydropower Engineering in CQJTU, so the leaders attached great importance to arrange old experienced teachers and young teachers together as graduation practice guiding group. For well-designed arrangements of this graduate practice, the instructors spent nearly a month's time to look for appropriate practice site. Compared the 6 practice sites, Fujinba electric-navigation project was selected as the best field work site because it was building and has the sole layout. Weituo hydropower station was chose as the most appropriate visiting practice site that is river bed type hydropower station unlike the Fujinba electric-navigation project. This practice was arranged for two parts, namely, the first two weeks was field work at Fujungba construction site of plant, dam and ship lock etc, the last week was arranged to visit Weituo hydropower station, Southwest Hydraulic Research Institute and CQJTU Hydraulic Laboratory, the final arrangements was to listen to academic reports about Sichuan "three rivers" basin planning and to watch teaching films about construction of Pubugou hydropower station. Through well-designed arrangements the students had received a satisfactory practice effect that the students' all-pervasive ability was not only trained, but also the engineering view of young specialized teachers was widened, therefor this practice is successful, rewarding and meaningful.

5.2 The Support of Practice Department Is the Key to Success for Practice by Collaborative Practice Model

Under the marketing economy condition, many companies lay more emphasis on economic output and are reluctant to receive practice groups, especially large scale ones. Firstly, reception of scale students might bring disturbance to production, and affect work efficiency and quality; secondly, the security of students is another responsibility and burden; thirdly, too many students could add to the expense of enterprises; and fourthly, graduation practice might lead to revelation of their business, technical or management secrets. So the practice usual becomes visiting or tour which can not really improve student's ability. This successful practice resulted from collaborative practice model with the Armed Police Hydroelectric Detachment. On the one hand, they provided practice conditions so that teachers and students had got exercise, on the other hand, they had greater gains, for example, we helped them make up the vulnerabilities in management, measure the steel weights, and find out reasons of steel loss, besides, the earthwork calculation programs we wrote had helped to improve work efficiency and lower management cost. So Armed Police Hydroelectric Detachment warmly welcomed the return of CQJTU practice in the coming year. Thus the collaborative practice model is complementarity of interests and is a key to success for practice.

5.3 Increasing the Funds Is Economic Base to Reform Graduation Practice Pattern

The shortage of funds for student practice is so severely constrained as to only select practice site where is very close to school, not to select some large, typical hydropower projects where is outside the province. For example many schools provide just 100yuan/person cost of practice, so the students have to share the most cost. Consequently some students, especially poor students, are willing to take practice themselves rather than to take common practice. How about the separate practice effect is? According to the survey, a considerable number of students had not attended practice and also had no instructor, they had got the relevant certificate and reviews materials issued by an internship by taking relations, which encouraged the student culture of fraud and seriously affected the quality of teaching practice. Therefore it is suggested that the school should increased practice funding as soon as possible, and the separate practice way should be reformed to enhance the practice process management and to improve practice evaluation methods.

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Development Concepts for Practical Skill Programs and Curricula in Taiwan

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Abstract. In Taiwan, Practical skill program as implied in the name is learning employability skills on the workplace. During this time we emphasized the higher education pursuing-oriented, the existence of its' value is challenged and excluded. Under the goal of giving consideration to develop good citizens, Curriculum development usually to be blamed for whatever we do. It's hard to overcome the difference between schools of different level. That's the reason why the philosophy and framework of the curriculum could be accepted by the majority is worthy of being discussed and deliberated. The main purpose of this study is to analysis the concept and background of every vision of the practice-skill-program guidelines. By doing this, we want to find out a suitable philosophy and framework of the curriculum, it could to adapt to different political and economic environments, social needs and industrial structures.

Keywords: Practice skill program, Curriculum development, employability skills.

1 Introduction

1.1 Background and Motivation

Originated from the Vocational-Education-Focus Extension Compulsory Education Implementation Plan in 1983 in Taiwan, the practical skill program (PSP) was planned and designed to provide students graduated from or completed junior high school with opportunities to receive continuing education or learn skills of a particular trade when they did not want to further their studies or go to work, or after they were employed. Classes opened for such goals were then called the "extension education class" (EEC). In 1995, EEC was included in the formal education system under the Vocational School Act and renamed as the "practical skill class" (PSC) as a result of the changes in industrial structures, rises and falls of industries, changes in student characteristics and parent attitudes, and the impacts of educational reforms and curriculum concepts (MOE, 1995). PSC was further renamed as PSP in 2005 after the amendment made to Articles 2 and 14 of the Vocational School Act was passed by the legislature in 2002 to cope with the Skills Education Reform Plan.

Under such circumstances, what is the philosophical basis for PSP curriculum development? What curriculum models should be applied to promote the healthy

development of PSP for students to create a brighter future through adaptive development? These are the prime missions of curriculum development and the research questions of this study.

1.2 Research Aims and Objectives

The aim of this study is to develop a philosophical basis for developing the PSP curriculum by investigating development concepts of past PSP curricula of Taiwan for the reference of future curriculum revisions.

The objectives of this study include:

- (1) To analyze the development concepts of curriculum revisions over time.
- (2) To compare and contrast the curriculum of vocational schools, continuing education schools and PSP of the same time.
- (3) To review the characteristics and the effectiveness of curricula over time.
- (4) To recommend the methods for future curriculum revisions.

2 Concepts of Curriculum Revisions over Time

2.1 Curriculum Standards for the Extension Education Class of Vocational Schools of 1988

2.1.1 Background

When EEC was piloted in 1983, neither the courses nor the curriculum contents of EEC attracted students graduated from or completed junior high schools without furthering studies or going to work because the curriculum for continuing education class was applied to EEC in the beginning. According to MOE statistics (Department of Education [DOE], Taiwan Provincial Government [TPG], 1987), although a total of 384,425 vacancies were approved for recruitment in all types of secondary schools in academic year 1986 (including 5-year colleges), only 350,462 students were recruited, with a shortage of 33,963 students. Also, among the total of 357,492 students graduated from junior high school in academic year 1985, although 52,147 students voluntarily stopped furthering their studies, only 5,227 of them enrolled in ECC as shown in Figure 1. That is to say, there were 46,920 junior high graduates either became the base-level human resources (HR) of labor-intensive industries or apprentices of the auto/motorcycle or beauty industry, or hanging around causing troubles to public peace. Therefore, the need for a special curriculum suitable for the characteristics of this group of students was an immediate issue. Also, necessary supporting measures should be planned to maximize the effectiveness of such curriculum and thereby hit the nail on the issue.

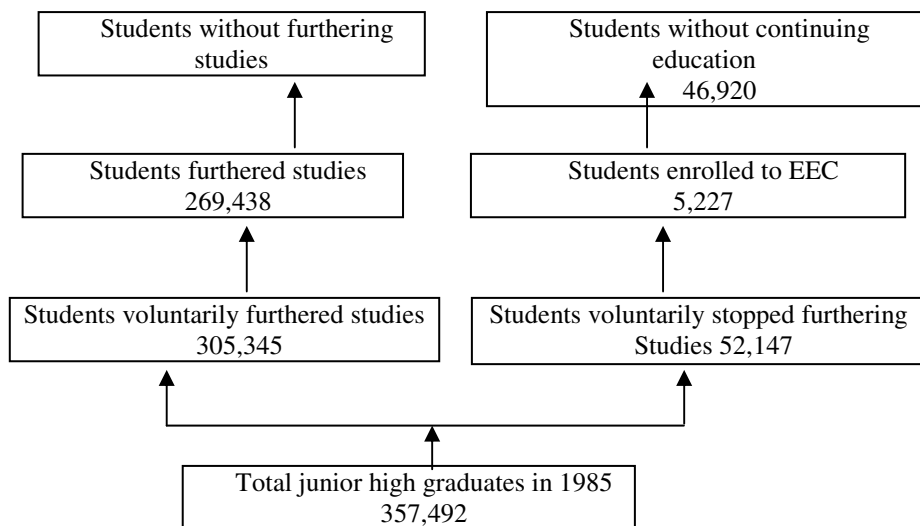


Fig. 1. Career Pathway of Junior High Graduates in 1985

2.1.2 Curriculum Concepts

(1) Planning unit-trade-deviated courses to equip students with simple but practical trade-related skills in order to develop students' confidence

(2) Making curriculum contents simpler to prevent students from avoiding schools due to learning frustration

(3) Year-based curriculum framework to enhance the work capacity of students by equipping them with the unit-trade professional skills

(4) Skills and practice as cores and theories as support [in curriculum contents] to arouse the learning interest of students

(5) Increasing the proportion of school-determined options and giving schools more space for operations to facilitate integration with community educational resources and school characteristics development

2.2 Curriculum Standards for the Extension Education Class of Vocational Schools of 1994

2.2.1 Background

A total of 5 categories containing 55 sections were announced in the curriculum standards of 1988, including the agriculture (8 sections), industry (25 sections), business (7 sections), domestic science (11 sections) and marine technology & fisheries (4 sections) categories. Although there was greater flexibility in course hours to cope with industry needs, a total of 24 lessons a week and 864 lessons a year remained the same as that of the continuing education department. Although students will receive a certificate of completion after completing the 3-year program, they need to pass the qualification examination in order to receive the certificate of qualification equivalent to graduates of senior vocational high school.

To cope with the needs of full-time students and emerging industries, new curriculum standards were announced in August 1994. In this new curriculum, there were 72 sections in 5 categories, including 36 sections for industry, 11 sections for business, 11 sections for agriculture, 6 sections for domestic science, and 8 sections for marine technology & fisheries. Apart from adding new sections to cope with industry needs, the number of lessons increased to 36 lessons a week. The aim of the curriculum guide for one-year daytime EEC was to provide a reference for schools offering one-year daytime EEC to plan their curriculum. Students enrolled in the one-year EEC can transfer to other systems after completing the one-year EEC if they want to further their studies.

2.2.2 Curriculum Concepts

(1) Adding new sections to cope with emerging industries and removing obsolete sections

New sections, including CAD, marine tourism business and travel affairs were added. Obsolete sections, such as embroidery, doll making technology and domestic science technology, were removed. The total number of sections increased from 45 sections announced previously to 55 sections. Later in the curriculum guide of 1994, the total number of sections increased to 72 sections to cope with the needs of the changes in industries.

(2) Announcing the curriculum guide for the one-year daytime program (36 lessons a week) and three-year evening program (24 lessons a week) at the same time

To cope with the student characteristics and fulfill the learning needs of students, the curriculum guide for the one-year daytime program with 36 lessons a week and three-year evening program with 24 lessons a week were announced at the same to allow schools to recruit full-time students. However, the daytime program was a one-year design. Students must change to other programs or departments for the second and third years. This may cause some inconvenience, but has started the daytime program for EEC.

(3) Flexi-adjustment of year-based programs for schools to cope with the characteristics of schools, communities and industries and to meet the employment needs of students

For example, schools can make flexi-adjustments of the curriculum for particular sections, such as Chinese cookery, Western cookery, drinks and beverages etc, to cope with actual needs. That is, schools can determine what either a one-year or two-year program for a particular section.

(4) Persistence of year-based employment-oriented curriculum planning principles

The aim of the year-based employment-oriented curriculum is to adapt to the learning characteristics of students. It is also the basic concept of curriculum planning for EEC and different from that of general vocational education and continuing education. In addition to segmenting from general vocational education and continuing education, this also gave a good reason for the provision of free textbooks and free tuition and fees for the one-year EEC program.

2.3 Temporary Curriculum Standards for Practical Skill Programs of 2005

2.3.1 Background

The MOE began drafting the Skills Education Reform Plan in 1999 and announced the Plan in 2001. The scope of reform included the career development education and skill education programs for junior high schools and the PSP for senior high vocational school. The contents of reform were divided into six parts, including the reform concepts, reform objectives, reform strategies, reform framework, implementation timeframe, and supporting policies; hoping to promote the adjustment and transformation of skill education, continue to provide students with career development education, provide opportunities and channels for adaptive development, and foster base-level HR required by industries (MOE, 2003).

To cope with the changes in industrial structures, the focus of curriculum standards for vocational schools implemented after 2000 has evolved from unit trade training during 1974-1986 into the cluster-based ladder type (2000). Also, the course hour system was changed into the credit hour system. Along with the addition of the common cores for late secondary education, the need for a revision of the PSP curriculum became a natural consequence. When no understanding has been reached among different parts of the society, the MOE thus announced the Temporary Curriculum Standards for Practical Skill Programs in 2005.

2.3.2 Curriculum Concepts

(1) Enhancing career planning ability by improving the competency of general courses

By adding 6 credit hours of Mathematics and increasing the credit hours of English to 8 credit hours, the MOE hopes to make EEC students equally competitive in career development as graduates of senior high vocational schools.

(2) Improving the humanities literacy by increasing liberal arts courses in the general education curriculum

By adding 4 credit hours of natural science courses, 4 credit hours of daily life courses and 2-4 credit hours of art-related courses, the MOE hopes to improve the humanities literacy of EEC students.

(3) Standardizing the quality of students of different education systems by infusing the common cores in late secondary education with the EEC curriculum

Traditionally, some liberal arts and humanities courses are removed from the late secondary education to cope with the different learning abilities and goals of students. As a result, this makes student unequal right at the beginning because of the quality difference in students. Also, the labeling effect will affect the future career development of students.

(4) Replacing categories with course groups to expand the scope of learning

Homogenous courses are categorized in the same group and MOE-specified professional and practical courses are planned according to the common core competencies of each group in order to expand the scope of application of core competencies and thereby make career development smoother.

(5) Increasing the credit hour proportion of school-determined courses to give more space for school-based curriculum planning to develop school characteristics and visions.

The percentage of school-determined courses was about 15-20% in the curriculum standards for 1994. It was increased to 40-50% in the curriculum standards for 2005 to give more space for school-based curriculum planning to develop school characteristics.

3 Characteristics and Effect of Curriculum Revisions over Time

3.1 Curriculum Standards for the Extension Education Class of Vocational Schools of 1988

3.1.1 Characteristics

(1) Greater flexibility for course hour planning with the course-hour system

Class can be given in daytime, in the evening, on holidays or anytime after the business hours of industries. There were 864 lessons a year, and a total of 2592 lessons in the 3-year program. Students can receive a certificate of completion after completing all courses and fulfilling the relevant requirements.

(2) Stage-based learning

After completing the curriculum for the first year, students can receive a certificate of completion for that year. This way, they can either go to work or continue with the second year curriculum of the program.

After completing the curriculum for all three years, they can consider to take the qualification examination. Those who pass the qualification examination can receive a certificate of qualification equivalent to graduation from senior high vocational school.

(3) Greater flexibility for teaching venues

Practical courses can be given at either the workshop at school or the factory of industries. Also, students can apply for credit exemption with the training at vocational training institutions.

(4) Organizing skill-focus qualification examinations

Students enrolled in the 3-year evening continuing education program or EEC must take and pass the qualification examination before they can receive the certificate of qualification (not certificate of graduation) equivalent to graduation from senior high vocational school. Also, the qualification examination was a pen-paper tests on subjects included Chinese Language, English Language, Mathematics or other professional theories. To enforce the skill-focus EEC curriculum, pen-paper and practical tests were combined in the EEC qualification examination. Although this has consumed much labor and material, the skill-focus characteristic of EEC was established.

3.1.2 Effect

Since Curriculum Standards for the Extension Education Class of Vocational Schools of 1988 were implemented, scholars have investigated the effect of EEC on students, society, industries and education institutions as described below.

(1) Effect on students

a. Curriculum planned according to student capacity to ensure adaptive development: Curricula of different levels of difficulty should be planned and designed

for students with different talents and interests in order to promote adaptive development for students to display their potential.

b. Skill-focus learning for students to rebuild confidence: Frustrated by academic learning and examinations, students can rebuild self-confidence with the achievements obtained from skill-focus learning in EEC.

c. Novel and practical unit-trade-deviated courses and contents to facilitate EEC students to find a job afterwards: Past studies showed that 90% EEC students are employed in different industries after completing or graduating from the class. Also, employers are satisfied with the “skill performance” and “field knowledge” of EEC students (Kang, 1992). These suggest that EEC facilitates students to find a job.

d. Realizing the “equal opportunities for education” education ideal by providing junior high school graduates under different circumstances with opportunities for continuing education: Many junior high school graduates were unable to continue their studies due to financial problems or work conditions. The flexi-schedule, year-based and course-hour-planned EEC allowed students to learn special skills even the situation disfavored them.

(2) Effect on society

a. Reducing social problems and promoting social harmony and stability

(a) The spring EEC recruiting students in winter provided education opportunities for junior high school graduates and senior high or senior high vocational school dropouts to continue their studies.

(b) The aboriginal EEC provided young indigenous people with the opportunities to receive vocational education in order to accomplish the “continuing education, skill acquisition and employment” missions within three years.

b. Reducing juvenile crime by planning practical curriculum according to the level of difficulty to attract students completed or graduated from junior high school: Statistics show that the juvenile crime rate in Taiwan reduced from 24.44% in 1984 to 18.44% in 1991 since the implementation of EEC in 1983 as shown in Figure 2. Such a phenomenon is highly interrelated with EEC which attracted students who were unable to continue their studies after completing or graduating from junior high school (MOE, 1992).

(3) Effective on industry

a. The characteristics and flexibility of curriculum structure provides factory workers with continuing education opportunities

(a) Most EEC students were factory workers. As the school time and place were flexible, workers had more options.

(b) The skill-focus characteristic of EEC can significantly enhance the skill level and quality of human resources.

(c) Under the cultural influence and professional ethics education at school, students became more responsible workers.

b. Increasing opportunities for cooperative education with industries and vocational training institutions

(a) New sections designed to cope with the social needs can promote local development and prosperity.



Fig. 2. Juvenile Crime Rate in Taiwan 1980-91

Note: The juvenile crime rate refers to the proportion of juvenile criminals in the total criminal population.

(b) By launching cooperative education programs with industries or vocational training institutions, investments in education were reduced with funds provided by industries.

(c) EEC provided continuing education opportunities for factory workers which made their life more stable and reduced the chance of changing work. As a result, the technical level of industries was enhanced and the HR source was secured.

(d) Cooperation with vocational training centers or employment service centers can best match vocational education and training.

(4)Effect on education institutions

a. The planning and design of curricula in different structures have exemplified the education ideal of “aptitude-based education and equal education for all” and made popularization of education a reality.

b. The flexibility of EEC curriculum attracted the heated participation of education institutions and communities whereby educational resources were fully utilized and government financial burden was reduced.

c. The difficulty of curriculum was adjusted to attract students who did not continue their studies after completing or graduating from junior high schools in order to enhance schooling rate to the standard of industrialized countries.

d. Full utilization of school equipment and maximization of the economic efficiency of equipment: EEC allowed senior high vocational schools without offering continuing

education programs to make full use of the teaching equipment that were unoccupied in the evening, thus maximizing the economic efficiency of equipment.

e. Setting out the foundation for extending compulsory education and providing a feasible solution to enhance the educational standard of citizens.

3.2 Curriculum Standards for the Extension Education Class of Vocational Schools of 1994

3.2.1 Characteristics

(1) Fulfilling industry needs and school requirements by adding new sections

A total of 45 unit-trade-deviated sections (later increased to 55 sections) in 5 categories were increased to 72 sections to foster base-level technical HR for industries.

(2) Adding the curriculum guide for daytime EEC with 36 lessons a week

The daytime EEC curriculum was added to meet the needs of students who did not need to work and wished to go to school in daytime and reduced the worries of parents who need to work in daytime. However, it was only a one-year curriculum, and students who wished to continue the second or third year of studies must turn to other programs.

(3) Increasing activity-based courses to release the mental and physical stress of students

Even there was only one lesson a week, this policy received critical acclaim from students enrolled in the evening EEC with only 24 lessons a week.

(4) Updating course contents by reviewing and revising obsolete instructional guide

With the rapid development of IT and automation technology, it is necessary to replace the obsolete course contents with new contents to meet the base-level HR requirements of industries.

3.2.2 Effect

(1) The daytime curriculum planned and designed for students who do not need to work in daytime can reduce the opportunities for students to hanging out and further promote social harmony and stability.

(2) The easy and practical curriculum helps to rebuild student confidence, re-adjust to school life, and increase the further study rate of students completed or graduated from junior high schools.

(3) The free tuition and fees and fee textbook policies help to reduce the financial burden of students and allow students wishing to study in senior high vocational schools to complete their studies smoothly.

(4) The instruction of workplace skills helps to increase the employment opportunities of students and solve family financial problems in an earlier time, thus promoting social harmony and well-being.

(5) Curriculum contents were planned appropriate to the level of students to expand the scope of equal opportunity for education and enforce social equality and justice.

(6) The provision of quality base-level technical HR helps to improve the productivity of industries and thereby promote national economic development.

(7) The skill-focus training supported with skill certification has helped fostering potential contestants for international skill competitions who have won numerous awards to bring glory to the country.

3.3 Temporary Curriculum Standards for Practical Skill Programs of 2005

3.3.1 Characteristics

(1) Three-year daytime and evening curricula

As a result of low fertility, the financial conditions of families were generally improved, and students who needed to work in daytime reduced significantly. As daytime programs should be increased to cope with this trend, curriculum guides with the same number of lessons in the daytime program of senior high vocational school were planned.

(2) Significant increase of the credit-hour percentage of school-determined courses

The percentage of school-determined courses was about 15-20% in the curriculum standards for 1994. It was increased to 40-50% in the curriculum standards for 2005 to give more space for school-based curriculum planning to develop school characteristics.

(3) Replacement of course-hour system with credit-year system

Apart from preventing the labeling effect due to repeating the same year of study, this has reduced the waste of educational resources.

(4) Expansion of the scope of general courses to develop humanities literacy in students

General courses include languages, mathematics, social studies, integrated science, art, daily life, and PE. When compared with the curriculum standards of 1994, the number of lessons for general courses has been considerably increased.

(5) Replacement of vocational categories with vocational groups and renaming EEC to PSP

A total of 13 course groups were planned with homogeneous courses categorized in the same group. Due to special attributes, some courses were planned in different groups for schools to decide on in what group they should be included.

3.3.2 Effect

When compared with the past PSC curriculum standards, the changes in this temporary curriculum guide were the most, including replacing vocational categories with vocational groups, adding the common cores of the late secondary education to the program, extensively increasing the amount of school-determined courses, replacing the course-hour system to credit-year system etc. These changes thus shocked the schools, students, parents and industries. While opinions and views were controversial, it was hoped that an understanding could be reached after thorough communication and discussions in order to promote the stable development of PSP through curriculum reform. From 2005 to 2008, the effect of the temporary curriculum guide is as follows.

(1) General acceptance of the PEP curricula model

As the PSP has a year-based and employment-oriented design, it was acclaimed by both students and industries, thus becoming one of the important parts of vocational education and attracting many schools, both private and government, to offer the PSP.

However, for fear of recruiting students not intended for the PSP, the number of classes was controlled by approval before organization.

(2) Smooth transfer and connection channels to ensure adaptive development for students

The common cores for late secondary education were included in daytime, continuing education and practical skill programs of vocational schools at the same time to minimize the differences between programs and thereby provide students with smooth transfer and connection channels.

(3) Requiring PSP organizing schools to reinforce interactions with workplaces to enforce employment orientation:

When applying for organizing PEP, the planning of interactions with industries and workplaces were added to the requirements to facilitate students to understand and enter workplaces earlier to make employment orientation a success.

(4) Easier to display school characteristics by reducing the percentage of MOE-specified courses

Larger space was given to schools for planning their curriculum in the third year, including the cooperative education projects, implementation of last mile practice, reinforcement of preparation for skill certification examinations etc. Different schools have different characteristics, and the effectiveness was great.

4 Recommendations for Revising PSP Curriculum Guide of Practical Skill Programs

Although a new curriculum guide must go through the following long and rigorous processes prior to announcement, including study, discussion, drafting, revision, public hearing, elaboration etc, conducted by and with scholars and experts, school representatives, the relevant administrative personnel, parent representatives and the related industries, comments are still more than appreciations and the voice of objection is still high. Doubtlessly, there are always the pros with strong supporting details. Apart from schools, faculty members, students and parents, people have been paying increasing attention to the syllabus for vocational education in recent years, and some even insist on their own views to defend their areas of specialization. When the Cat A (theory-based) and Cat B (skill-based) curricula were announced at the same time for schools to choose voluntarily in earlier times (1987), the “temporary curriculum guide” was introduced to mediate the disputes. This indicates the difficulty and efforts in revising a curriculum. Therefore, the following advice is made in hopes to revise the present curriculum into something that is more visionary, practical and convincing.

4.1 Formation of a Taskforce to Study the Revision of Curriculum and Make the Relevant Preparations

A curriculum guide must be planned and designed with reference to the present industrial and social structures, conditions of political and economic development, and the characteristics of students. Although the revision is usually completed by scholars, experts, school representatives and people who are specialized in related fields, something will be overlooked. Therefore, systemic in-depth study should be a standard

procedure for curriculum revision in order to develop a visionary and practical curriculum for vocational education step by step.

4.2 Establishment of the Philosophical Basis Curriculum Revision as the Central thought of Revision

While a curriculum should not be revised for the sake of revision, the objectives, targets, methods and procedures of revision must be specified. That is to say, it is necessary to consider the why, where, how, what and which should be revised. What should be revised, and that is what can be revised. Therefore, the philosophy of revision is the central thought. When the central thought is clear, the outcomes are naturally convincing.

4.3 Distinction of Developmental Education from Preparatory Education in Vocational Education

The aim of developmental education is to equip students with ready-to-use skills in the workplace. The objective of preparatory education is to prepare students with comprehensive and fundamental knowledge. As hardly is there a curriculum that can combine both of them, they have been clearly identified in many industrialized countries. Apart from those workplace-related courses, others mostly fall into the category of preparatory education. Therefore, preparatory education has become the focus of both the general and fundamental professional courses for senior high vocational schools aiming to provide students with secondary vocational education. Hence, if they are not clearly identified, no single curriculum can combine both.

4.4 Development of the Basic Framework of the Curriculum Guide for Late Secondary Education

The Curriculum Guide for Common Cores in Late Secondary Education announced by the MOE specifies that a total of 48 credit hours of common compulsory courses must be completed in senior high schools, senior high vocational schools and the first 3 years of 5-year junior colleges. As these are three different education systems, it is difficult to determine the common cores appropriate for all three systems. Also, as 48 credits mean one-third of the graduation credits for senior high vocational schools, this policy will affect the acquisition of professional knowledge and skills for senior high vocational school students. Therefore, it was questioned and widely debated. However, as graduates senior high schools should be equipped with the abilities in the common cores to enhance their social adjustment ability. As the proportion of common cores in the announced curriculum guide is too high, and the contents lack what is needed in daily life, there is still space for discussions.

4.5 Careful Consideration of the Percentage of School-Determined Courses

Looking back the curriculum revisions for vocational education (including continuing education) in Taiwan over the past few decades, the percentage of school-determined courses increases every time. Today, the percentage is up to 50%. The aim of increasing the percentage of school-determined courses is to give more space for

schools to plan the school-based curriculum. When further study is the pathway of students, Chinese Language, English Language, Mathematics and other professional courses required in the examination should be increased. When employment is the pathway, skill certification or workplace skills should be reinforced. This is the phenomenon in a curriculum integrating preparatory education and developmental education for vocation. Also, the difference in the school-based curriculum is small among schools. As Taiwan is a small place with convenient traffic and a high labor turnover rate, to acquire work skills according to the needs of community industries may squeeze the space for future career development of students. Furthermore, the late secondary education is usually considered as part of the “compulsory education” (12-year compulsory education) and thus categorized as the post enlightenment education. For these reasons, further discussions of the percentage of school-determined courses seem necessary.

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The Design and Research of Course Practice Teaching System for Securities Investment

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Abstract. With the fast development of the financial markets and securities investment benefit, the practice teaching of “securities investment” course is also facing a reform. This article structures a perfect practice teaching system from three aspects of the curriculum practice teaching contents, teaching methods and evaluation system. The trinity practice teaching system-the practice course content, teaching method and evaluation system stimulate the students' interest, improve the students' comprehensive quality, and achieve the aim at improving quality of teaching.

Keywords: Securities investment, Practice teaching, trinity.

1 Introduction

The securities investment is important and basic course finance for the finance, financial engineering and investment, but also an elective course for the various majors of economic and management. In many courses of the finance, the securities investment is the course that has strong applications, but also has a very profound theoretical knowledge. So the establishment of the effective practice teaching system for securities investment course has very important practical significance to improve the teaching effect of this course.

2 The Construction of Practical Teaching System

The securities investment is a course that has very strong theoretical, practical and operation; and most teaching workers in all many college securities investment used the combination teaching methods of the theory teaching and the practice teaching. But some colleges only stay in online simulation stock operating practice, ignore some portfolio theory practice and risk measurement practice, which brought out that students t only can simple buy and sell stocks in learning securities investment; Or some colleges have a tendency to over-correction, overemphasize the experimental

teaching, the stock investment analysis and simulation operation, ignore some basic theory knowledge, and professional knowledge isn't enough. These two practices are not acceptable.

The combination of theory and practice is consensus in the securities investment teaching, but how the theory integration into the practice, make the undergraduates both have a strong professional theory knowledge system, and have strong practical operation experience, it will need to set up a set of perfect securities investment practice teaching system. Perfect practical teaching system of *securities investment* should include curriculum practice teaching content system, securities investment course practice teaching methods system and the securities investment course evaluation system. The trinity- contents, methods and examination get corresponding feedback each other.

3 The Design of Practical Teaching Content System

Undergraduates open *securities investment* after learning the political economics, macroeconomics, macroeconomics, monetary banking, accounting, financial management, statistics, and so on the corresponding foundation course. To construct the practice teaching content, the preliminary course of the student should be considered, and the then the theory teaching content and curriculum practice teaching content are arranged correspondingly.

At present the content of mostly domestic teaching material of *securities investment* are more comprehensive, but in the teaching process, firstly basic knowledge is too much emphasized, which is repeat with the content of many leading course; secondly the securities investment analysis is much focused, and the securities investment theory such as Portfolio theory is too little, and the practice course of this part almost isn't involved in.

In recent years, financial market research trend to be micro, and in the teaching process of "securities investment", learn the single qualitative analysis is only able to understand basic principle, and not be able to further and make reasonable investment portfolio management, the accurate measurement of asset prices and reasonable estimate of the risk, and quantitative analysis were effective way to be able to make the students understand the theory.

Therefore, in the design of the teaching content of *securities investment*, the following aspects should be included: the basic knowledge of the securities investment (securities investment tools, stock price and price index, securities trading, etc.), securities investment analysis (basic analysis and technical analysis), securities investment portfolio theory (the capital asset pricing theory, arbitrage pricing theory, etc.). Then the corresponding practice teaching content includes the following aspects. Firstly, the securities investment trading program. Open a shareholders account, capital account, and entrust, etc. Secondly, recognition of the quotations list, including all kinds of securities code, the stock market charts, the time-trend chart and the use of the operating software. Thirdly, basic analysis of securities investment, including the macro analysis, industry analysis and company analysis and how to use the operating software to read stocks related information, etc. Fourthly, technical analysis of securities investment, mainly including K line analysis, form analysis, the use of

various indexes such as CDMA index, KDJ index, WMS index indexes. Fifthly, portfolio management Include the actual application of portfolio returns and risk analysis, capital asset pricing, arbitrage pricing theory.

4 The Design of Practice Teaching Methods System

The main task of Classroom teaching teaches basic knowledge, but practice teaching promotes students' practical ability, innovation ability, and other comprehensive quality improvement. To achieve this objective, it is not be realizes by single teaching method. The design of practice teaching method of *securities investment* course is according to the practice teaching content. The different content needs different methods. The main methods are laboratory course practice, practice base, case teaching, open classroom, simulation of actual market operation, writing investment analysis report and other ways.

4.1 Course Training

Course training is the lowest requirement in the practice teaching methods, which cause the student to grasp the concept and the procedure of necessary common sense through the operational experiment, for instance the first and second part contents of the practice teaching, experiment content, the target is simpler, experimental conditions only need the necessary operating software this method can be used in the teaching process commonly.

4.2 Case Teaching Method

Case teaching is an important means of teaching practice. For the students, it can force them to understand theory, at the same time which improves their logical thinking ability. From case teaching students can fully understand the knowledge obtained in the classroom teaching, which is real background knowledge, and can be used immediately to solve the problems in dealing with securities investment in practice. Case teaching is an important complement of theoretical teaching. Case teaching method is use very wide in each part of the theory and practice teaching.

4.3 Open Classroom Method

Open classroom method can arouse the enthusiasm of students' study and participation. If students didn't think and analysis the theory, they could not really understand and apply knowledge even thought the teacher analysis theory thoroughly. Open classroom method has the characteristics of very strong purpose, inspiring, practical and the comprehensive which has ability to induce students to analysis, and mitigate the disadvantages of the traditional teaching mode that the teacher and the material is the center, and one way to impart knowledge, and promote the interaction between teachers and students, and change the passive acceptance knowledge of student, and stimulate students' interest in study. For instance in securities investment analysis, students can use network resources, collect information on the current macroeconomic situation, the list company's financial performance, stocks trends, and then issue the

idea of his own in the class. Through the analysis of classroom instruction and comment of the teacher, the understanding, application ability, practice operational capacity can be trained.

4.4 Simulation Securities Investment

By using the network resources, or the laboratory securities investment software, teacher offer each student with virtual money, to set up virtual securities account, and students simulate securities investment according to real-time market of the Shanghai and Shenzhen stock exchanges. This practice in most schools are carried, this method can indeed greatly arouse the students' learning interest and enthusiasm. Need to be aware that this method requires should be throughout the whole teaching, and not be short-term behavior.

4.5 Teaching Practice Base Method

The purpose of establish practice base is to strengthen the theory with practice, to develop students' practical ability, innovation ability and the unity cooperation ability. Organize the students to securities companies, and other financial institutions on-the-spot investigation and study, let the students understand the overall operation of securities companies and department functions. Before the practice, theory knowledge is prepared well in advance, the practice plan is designed, and students visit and learn with some aims, have a more clear cognition about the relationship between the theoretical knowledge and practical use, which indicate the direction of the future for students learning.

5 The Design of the Evaluation System

Securities investment to learn is a course that combining theory with practice. Students not only are required to master the basic theory, but also practical ability and creative ability. Therefore, ordinary teaching assessment and rating system can not achieve the purpose of test teaching effect.

Securities investment course assessment and evaluation system can not only think highly of the course scores after the end of the test, the more of the learning process of students. The evaluation system is through the whole process of students. In the study process of students, learning attitude is primarily considered in the evaluation system, such as the times of students' statement in the classroom discussion, the students' homework quality, and etc. The assessment methods can produce positive stimulating role, and can reflect students' learning skills objectively.

The examination of simulation stock trading practice contents can not only rely on the student final operation result, yields rate to evaluation. A comprehensive evaluation system require various index to evaluation the level of students' simulation operation that include students profit level of simulation operation, trade volume, trade frequency and total trading stocks.

After learning *securities investment*, students not only have strong operation ability and theory system, but also have the ability to complete the report about securities investment and analysis, that is, students can use the written language to express the

corresponding analysis, investment ideas and investment philosophy. So a complete assessment of this contents include the corresponding academic report, including the securities investment basic analysis report (the macro analysis and company analysis), the securities market analysis, securities investment technical analysis, securities portfolio returns and risk analysis.

6 Summary

The relationships of the three sections of practice teaching system may be representing as the following figure.

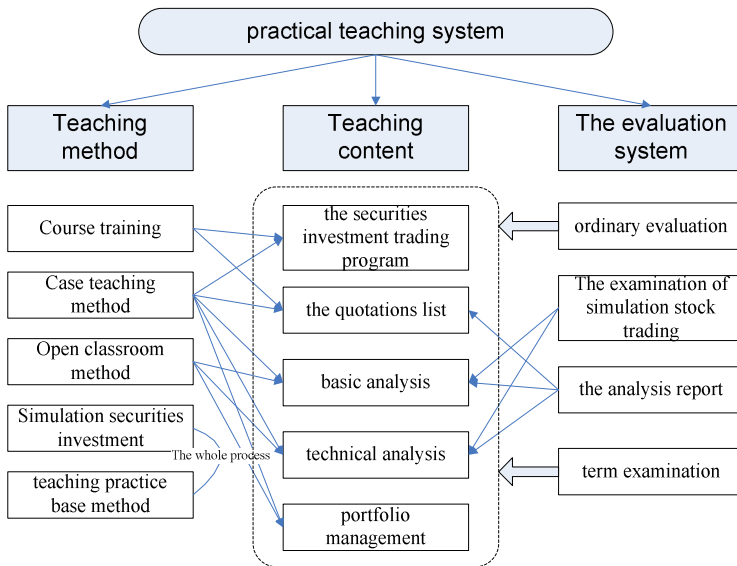


Fig. 1. The relationships of the three sections of practice teaching system.

The perfect practice teaching system of *securities investment* includes practical teaching contents, teaching methods and practice teaching practice evaluation system. In the three parts practice teaching content is the core, the different practical teaching contents match with appropriate teaching method and evaluation system can promote students' learning interest and stimulate the students' practical ability, analysis ability and judgment.

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Project Pedagogy Applied to the Courses of Human Resource Management

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Abstract. The project pedagogy is a teaching activity for teachers and students to jointly implement a complete project, and it is quite popular in the circle of education internationally at present. It is to organically combine theory with practice teaching in class, fully explore creative potentials of students, and increase comprehensive capabilities of students in solving practical problems. It centers on an assignment to select and organize teaching contents and takes completion of the assignment as major learning mode and final approach so as to train students for their vocational capabilities as required.

Keywords: Project pedagogy, Reform of the courses, Human resource management, Index system.

1 Introduction

The courses of human resource management are highly practical, being faced with those who do works on human resource management at intermediate and junior levels, and their management abilities must be trained well on the job.

1.1 The Project Pedagogy Meets Currently Professional Teaching Requirements

Compared with other subjects, teaching human resource management is more practical. An emphasis is laid on “what it is” and “why it is” in a good many subjects; however, teaching human resource management lays stress on “what is in use” and “how to use”. It gives emphasis on theory applied to practice and effectively transforming knowledge to skills. To utilize the project pedagogy, it is to assign students to a project, which is to be completed by means of team cooperation, so as to cultivate their actively thinking and learning habits on their own initiative.

1.2 The Project Pedagogy Is of Great Advantage to Increasing Professional Skills of Students

Integrated design for the project pedagogy of human resource management is oriented by an actual assignment of human resource management so that students will combine the assignment with their posts of duty in the course of learning. The assignment

design is carried by specific project of human resource management. Both the project and assignment reflect necessary skills actually required as well as human resource management theory and approach. Students can take the initiative in learning to really have a grasp of managerial skills in human resource in the teaching mode of “practical learning.”

1.3 The Project Pedagogy Is an Aid to Increasing Teachers’ Professional Level

The project pedagogy has a high requirement for professionally practical skills of teachers. From a project assignment put forward, project planning, and guidance to project implementation to evaluation of project achievements, teachers are required to be at a professional high level. It is no doubt that to implement the project pedagogy will play a role in pushing professional growth of teachers.

2 Design Procedure of the Project Pedagogy Applied to the Courses of Human Resource Management

The project design for pedagogy is to systematically make a plan and arrangements for both teaching mode and teaching implementation in the teaching process in order to increase both impacts and benefits from the project pedagogy. The project design for pedagogy of human resource management must keep to the teaching design criteria as follows:

2.1 Design for the Teaching Objectives

Giving priority to training students for their vocational capabilities, the learning objectives described must include two aspects as follows:

- (1) The capability objectives for the entire course (in the field of learning).

To analyze a post (posts) of duty is a precondition for the project pedagogy to be implemented in the courses of human resource management. On the basis of fully professional investigation and research, specialized teachers and technical experts will analyze corresponding post (posts) of duty, derive corresponding requirements for capabilities, analyze technical skills, main capabilities, and basic professional quality, and define the courses corresponding to training for different vocational capabilities. As for the courses of Human Resource Management, it is necessary to cultivate such basic skills as human resource planning, job analysis, personnel recruitment, personnel training, personnel performance management, and personnel salaries and personnel relationship management.

- (2) The capability objectives for the teaching project (learning situation).

Learning situation: namely a case’s learning unit, which is to combine theoretical knowledge and practical skills with practical environment of application. It is a specific macro plan in the learning field. It transforms the objectives described in the field of learning and the contents of learning to “a small sized” subject learning unit within a frame in the field of learning pedagogically and methodologically. The design for teaching objectives must include vocational capabilities in three aspects: professional capabilities, methodological capabilities, and social capabilities.

Table 1. Working Abilities and Assignments

| Post of duty | Assignment | Relevant vocational capabilities |
|--|-------------------------------|--|
| Person specially assigned for human resource management | Job analysis | Capabilities in job analysis |
| Human resource assistant | Human resource planning | Capabilities in forecasting human resource supply and demand |
| Person specially assigned for personnel recruitment | Recruitment and selection | Capabilities in personnel recruitment and talent review |
| Person specially assigned for personnel training | Training management | Capabilities in organizational training |
| Person specially assigned for personnel performance management | Performance management | Capabilities in performance review |
| | Salaries management | Capabilities in salaries management |
| Person specially assigned for salaries management | Labor relationship management | Capabilities in labor relationship management |

Table 2. Design for course objectives

| Professional capability objective | Methodological capability objective | Social capability objective |
|--|--|--|
| 1) Capabilities in job analysis and job description; 2) Capabilities in forecasting human resource demand and supply, and balance of supply and demand for human resource 3) Capabilities in recruitment management 4) Capabilities in preparing labor contract and implementing labor contract management 5) Capabilities in salaries management 6) Capabilities in performance review planning by use of performance review methods, and organizing implementation 7) Capabilities in personnel training planning, and doing organizational works on an entire training 8) Capabilities in settling labor disputes | 1) Methodological capabilities in job analysis and job description; 2) Methodological capabilities in forecasting human resource demand and supply; 3) Being familiar with recruitment channels and compiling recruitment advertising 4) Methodological capabilities in labor contract management 5) Methodological capabilities in system design for basic salaries 6) Methodological capabilities in usual performance review; 7) Methodological capabilities in personnel training 8) Principle of management and handling procedure of labor disputes | 1) Good professional ethics; 2) Good capabilities in solving problems; 3) Good capabilities in information processing; 4) Good capabilities in communicating and team cooperation; 5) Definite capabilities in professional foreign languages 6) Self-taught capabilities and innovative capabilities |

2.2 Design for the Working Process

The design for the working process includes contents of assignment, specific approaches to completion of assignment, working hours, practical operation related to technical practice and knowledge, discussion about relevant matters of technical and theoretical knowledge, and operation flow of assignment. Taking the requirements for training a person who is specially assigned for personnel recruitment for its working abilities as an example, the course project is designed as follows:

Table 3. Course project design and teaching schedule

| Integrated project | X Company human resource management | | | | |
|-----------------------|--|---|--|---|---|
| Sub-item name | Assignment | Main supported knowledge | Capability objectives to be achieved | Training modes, means, and procedures | Results |
| Personnel recruitment | X Company personnel recruitment planning | Personnel recruitment procedure and contents of personnel recruitment planning | Personnel recruitment planning | Assignment-operation flow-giving instruction and reference | XCompany personnel recruitment planning |
| | To select a recruitment channel and put up recruitment advertising | Recruitment channels and their selection, and recruitment advertising flow and skills | Reasonable selection of recruitment channel ; Recruitment advertising | Assignment-reasonable selection of recruitment channel and recruitment advertising-giving instruction and reference | Completion of compiling recruitment advertisement |
| | Personnel recruitment | Personnel recruitment method and procedure, and personnel recruitment and allocation procedures | Effective personnel recruitment ; Methodological capabilities in personnel review | Assignment-operation flow-giving instruction and reference | Completion of personnel recruitment |
| | Labor contract establishment and management | Labor contract establishment and managerial approach | Labor contract establishment; Labor contract management | Assignment-analysis of cases, putting forward a clew of contract management-giving instruction and reference | Labor contract established |

2.3 Appraisal and Design for the Project Pedagogy

The appraisal must be based upon the concept of developable teaching appraisal, including process evaluation and summative assessment; the process evaluation should include evaluation of working attitude, evaluation of working process, and evaluation of knowledge applied; the summative assessment should include assessment of any part to be known and understood involved with a project, and product assessment; the appraisal must include self-evaluation of students and teacher's appraisal; and the appraisal must keep a record of any problems arising out of the project, the solutions, and characteristics of learning behaviors.

3 Points for Attention in the Project Pedagogy Applied to the Courses of Human Resource Management

3.1 Design for a Teaching Project

A teaching project means a learning situation specifically built, defined to be in the learning field. It is a typical assignment in the learning field. To define a teaching project must meet the requirements as follows:

- (1) There must be a clear and definite assignment in a teaching project;
- (2) It is of definite applied cost or it is good to be a simulated project, which aims at typical assignments at corresponding posts of duty and is directly related to practical production process;
- (3) The assignment must combine necessary professional theoretical knowledge with specialized skills;
- (4) The working process is complete and may be used for specific teaching contents;
- (5) It is of certain difficulty;
- (6) A teaching project is constructive instead of applied. Students not only utilize their knowledge and skills but also are required to solve practical problems they have never met while they are learning new knowledge and skills within a certain scope.

3.2 Integrality of Knowledge in the Project Pedagogy

In the past we paid attention to teaching integrality, systematic nature, and all sidedness of knowledge; however, quite a part of theoretical knowledge we learned would be forgotten quickly in fact or even be useless in the future. In the project pedagogy applied to human resource management, it is necessary for students to actively obtain process knowledge as for human resource planning, personnel recruitment and allocation, training, performance review, salaries and welfare and labor relationship management so that they will know how to do in practice and reflect what is the reason in observation. Thus we will make the best of giving instruction in theoretical knowledge. Then we will lead students to exploring other approaches and expanded application of human resource management functions so as to optimize personnel recruitment, appointment, cultivation, and incentive, which will get twice the teaching result with half the effort systematically in the working process.

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The Exploration and Reformation in the Theory of Machines and Mechanism Course

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Abstract. In this paper, the present state and existent problems of the theory of machines and mechanism course are analyzed in detail, as well as its need for educational reform. In order to improve the teaching quality and teaching effect, a series of reforming practices on teaching content, teaching methods, examination methods and practical teaching are put forward. These methods will arouse students' interests, cultivate their innovation ability, improve their engineering accomplishment and optimize their knowledge structure. The teaching practice proves that these reform methods are effective.

Keywords: theory of machines and mechanism, curriculum design, teaching effect, teaching method reformation.

1 Introduction

With its rapid and sustained development in recent years, higher education has already turned from elitist education to popular education. Like as other schools, the total number of students is increasing, while the total planned hours of the majority of courses are decreasing in order to increase the varieties of courses in our school.

Theory of machines and mechanism is an important fundamental of technological courses, and is one of the required courses for all students major in mechanical, and is a main postgraduate entrance examination subjects. Its content has strong systematic, theoretical and practical characteristics.

As one of core courses, the teaching effect of the theory of machines and mechanism has a direct impact on the study on the follow-up courses, and has an important effect on the fostering of innovative consciousness and creativity of students. Therefore, it is an important research topic put in front of course teachers how to make students have a good knowledge of course contents and how to cultivate the ability of mechanical creation design.

Theory of machines and mechanism of our school is a key course of provincial level. According to the personnel training goal put forward by the ministry of national education which higher education on engineering should adapt to the need for personnel of 21st century, some explorations on teaching content, teaching methods and means, assessment methods and practical teaching are carried out and have proved a modest success.

2 The Reformation of Teaching Content

As a main fundamental of technological course, the theory of machines and mechanism undertakes the important task in cultivating students innovative design ability of the scheme design of mechanical systems. Therefore, teaching contents should be selected reasonably and be in accord with the personnel training goal.

The key teaching contents are as follows: the composition and constitution of mechanism, the application, classification and design of four kinds of conventional mechanism, such as gear, linkage, cam and intermittent motion mechanism, and the scheme design of mechanical driving system. The mechanical balance, the mechanical operating and the regulation of velocity fluctuation and the mechanical efficiency are in the next place. To the motion and force analysis of mechanism, we only give a brief introduction according to class hours. In addition, we offer an optional course with 28 class hours, the mechanical creation design, in order to cultivating students innovative design ability. This course can broaden students' horizon, develop their interests and improve scientific and technological ability for innovation by means of many project cases.

3 The Reformation of Teaching Methods

Classroom teaching is both a science and art. The effect and quality of the class teaching not only depend on teachers' academic level but also have direct relation with teaching methods.

3.1 Introducing Some New Achievements of Modern Science

In order to make students to keep track of the frontiers of this course and to familiar with the application of the basic theory and methods of this course in the scientific and technological innovation, we introduce some new achievements of modern science in the course of teaching. For example, the teacher can introduce the Chebyshev quadruped walking robot to students before teaching the planar linkage and its design, and can introduce the emergency retractor of guided-missile system in chapter ten of gears and gear mechanisms. Novelty appeals to students in psychological perspective. These great achievements can arouse students' curiosity and aspiration to knowledge.

3.2 Introducing Some Students' Work Outcomes

Choose some excellent students to participate in teacher's research subject to enlarge their view and to train their abilities of using what they learned, and demonstrate their work outcomes in the class, which can increase greatly other students' interests and stimulate their learning enthusiasm. For example, our students develop a program which the different profile curve of cam can make the follower draw up different graphics in cam mechanism. When I display this program in class, the students surprise the amazing function of cam mechanism.

3.3 Introducing Some Real-World Examples

Some real-world examples in connection with the content of the theory of machines and mechanism exist in everyday life and production. For example, the sewing machine cannot work at its dead center position, the quick-return characteristics of the shaper. The teacher can bring up the question and analyze its theory on the basis of these examples which students are very familiar with. The introduction of these examples can draw students' attention and improve teachers' performance.

3.4 Combining Traditional Education with Modern Education

Multiple graphs are one of the main features of the theory of machines and mechanism. The disadvantage of the traditional blackboard writing is time-consuming as well as no third dimension, and so it cannot meet the need of this course. With the development of science and technology, the development of multimedia technology urges the educational reforms. Modern multimedia teaching has already exerted an enormous influence on the teaching, such as saving class time, making the teaching contents vivid and concrete, greatly increasing the interests of students and improving the ability to accept new things of students, offering a large amount of knowledge and information to students fast and effectively by means of using sounds, pictures, films and flashes.

However, modern multimedia teaching cannot take the place of traditional blackboard writing completely. Many formulas and principles are another feature of this course. The effect of blackboard writing is better than multimedia teaching on the formula derivation. Writing the formula derivation on the blackboard can let students think simultaneously and make students have much time to understand them, even if they forget the previous relevant content, the teacher can rewrite it on the blackboard in time.

For this course, recommended a combination of multimedia and writing on the blackboard approach to improve teaching effect and quality.

3.5 Bilingual Teaching

The globalized economic development and the popularization of the Internet have brought about confrontation and communication between different cultures. One of the goals of implementing bilingual teaching should be to strengthen the English language teaching to cultivate a great number of high-quality talents who have a good command of English. On the other hand, through subject study and communication in touch with the latest scientific and technological information, the students receive new knowledge and technology more rapidly in a non-mother-tongue environment. In this practice, students are able to develop their capability in comprehensive utilization of the language as well as the knowledge for cross-cultural communicating and problem-solving.

Students enter for this class voluntarily, and only those who study professional knowledge and English well can be admitted. The practical effect of bilingual teaching is very good and has obtained the students' acceptance. So we will strengthen bilingual teaching in the future.

4 The Reformation of Evaluation Methods

The integrated grade is adopted and includes two parts: regular grade and final exam grade. The regular grade is composed of the attendance, daily assignment and questioning in class. We should attach more importance to this part, which can enhance students' initiative and alleviate the burden of final examination. Final exam questions should be likely to subjective items which can train students' innovation ability.

The assessment of the curriculum design of this course is made up of four parts: regular grade, drawings' quality, calculating specification and oral defense. Good presentation skill is one of the necessary ability of high caliber talents, so the oral defense becomes an important part in the assessment of the curriculum design and should be organized seriously.

The oral defense is a very important process of further improvement in students' design. Students can resolve those problems which they can't understand before and the precise style of study will be come into being through the oral defense. The oral defense also helps to judge the design quality of the curriculum design of students. Unfortunately, the phenomenon of canceling it or taking it just as a form becomes more and more, so we must attach more importance to it.

5 The Reformation of Practical Teaching

Practical teaching includes two parts: the curriculum design and extracurricular scientific activities.

The curriculum design is the last important period of theory of machines and mechanism, and can cultivate students' ability to analyze and solve engineering problems. It is the first ability training all-around for students, so it is very important to adopt advanced teaching ideas, teaching means and to organize high-quality curriculum design. Some reform ideas and measures of the curriculum design in theory of machines and mechanism are put forward on the basis of practical teaching.

Theme choosing of the curriculum design is very important, and its reasonable choice has a significant effect on teaching result of the curriculum design. In traditional curriculum design of theory of machines and mechanism, the themes are given by teachers, and students have no choice at all. Most themes are used for many years and a lot of references related can be found in the library and on the internet, so they are easy to do, lack novelty and have no attraction to students. Therefore, suggestion is that teachers should encourage some excellent students to draw out themes, which will arouse students' interests and motivation, and improve design quality. We should have concrete execution plan when choosing theme. Firstly, let students collect the good themes from daily life and engineering practice before the course begins. Secondly, organize students to discuss these themes' reasonableness and suitability and direct students to write the design specification. To those students who cannot find good themes, their design themes are still given by teachers. In order to encourage students to choose the themes by themselves, those students who choose themes independently can score the extra points.

We have developed extracurricular scientific activities to foster students' creativity in recent years. The mechanical creative labs are open to our students since 2006 and offer an opportunity to culture students' innovation abilities. More and more students enter for innovation teams and innovation creativity competition, and our students won the second place in the national mechanical creative design match for college students in 2008 and 2010.

6 Conclusion

Educational reform is a long-term and systematic project. With the development of the subject and the improvement of talent demanding level, the educational reform remains to be deepened and perfected, while our on-going teaching reform project has still many problems to be researched deeply. We will study and practice continually and further the reformation of theory of machines and mechanism to culture more and better high caliber talents.

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The Research on the Application of Project-Driven Teaching Method in Database Principles Teaching

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Abstract. Database Principles is characterized by abstraction and the key point is how to link the theory with the practice. As students usually do not make enough practice, the course seems rather dull for them. Aiming at the features of Database Principles and the problems existing in Database Principles teaching, we put forward a teaching method guided by the project, which is aiming at improving the quality of Database Principles curriculum. Then a detailed exposition about the teaching method guided by the project is made in three aspects: the demand of the project, the database analysis, system design and implement. Fact indicates that it has made fine teaching results in the theory of Database Principles curriculum and the practice of production. The teaching method of Project-driven not only stimulates students' learning interest, but also promotes students' ability of integrating theory with practice.

Keywords: Database Principles, abstraction, Project-driven teaching method, teaching quality.

1 Introduction

With the rapid development of computer science and technology and the advent of the information age, database technology [1] has been applied extremely extensively. So it becomes the main course in computer science in the universities. But Database Principles [2] is characterized by abstraction and the emphasis is how to link the theory with the practice, so after learning the course, some students still feel at a loss about some concepts. There are two main reasons according to former teaching experience: Firstly, the database course is boring to students as it is theoretical. Secondly, the concept in the course is far from practice and it is hard for students to practice. This paper presents a new method--project-driven teaching method to stimulate students' learning interest and promote students' ability of linking theory with practice, furthermore, to improve the students' self-confidence.

2 Motivating Students' Interests through Project

The company demands employees with working experience, but it is almost impossible to fresh graduates. Only some students who engage in projects with teachers or do

part-time job in companies have the actual working experience. Therefore, to stimulate students' leaning interest it is necessary to consider this point.

Taking "intelligent material list system" as an example, through analyzing this project, the paper provides students with practical experience and helps them make preparation for future employment. In addition, it suggests that Database Principles is the most important part in the project and that to understand the development process of the project students have to learn Database Principles well. In this way students' learning interest of Database Principles is stimulated and they will work hard on this course.

3 Through Analysis of the Demands of the Project the Requirement of Learning Database Design Is Raised: In This Way Students' Interest in Database Course Is Aroused

The teacher first explains the project demands to the students to make the students understand the relation between the project and Database and realize the key part in the future study.

The main aim of the information management system of Al-Mg materials sheet is to standardize the aluminum and magnesium materials tables which were previously made by using AUTOCAD. The Al-Mg materials sheets in Institutes of material and magnesium are all made by using ATUOCAD software, either in the electronic version or printed to the paper. However, there is always a problem. Some items [3-5] in Al-Mg materials tables such as the name, unit and table styles are a bit confusing and inconsistent. With the development of science and technology and the progress of society, it is more important to standardize and unify variety of materials sheets information. Therefore, the information management system of Al-Mg materials sheet arises. The information management system of Aluminum and magnesium materials sheets can firstly extract the information from the original materials sheets, and then store them in the database; finally it re-generates standard materials sheets from the database. Consequently it realizes a standard and consistent management on the materials sheets.

In reality, there are a wide range of materials. They are rather messy if they are not classified. In the computer information process, tree structure [6] is a best way to express complex classification information. Therefore, the tree structure is also naturally used to indicate the classification processed information of the materials in the information management system of Al-Mg materials sheet.

How does the tree structure generate? Where does the material information come from? They are the key parts of the project and also what the students who want to join this project have to be clear. The preliminary design is to save the material information to the database. And the tree can be generated from the database directly.

This will arouse students' thinking: To generate tree from database directly how should the material information be stored? This question will run through the whole database course until the problem is solved.

4 By Verifying the Rationality of System Design and Realization, Students' Confidence Must Be Promoted

The example of the project shows that project-driven teaching method can strengthen the students' ability of integrating theory with practice and make students understand the theoretical knowledge better. The success of the experiment gives a sense of achievement for students. This will definitely increase students' self-confidence and greatly stimulate students' learning interest.

4.1 Common Design Methods of Data Table

In the data table, the sort field is added which is a kind of string data type and is composed of number. For example, the sort filed value is 001 in the first record and the second is 002, so the next level values of the first record are respectively 001001, 001002, ... , 002001, 002002, ... , etc. When data records are taken out from the database, the sequence of the records is ranked in the lexicographical order. So the sort field of the record can indicate its parent node and its depth, so it is very convenient.

But the disadvantage of this approach is mainly that the number of the nodes in every level is restricted. If every three digits express one level, there are a maximum of 999 records. Therefore, four digits signify a maximum of 9999 records. Once the records exceed the maximum number, the whole logic will be destroyed. So the maximum number allowed needs to be considered clearly in advance. Pay attention that this field can not just apply to numbers, but only to letters. For example, 009 is followed by 00A, 00B, ... , 00Z. So the maximum of records allowed is $36 * 36 * 36$, which is 46 656, if every three letters express one level. If every four letters signify one level, the number will reach 1,679,616, which is usually enough. The sort field is saved with the data type of `nvarchar(max)`, and its length is unlimited. Hence, in theory, there is no problem that every ten letters express one level. And the number of record in every level can reach 36^{10} , which is enough to use.

4.2 The Design Method of Data Table in Al-Mg Materials Sheet

According to the project's requirements, the above design method is adopted in management system of aluminum and magnesium materials table. But since the project is designed according to the actual situations, there is extensive modification from the design of data tables to the encoding of the sort field so that this method can be applied to the project.

Design of Data Table in Al-Mg Materials Sheet

The design of the data table is shown in Table 1. Id field is automatically assigned by the database, which is the primary key, and it ensures that the field's value is unique. TreeProfessionPathCode is a sort field that belongs to string type, on which the tree structure generation depends. As to the sorting process there will be more detailed

explanation in the following part. TreeProfessionItemName is a string type field, which is used to record the current node information. TreeProfessionItemCode is a string type field, which is used to record the encoding information of the current node. TreeProfessionItemParentCode is a string type field which is used to record the path encoding information of the parent node of the current node for backward traveling. TreeProfessionItemIsLeaf is a string type field whose length is a character and which is used to indicate whether the node is a leaf node since large amounts of material information can be saved only below the leaf nodes.

It is easy to insert, update, delete, query, structure tree, and other operations with the above designment of data table.

Table 1. The Data Table Used in Spanning Tree

| Field name | Data type | remark |
|------------------------------|------------|---|
| Id | int | Created by database automatically, primary key |
| TreeProfessionPathCode | nchar[255] | Sort field |
| TreeProfessionItemName | nchar[255] | Node name in the tree |
| TreeProfessionItemCode | nchar[255] | Node code in the tree |
| TreeProfessionItemParentCode | nchar[255] | Parent node code in the tree |
| TreeProfessionItemIsLeaf | nchar[1] | Determine whether the node is leaf. Y representation it is leaf, and N is not |

Encoding of Sort Field in Al-Mg Materials Sheet

TreeProfessionPathCode is a sort field, whose encoding will have a direct impact on the effectiveness and efficiency of the tree structure. In this project, two ways of path encoding are adopted, namely the first-level encoding and other levels of encoding.

The first-level encoding of tree is the professional category which has the length of 8-bit characters. There are a total of 36 kinds of symbols, whose order is 0~9 or A~Z, so it can signify numbers ranging 00000000~ZZZZZZZZ with the 8-bit characters.

The total number is 36^8 and there are about 2821 billions kinds of professional category, which are enough for the general classification. If the number is still not enough, 10 characters or more bits characters can be adopted.

From the second level, it adopts the following path encoding in each level. The path encoding of child nodes under each node are followed the encoding of this node appended 000, appended 001, ... , appended zzz. For example, the path encoding of a parent node is 10000000222, and if there are two child nodes under it, the two path encoding of its child nodes are 10000000222000 and 10000000222001 respectively. In this way the classification number of each level can be greatly expanded, so 46,656

kinds of classification can be expressed with three encoding. Moreover, if it is not enough, five encoding or more can be used and it is very flexible.

4.3 Structure Tree Algorithm

The flowchart of the constructing of tree algorithm is shown in Fig. 1. pTree is the TreeCtrl control of VC++. TreeStack is a pointer stack structure which is used to push into the pointer of the parent node.

Algorithm is described as follows.

① Firstly, declare the stack. Secondly, query the database. Finally, sort the query result in ascending order according to TreeProfessionPathCode field.

② If the query result is empty, end the algorithm.

③ If the query result is not empty, a record is taken out according to the order and then pushed into the stack. The record is added to the tree structure as a new node. At the same time, the record pointer is moved to the next record.

④ If the stack is empty and the table is also read to the end, end the algorithm. Otherwise go to ⑤.

⑤ Take the top of the stack and the next record of the table, and parse their path encoding according to their TreeProfessionPathCode field, and finally calculate the value diff between their levels.

⑥ If the diff is 1, add the next record of the table to the tree as a new node. Meanwhile, use the variant q to save the corresponding pointer in the tree in relation to the record. And then go to ⑩. Otherwise go to ⑦.

⑦ If diff is 2, push q into the stack TreeStack. And add the next record of the table to the tree as q's child nodes. Synchronously, use the variant q to save the corresponding pointer in the tree in relation to the record. And then go to ⑩. Otherwise go to ⑧.

⑧ If diff is less than or equal to 0, pop1-diff element up from the stack. Synchronously, move the table pointer to the previous record. Then go to ⑩. Otherwise go to ⑨.

⑨ If the error shows up, it indicates that the tree structure cannot be created according to the table record. Then go to ⑩.

⑩ Move the table pointer to the next record. And then go to ④.

⑪ End the algorithm.

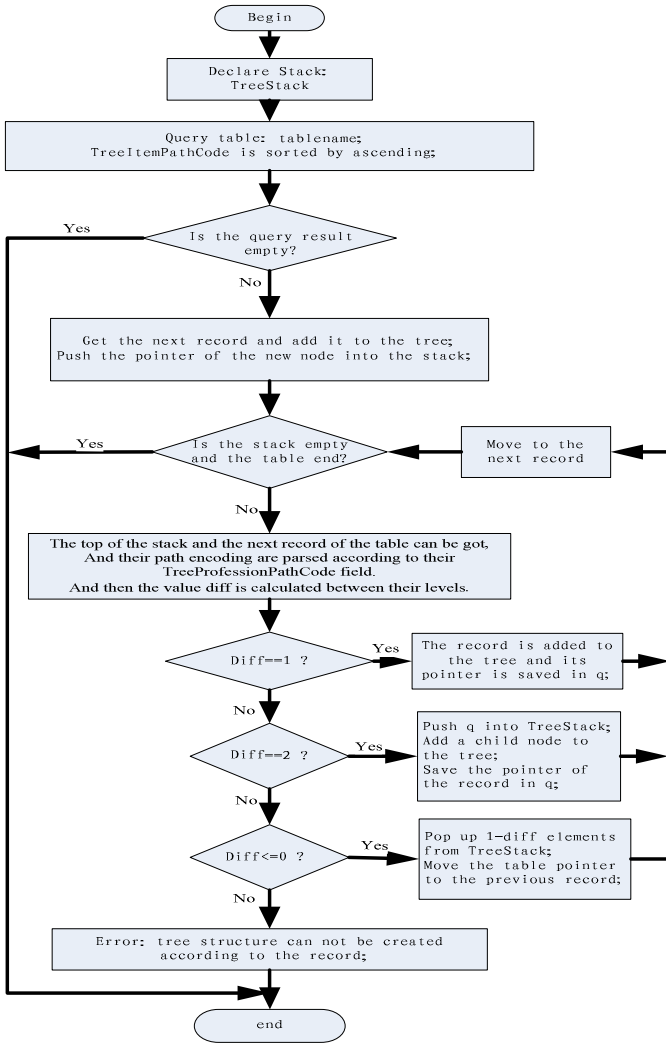


Fig. 1. The algorithm flowchart of constructing tree

5 Experiment and Analysis

This project employs ACCESS database, VS2002.net integrated development environment and Windows XP sp3 operating system. The hardware environment is Genuine Intel (R) T2080@1.73GHZ CPU and 1GB memory. The classification tree of material information created based on database is shown as Fig. 2 when 100000 records are saved into the database. And it costs 93 ms to show the tree structure.

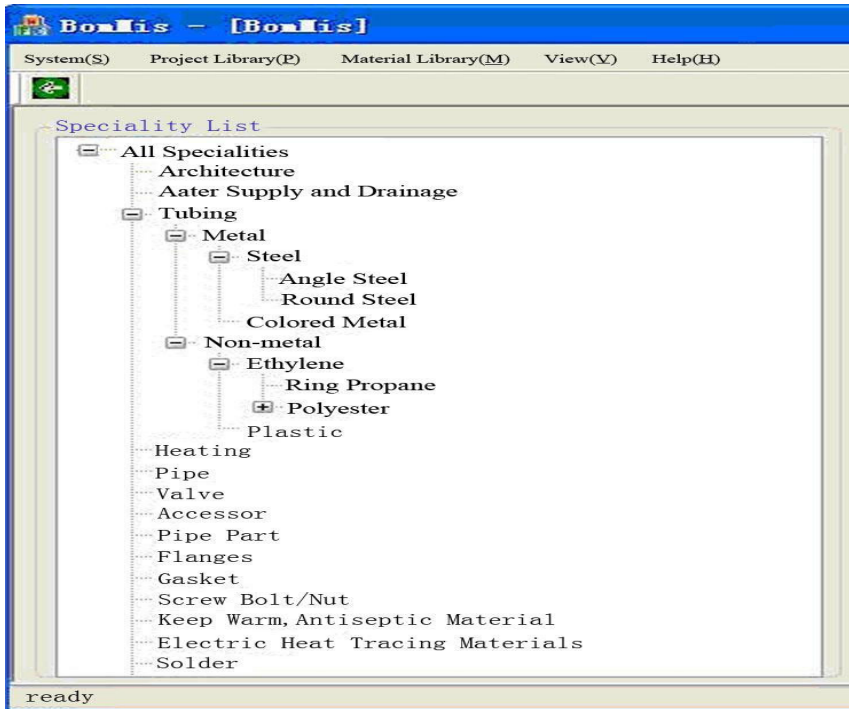


Fig. 2. The material classification information tree created based on database

6 Conclusion

Database design is an "art" of practice. Based on the project design, this teaching method ensures the students verify their designs through practice and thus touches the essence of the database design. At the same time, it involves the main points of Database Principles and helps to test how much the students have mastered the basic knowledge of Database Principles. The students' feedback and design reports prove that this method has achieved good results.

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Strategies of Cultivating Students' Ability of Education Research in Normal University Based on the Two-Dimensional Structure of Education Research

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Abstract. It is the requirement of educational reform for teacher to possess the ability of education research, and is also the inevitable demand of impelling teacher specialization. It is favorable for adapting and developing occupation for students in normal university as quasi-teachers to possess a certain ability of education research. The structure of the ability of education research is analyzed from the view of point that the ability of education research has two-dimension of static structure and dynamic structure. Based on this view, the strategies of cultivating students' ability of education research in normal university are put forward.

Keywords: ability of education research, normal university students, cultivate.

1 Introduction

With deepening the educational reform and impelling teacher occupation specialization, it is an inevitable tendency for teacher as the status of researcher to participate in the practice of teaching and education. The ability of education research is one of the abilities that contemporary teachers must possess. However, some investigations in our country shows that teachers in primary schools and middle schools have not enough ability of education research in present generally [1, 2]. The formation and development of the ability of education research has the character of accumulation and continuity, and need to undergo a dynamic process from weak to strong. The stage before taking occupation is a very important period in which the ability of education research forms and develops. One of the main reasons why normal university students can not carry out education research effectively when they become teachers is that they lack cultivation of ability of education research during university [3]. It is an important research subject for normal universities to strengthen cultivating the ability of education research.

2 Two-Dimensional Structure of Ability of Education Research

Teachers must have the ability of education research in order to complete the education research action. The ability of education research has a structure comprehensive ability

composed of multi-factor. The structural factors composed of this comprehensive ability influence each other and restrict each other, and play a common role in the action of education research. To know fully the structure of ability of education research guides the right direction and provides prerequisite for cultivating the ability of education research in normal university.

The two-dimensional structure of the ability of education research means the psychological structure of the ability of education research which is composed of static structure and dynamic structure. The static structure means the psychological constituents and their connecting forms which are required in the action of education research, and the dynamic structure means the psychological factors and their connecting forms which are required in different periods of an education researching action from the begin to the end. From the view of static structure, there are five psychological constituents that are requisite for completing education research and affect the efficiency of researching action, that is, the motivation, the knowledge, the intelligence, the operation ability and the adjusting and controlling ability of education research. The motivation of education research, including the main consciousness and the interest of education research, is the power for teachers to engage in education research, and is also the driving action of education research. The knowledge of education research is the content operated by researcher in the action of education research. If there is no related knowledge, researchers can not carry out the researching action. The knowledge of education research includes educational fundamental theories and methods. The educational fundamental theories include The Principle of Pedagogy, On Instruction, Psychology, Children Development Psychology, Educational Psychology, Modern Educational Theory, and so on. Method knowledge includes The Method of Education Science Research, Modern Educational Technology, and so on. The intelligence of education research is the basic psychological function required for completing the action of education research. From the point of view of psychology, the process of education research includes finding problem, defining problem and solving problem, and the realization of this process demands researchers to have observation, remembrance, thinking ability, imagination, etc., and the core is thinking ability. The operation ability is essential to carry out education research that include observation and recording, interview controlling and questionnaire design, etc. The adjusting and controlling ability of education research means introspection and adjustment for every section of researching process, and analysis and evaluation for the results.

The dynamic structure of education research means to analyze the constituent factors of education research ability based on the process of education research, and the most domestic scholars analyze the structure of education research ability from this dimension[4, 5]. Through generalizing the existing research achievement and combining the cognition for the general process of education research, we think that the education research ability includes four aspects as following:

The ability to determine problem. The education research begins with problem, which demands researchers to have the ability to put forward problem and to definite problem, and the ability to evaluate the value, the creativity and the feasibility of the research.

The ability to collect data. To gain the scientific conclusion depends on the quality of the data collected. The process to collect data is that the preset research plan is put into effect and the related events and phenomena are observed and recorded. To realize this process requires researchers to have the ability to establish plan, to take the plan into practice, and to observe the educational events and phenomena. The ability to establish plan includes determination of research purpose, selection of research object, selection of research method, and design of research procedure. The ability to take the plan into practice is that persons, affairs and things related in the research are coordinated, and the variables are operated and controlled. The ability to observe the educational events and phenomena is that the educational information is collected by means of observation method, interview method, questionnaire method, measurement method, and literature method.

The ability to sort out and to analyze data. A large amount of data obtained from the education research is disorderly and unsystematic, and the data should be examined, verified, and screened, and the false is discard and the true is retained. Through qualitative analysis and quantitative analysis, one can reveal the nature and the regularity existed in the data and related to the research object-person, phenomena and event, and can obtain the conclusion. So, the ability to sort out and to analyze data is composed of two abilities, one is the logical thinking ability to examine and verify, to classify and summarize, and to analyze the data qualitatively, the other is the ability of statistical analysis for quantitative data.

The ability to express and evaluate the research achievement. After gaining the conclusions, the all process of research and the achievement gained must be expressed in writing. The research achievements are accepted and popularized in society by evaluating them. This process demands researchers to have the ability to express in writing and to use knowledge synthetically to analyze problems and the ability to evaluate the value of the research achievements according to some quality standards.

3 Strategies of Cultivating Students' Ability of Education Research in Normal University

3.1 Excite Normal University Students' Intention to Engage in Education Research

Let Them Establish the Role Sense of "Quasi-Research-Teacher". The role sense is the internal power of role behaviour, and the positive role sense can mobilize the people's potential power of behaviour. Affected by some factors such as the forms of school running in normal universities in China, students in normal universities have poor sense of Double- Specialty. For example, students in mathematics major only recognize that they learn mathematics, but do not recognize that they also learn mathematics education, even more they lack the sense that they are the future teachers who are not only the persons engaged in mathematics education but also the researchers of mathematics education.

The lack of role sense of quasi-research-teacher makes normal university students lose the enthusiasm to learn the education theory and to take part in education

research action. The normal universities should let students establish the role sense of quasi-research-teacher by adopting the measures to construct campus culture of teacher education, to establish regular contact with primary schools and middle schools, and to deepen the knowledge for students to the role sense to be teachers in primary school and middle school. The normal university also should let students conscientiously use the code of conduct to guide their recognition and behaviour. Students should learn to recognize and understand the problem with the point of view of education, and gradually gain the ability to analyze the education phenomena, to proof the educational viewpoint, and to put forward educational opinion, and then possess the belief, interest, perseverance and purpose to create new educational phenomena.

Enhance the Self-efficacy of Normal University Students for Education Research. American psychologist A. Bandura defined self-efficacy as one's belief in one's ability to succeed in specific situations[6]. Self-efficacy affects the selection of one's behaviour, determines how many efforts one will pay and how long one will stand on when he encounters difficulties or unpleasant experience. It is difficult and very long for normal university students to engage in education research and to form the ability to do education research. When students think that they can not finish the education research and can not form the ability to do education research, they will avoid the action of education research, and deal with the action of education research organized by teachers negatively, and will not prefer to overcome the difficulties to take part in the action of education research. Bandura's theory shows that the results (success or failure) of one's behaviour and other person's evaluation are the important factors affecting self-efficacy. Teachers assign students tasks of education research from easy to difficult according to the rule of development of ability to do education research, and let students gain successful experience as they can as possible, and give active evaluation for the behaviour in the action of education research and for the research results, and those are helpful to molding and promoting their self-efficacy. Substitution experience is another important factor affecting self-efficacy. So, teachers can select some senior students who have certain ability of education research to introduce their experience and to exchange with junior students. Other persons' experience can enhance students' confidence of completing the task of education research and forming the ability of education research.

3.2 Improve Normal University Students' Knowledge Structure

The relationship between knowledge and ability of education research has dualism. On one hand, mastering the related knowledge is the base to develop the ability of education research. On the other hand, the related knowledge is an important part of the ability of education research. Education research is out of question without the related knowledge. The difference between the scientific education research and the action of blind trial-and-error research, analyzing problem by experience and solving problem by perceptual is whether the research is guided with scientific knowledge. The knowledge structure of students is limited by the curriculum structure in the school. The proportion of specialized courses in curriculum program is excessive now in higher teacher's college in our country, and the proportion of specialized courses

for education is low relatively. The specialized courses for education usually are composed of pedagogy, psychology and the methods of teaching. The knowledge structure formed in this kind of curriculum program can not satisfy the requirement for normal university students to carry out education research and form the ability of education research. So, the numbers of specialized courses for education should be increased, the instruction of educational theory should be enhanced and optimized in higher teacher's college in our country. These courses include two kinds, one is basic theory course such as the general theories of pedagogy, the general theories of children development and modern educational principles, etc, and the other is the courses about method knowledge such as scientific research methods of education, education measurement and evaluation, education statistics, etc.

3.3 Cultivate Normal University Students' Intelligence of Education Research

The abilities to observe, remember, think and image are the basic abilities for normal university students to learn and to carry out education research, and are required to be cultivated in the whole educational process in normal university by teaching in classroom and practicing in and out of school. In the teaching process of discipline specialized courses and education specialized courses, teachers should select and use the textbooks rationally according to the characters of the discipline, and use the instruction strategies such as multielement interaction, cooperated exploration, heuristic and induction, etc, to make students form the abilities to observe, remember, think and image in the process of getting knowledge actively. The core of intelligence of education research is the thinking power. Teachers should emphasize the cultivation of thinking and its thorough, flexible, originality, criticalness and agility. Teachers should organize practice in and out of school, and cultivate the ability to observe and to introspect the practice in the practical actions.

3.4 Make Normal University Students Master Methods of Education Research and Form Research Skill

Development of education research depends on the use of scientific methods. Without methods of education research as the prerequisite, it is difficult to carry out education research efficiently, even it degenerates into a kind of pure empirical practical action. Only normal university students master the methods and the technologies that are provided to them to operate surely can they carry out education research high efficiently and trouble-freely, and make due research achievements. The scientific methods of education research are actions to be used generally when people understand the educational events, so it has active effect on forming ability of education research. In order to form and develop the ability of education research, normal university students must master the scientific methods and skills.

Mastering the scientific methods and forming the research skill are based on the practice, and various practices should be provided to students by higher teacher's college in order to let students master the scientific methods and form the research skill. For example, teachers arrange students to go to primary schools and middle schools to carry out education survey, and make them be familiar with the procedure of using investigation method and master the interviewing technologies and the

questionnaire survey technologies. Teachers also can arrange students to go into classrooms in primary schools and middle schools to observe how to teach in classroom, and make students master the strategies of descriptive observation and sampling observation.

4 Concluding Remarks

The ability of education research is one of abilities that normal university students must possess. It is favorable for adapting and developing occupation for students in normal university as quasi-teachers to possess a certain ability of education research. It is believed that the strategies mentioned in the paper will be useful references for teachers in higher teacher's college to carry out teaching actions in order to cultivate the students' ability of education research.

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The Network Resources Integration for Specialty Curriculums

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Abstract. With the development of the network technology, the online teaching via curriculum website becomes more important. However, lack of the network resources integration for specialty curriculums brings a lot of inconvenience for the students to learn online and to communicate with teachers. By the sample of the network construction in Textile Engineering of the Zhongyuan Institute of Technology, the steps of the network resources integration with four aspects have been discussed. It is found out that the key issue of the network resources integration is not only to build a platform, but also to achieve the practical effect and the continued advance of the platform.

Keywords: Specialty Course, Curriculum Website, Integration, Online Teaching.

1 Introduction

College course construction is an important part of quality construction projects. Curriculum website is the window for the construction and evaluation of curriculum, especially for the distance teaching [1]. At the same time, the curriculum website is an important way to improve teaching quality. At present, there are a lot of specialty curriculum websites such as quality courses websites and online classroom websites, which have been developed to a certain degree. However, basically, each website is constructed in their own way, lack of connection between each specialty curriculum. The practical application of the online teaching resource of each particular course depends on emphasis degree of the teachers of the course. For most of curriculum websites, the course teachers only concern about the early development, while ignoring the latter part of the construction and development and continuous maintenance [2]. With the acceptance declare of the construction project, a lot of websites would not be updated any more. Over time, no one would visit it.

Meanwhile, as undergraduate education, specialty curriculum, consisting of the specialty basic courses, specialty platform classes, specialty development courses, is a complete classroom system. Each online classroom is closely interrelated and needs to be study systematically. However, the website of each specialty course is relatively

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independent to each other. Therefore, for the students, it is inconvenient to teach themselves online. Finally, the network teaching effectiveness has been severely weakened.

2 Sample for the Network Resources Integration for Specialty Curriculums

For example, in the Textile Engineering, Zhongyuan Institute of Technology, with years of construction, most of the specialty courses offered by the network class, and a variety of courses have been completed as provincial quality courses, school quality courses and excellent school curriculum. However, practical application effectiveness of various specialty courses site is not ideal. The access rate of the courses website after-school is very low.

How to construct specialty courses much better? How to optimize online teaching resources? How to establish an integrated networking platform to reflect the system of the specialty curriculums finally and to highlight the characteristics of textile engineering? These kinds of questions are worthy the study of teaching reform.

To meet the need of the specialty construction and development, the integration of the e-learning resources and the flow resources of each curriculum websites is very meaningful. If you can create a systematic, complete, effective long-term specialty courses platform for students to learn and discuss. With this platform, the students could discuss the questions on specialty curriculum and exchange their opinions, and learn from each others [3]. Thus, network communication environment could be setup.

Finally, the effective network interaction between students and students or between teachers and students could be achieved, which truly reflects the benefits of online teaching.

The specific implementation methods and steps for the network resources integration for specialty curriculums are shown in Fig. 1.

2.1 E-Learning Resource Integration

Relying on the e-resources of the quality courses websites, excellent course website and online classroom websites, the common columns, such as teaching syllabus, electronic lesson plans, multimedia courseware, video clips, experimental guidance, library and other common questions could be grouped together. These files could be downloaded directly to facilitate the students. By the way, during the studying procedures, the students could put specialty knowledge of different courses into series to form a systematic learning process. Finally, it will help the students with a better understanding of the overall teaching subject.

2.2 Flow Resources Integration

The interactive learning modules of each curriculum website should be point to the same platform. Therefore, the teachers and students do not need to register in multiple curriculum website. The visiting traffic can gather popularity.

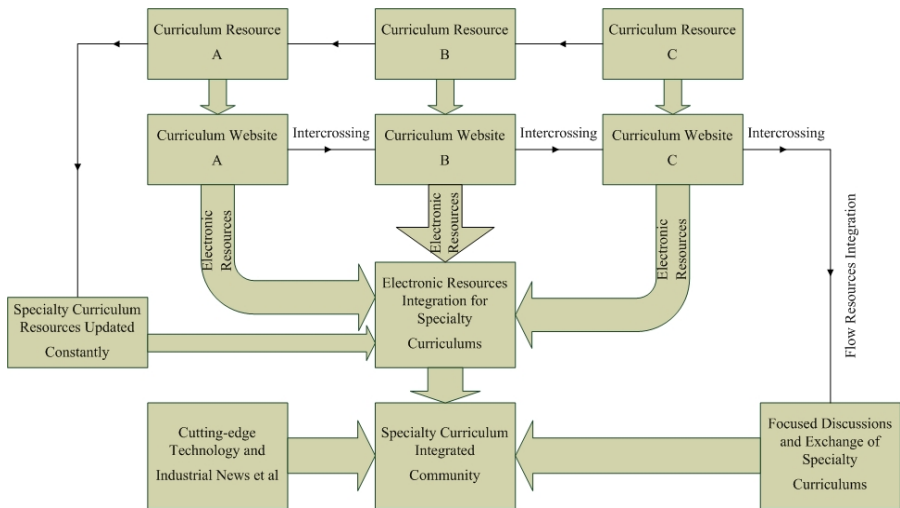


Fig. 1. The outline of the network resources integration for specialty curriculums

2.3 Establishment of Integrated Specialty Courses Community

The specialty courses community includes e-learning resources, cutting-edge technology, the latest industry information, discussion area of all specialty curriculums. The community is full of learning resources and latest information, etc. It is featured as a functional and practical strong communication platform, which would attract the teachers and students to publish more information. The community is to provide students with a unified platform for students to released text messages, upload pictures, flash and other files. Besides, the platform allows the students to upload their self-made PPT and DOC files via FTP space. Better chance could be achieved to learn and discuss with each other.

2.4 Long-Term Updating and Maintenance

The most important thing is to try our best to promote and develop this platform [4]. By the means of two-rank management, the members of construction team, being expanded continuously, would enrich and update the content continuously. The students continue to browse and present their questions. At the same time, the teachers and other students could answer the questions. Gradually, form a virtuous circle of the communication environment would be cultivated.

3 Summary

In general, the key issue of the network resources integration is not only to build a platform, but also to achieve the practical effect and the continued advance of the

platform. It would be much better for the teachers and the students to develop the habit of online communication. Therefore, a virtuous circle of the interaction between the teachers and the students on internet could be expected in the future.

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A New Interpretation of Culture in Teaching English as an International Language

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Abstract. This paper argues for a new way to interpret culture in contrast with traditional views of culture commonly existing in foreign and second language learning. It also proposes ways to restructure curriculum according to this new interpretation. After an explanation of this alternative interpretation of culture, suggestions for classroom activities consistent with that interpretation are explored.

Keywords: culture, language teaching, EIL.

1 Introduction

Language and culture, it could be said, represent two sides of the same coin. As has been noted by numerous authors (e.g. Bhabha, 1994; Buttjes, 1990: 55; Hinkel, 1999; Jiang, 2000; Kramersch, 1998; Witherspoon, 1980), the way in which individuals express and interpret messages is heavily influenced by their cultural background. This language/culture link has great significance for language education. It stands to reason that if learners are to become truly proficient in their target language, they must be familiar with the language's culture.

The globalization of the English language, however, is posing new challenges of EFL/ESL culture teaching. With English in modern times not belonging to any single nation or group (Crystal, 2001: 21; Jenkins, 2003: 162-168), new forms of English emerging in non-Western contexts (Kachru, 2004), and the rise of cross-cultural encounters in English among non-native speakers worldwide. These changes suggest that we have to reexamine whether English is more a vehicle for local and international use—that is a lingua franca—than a vehicle by which non-native speakers may learn a correspondent Anglo culture for purposes such as travel or immigration (Post & Rathet, 1996). The existence of a variety of uses for English suggests reconsideration of using “target culture” (the culture of a country where English is spoken as a first language) material exclusively in teaching English as an international language (EIL).

In this essay, I will discuss problems of “target culture materials” and advantages of using “source culture materials” followed by demonstration of some activities using “source culture materials” in EIL classroom.

2 Problems with Target Culture in ESL/EFL Material

The main argument for the inclusion of target culture is that it can promote international understanding, facilitate learners' visits to foreign countries, and motivate learners (Adaskou, Britten & Fahsi, 1990). Another reason for EFL textbooks focusing on elements about the target culture stems from the fact that it is generally not cost-effective for publishers to set materials in the learner's society, as such a decision would cause other learners from other societies not to make use of the materials in question on account of their irrelevance to their own cultures (Alptekin, 1993). It is also important to mention that native-speaker textbook writers, who normally reside in their own Anglo-American culture, find it hard to compose data that go beyond their 'fit' (Alptekin, 1993). Thus, although it is often not realized by English teachers, EIL materials are by no means 'neutral' or 'value-free' education aids. Cunningsworth (1995: 90) states that 'course books will directly or indirectly communicate sets of social and cultural values which are inherent in their make up'.

This culture-bound nature of ELT materials, however, can present serious dilemmas in the language classroom. Images and concepts that appear natural or harmless to the average Western reader, may be viewed as intrusive by people from other backgrounds. Argungu (1996) contends that 'Muslim students encounter numerous culture shocks in many ELT texts, such as references to alcoholism and drunkenness, cigarettes and smoking, pre-marital relationships and Christian images/values, though the author possibly never meant any malice'. 'The examples may appear insignificant', claims Argungu, 'but this cumulative effect on the young Muslim is easily visible'. To prevent further occurrences of such problems, he thus recommends that Muslim educators design customized materials for Muslim students of English.

Alptekin (1984) also identifies the problem of cultural domination: 'indeed, being at the receiving end of a virtually one-way flow of information from Anglo-American centers, the host country runs the risk of having its own culture totally submerged'.

Besides, although many people support the inclusion of culture in language teaching on the grounds that it is motivating, others dispute the value of cultural content in this regard. Prodromou (1988) maintains that one reason students are not motivated by culture learning is the way culture is presented in many ELT textbooks. He maintains that when students enter the language classroom,

Thus, he maintains, it is understandable why students find little to motivate them in the foreign language class. He argues that when 'both the material we use and the way we use it are culturally alienating then, inevitably, the students switch off, retreat into their inner world, to defend their own integrity' (ibid.: 80).

3 Reasons for the Inclusion of Source Culture

One strategy that has been used to offset the dominance of target culture in English teaching materials is to shift the focus to local cultures. Most teachers believe that students will be more motivated, to learn English if the language is presented in contexts that relate to their own lives rather than to see it presented in the context of an English-speaking country. Thus, the Ministry of Education in Chile has published

an English textbook series called *Go for Chile!*, to promote Chilean culture. More provocatively, *The Japanese Mind*, a collection of student-written essays and discussion questions on Japanese culture, strives to help Japanese students 'explain and discuss their native culture in English in order to participate effectively in an increasingly globalised world' (Davies & Ikeno, 2002: 3). Similarly, small group discussion topics for Korean students, an EFL conversation textbook from South Korea by Martire, allows Korean EFL speakers to discuss Korean issues and culture in English (Martire, 2003).

The support for using students' own culture (source culture) content in English language classrooms also comes from schema theory research. A wide range of studies has shown that using content familiar to students can promote students' comprehension of a second language (Anderson & Barnitz, 1984; Johnson, 1981; Long, 1990). Research has also demonstrated that unfamiliar religious (Carrell, 1987), folklore (Johnson, 1981), and literary (Winfield & Barnes-Felfeli, 1982) information can impede students' learning of the linguistic information used to convey the content. Why overburden our students, especially lower-level students, with both new linguistic content and new cultural information simultaneously?

An additional benefit to students for using content from their own cultures in studying English can be their increased ability in self expression, especially when they need to explore their changing identities in a new linguistic environment (Post & Rathet, 1996). Cross-cultural communication is a bidirectional process. One not only needs knowledge of the target culture to understand the information that flows in, but also needs the ability to express his/her own culture for the other side to understand. Clearly such "source culture materials" provides the students with an opportunity to learn more about their own culture and to learn the language needed to explain these cultural elements in English (McKay & Sandra, 2002).

Using native culture in EIT can also enhance student motivation and, further, allow for greater sensitivity to students' goals in studying the language. Specifically, Huizenga and Thomas-Ruzic (1993) noted that many European teachers and students were not interested in learning English for the purpose of integration into British or American culture. Thus, teachers of EIL must realistically evaluate who among our students will ever visit or spend extended time in the target culture. Only when this proportion of students is identified can we consider their potential need to learn and/or assimilate target culture content.

4 Classroom Activities That Incorporate Students' Native Culture

In this section, I would like to introduce some activities which incorporate students' native culture as content. These examples represent a range of shading of cultural content from entirely student culture to nearly completely Anglo culture.

4.1 Role-Switching

A technique I have found useful for drawing on local culture where the students come from the source culture but the teacher is from another culture, is a team game which

reverses the usual roles of teacher and learners. The students, in teams, prepare questions about local culture for the native-speaker teacher to answer. The group which asks most questions to which the teacher does not know the answer, wins. In such a situation, the teacher, if not familiar with some of the cultural topics, can become an interested listener. The teacher might also pose questions to the students, asking them to explain a particular cultural element. This kind of activity makes for a more reciprocal relationship between the culture of the teacher and that of the students, and helps the guest teacher develop greater awareness of local historical events and attitudes towards them, thus avoiding certain cultural faux pas, which the Alptekins and Adaskou et al. warn against.

4.2 Exploring Cultural Icons

This activity is useful when both teacher and students are from source culture. The teacher shows a simple handout of cultural-specific icons. Students are asked to describe the objects first by answering some simple Wh- questions about the objects such as "What is it?" and "Where do you use it?" After answering the Wh- questions, students attempt to provide an English language equivalent for the name of the object. From this activity students will be surprised to learn that they could actually communicate these icons, which they see as their culturally unique things, in a non-native language. They benefit from this activity, learning to use English, and gaining a bit of cross-cultural awareness.

4.3 Exploring Culture through Group Work

Rather than expecting the whole class to learn the same content, students can be grouped according to their interests. For example, students can work on an inquiry project concerning art, dance, music, or drama of the target culture and compare them with those in their own culture. Learners who share similar interests will be grouped together, and they will work on the project for one month. Each week, groups will discuss their progress in class. At the month's end, each group gave an oral presentation about the project. In this way, rather than just gaining cultural knowledge what might interest their teacher, students will gain new perspectives through their own inquiry, and through appreciating different points of view expressed by their peers.

These activities illustrate only a few of the ways in which we can incorporate student native culture content in EFL classrooms, thus adding a more culturally sensitive, student-focused flavor to English language teaching. However, it is by no means an intention for teachers to eliminate all target cultural content. In fact, cultural content is implicit in many languages' syntax, vocabulary and other features. While such intrinsic cultural flavor cannot and should not be avoided, it is proposed to de-emphasizing additional explicit target cultural content in English language study.

5 Conclusion

Admittedly, choosing appropriate material in EIL teaching is not an easy task. Neither target culture nor source culture exclusively will work well in EIL classroom. Thus, in

order to receive the highest quality of education possible, teachers, when preparing lessons on cultures, need to keep a balance between target culture and source culture materials. Moreover, suggestions made here may not be appropriate for all levels and groups of students. Nevertheless, for educators who are truly serious about culture teaching, it should be possible, through careful planning, to gather or design materials that students will find relevant, useful and thought provoking.

Acknowledgment. They leave their three-dimensional humanity outside and enter the plastic world of EFL textbooks; textbooks where life is safe and innocent, and does not say or do anything. Our modern books are full of speech acts that don't act, don't mean anything ... Most textbooks project an Anglo-centric, male-dominated, middle-class utopia of one kind or another.(Prodromou, 1988: 79).

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On Peer Feedback in English Writing Classes in China

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Abstract. Writing, as one of the four major language skills, has been playing the same important role in China's EFL (English as a foreign language) classroom as the other three ones. It is an important activity which allows writing teachers to help their students receive more feedback on their papers as well as give students practice with a range of skills important in the development of writing ability. Peer feedback is viewed as one of the effective ways experimented in foreign language writing classroom. Literature shows that different researchers do it in different ways in their contexts. In Chinese college FLW (foreign language writing) classroom, the peer feedback activities can be tried by following "pre-peer feedback", "While-peer feedback" and "Post-peer feedback". The "pre-peer feedback" is the core that can assume the later steps and the activity quality.

Keywords: Peer Feedback, FLW, EFL.

1 Introduction

Writing, as one of the four major language skills, has been playing the same important role in China's EFL (English as a foreign language) classroom as the other three ones. All public English examinations in China, such as NMET (The National Matriculation English Test), CET (College English Test), TEM (Test for English Majors) and PETS (Public English Test System) include writing as one of the important items. However, "writing is a language skill which is difficult to acquire" (Tribble, 1996: 3). Teachers have been trying different ways to improve students' writing skills and ability. But most students just look at the marks teachers give and ignore the error corrections at all. Worst of all, if a student's composition is full of red ink, he may be frustrated and his interest and confidence in learning may be destroyed. Thus, it is necessary for teachers to explore effective ways to facilitate students' learning from errors and meanwhile help them to be able to avoid the above-mentioned troubles. Peer feedback is viewed as one of the effective ways experimented in foreign language writing classroom. But how to carry out the activities remains various.

In this paper, firstly I will review the literature about peer feedback and see how the peer feedback activities are done so that to find out some possible solution of how to do peer feedback activities in English writing class of college English majors.

1.1 Definitions of Peer Feedback

Peer feedback can simply mean feedback provided by peers, comparing feedback by teachers (Yang, 2004). It is sometimes mentioned as peer response, peer review, peer rating, peer assessment, or peer editing. Liu and Hansen (2002:1) define it in a more detail way as the use of learners as sources of information and interactants for each other in such a way that learners assume roles and responsibilities normally taken on by a formally trained teacher, tutor, or editor in commenting on and critique each other's drafts in both written and oral formats in the process of writing. Campbell (2003: 51) simply makes it into a workshop in which he can "step back into the shadows to get students collaborating in productive ways".

According to the above definitions, peer feedback in writing doesn't simply mean to correct grammar errors in peer's composition as many teachers and students usually regard. In this paper, peer feedback involves the procedure of training students, their giving feedback to and receiving feedback from one another during the process of negotiating ideas, revising drafts, and evaluating their own feedback while teacher takes the role as a trainer, monitor, helper and evaluator.

1.2 Reasons for Doing Peer Feedback

Generally speaking, peer feedback can provide useful feedback. Both Rollinson (1998) and Chaulk (1994) found from their experiences that their students considered over 80% percents of the peer comments were valid and useful and peer writers can and do revise effectively on the basis of comments from peer readers. Chaulk (1994) also pointed out that teacher's feedback was rather general, where students' responses were more specific.

Cognitively speaking, peer response activities in teaching L2 writing can force L2 students to exercise their thinking as opposed to passively receive information from the teacher (Mittan, 1989). In peer response, students can engage in unrehearsed, low-risk, exploratory talk that is less feasible in whole-class and teacher-student interactions (Feris & Hedgcock, 1998) and take an active role in their learning, thus to "reconceptualize their ideas in light of their peers' reactions" (Mendonca & Johnson, 1994: 746), while responding to peers' writing can build the critical skills needed to analyze and revise one's own writing (Leki, 1990).

In terms of linguistic benefits, students experience through collaborative group production valuable opportunities to improve their ability to read and write because the ongoing community orientation of this approach enables them to draw on the strengths and resources of their peers while sorting through their own growing knowledge of L2 writing (Hirvela:1999). They also have chance to explore the target language as they respond to their peers' drafts and discuss such issues as appropriate word choice and grammatical structures (Liu & Hansen, 2002). Peer interaction can help L2 students communicate their ideas and enhance the development of L2 learning in general (Mangelsdorf, 1989). To sum up, peer response activities give students more opportunities to discover and explore ideas, to find the right words to express their ideas, and to negotiate with their readers about their ideas.

In respect of social benefits, peer feedback can enhance students' communicative power by encouraging students to express and negotiate their ideas (Mendonca &

Johnson, 1994). Peer response activities help students gain confidence and reduce apprehension by allowing them to see peers' strengths and weaknesses in writing (Leki, 1990) sharing individual strengths and weaknesses in the group encourages connectivity in the learning community (Saito & Fujita, 2004). They may also open up new avenues for friendship through students' collaboration (Hirvela, 1999).

In all, the advantages of doing peer feedback in L2 writing class lie all in one side of students' benefits which mean to practice and improve students' different ability. This is, too, the right purpose that all teachers have been working towards.

1.3 Different Procedures of How to Do Peer Feedback

Many teachers and researchers have done some experiments and studies on how to use it properly. They draw up some theories as well as working out the procedure and steps on how to do peer feedback. Those steps are quite similar although they have their own focus according to their different needs. Here are some ideas.

According to Saito and Fujita (2004), to go through the peer feedback procedure, it needs three steps: training by modeling---telling the major items to comment---making comments, each of which is equally important to the success of the activity.

Sargent (1997) goes through "training by modeling, including showing major items to comment---grouping---commenting and monitoring---teacher's reflecting". Two more steps than those from Saito and Fujita.

Hansen and Liu (2004) declare that to do effective peer feedback needs more stages than people usually think about it, including "before peer response" which includes 13 steps, "during peer response" and "after peer response".

In sum, peer feedback activities usually includes three main parts: pre-peer feedback, while-peer feedback and post-peer feedback although different people have different ideas on the procedure of peer feedback and different contexts require different focuses on certain steps. Teachers should adapt it according to their own contexts and their own purposes.

2 Proposal of Doing Peer Feedback in EFL Writing Classroom

2.1 Pre-Peer Feedback

Pre-peer feedback plays the core role in the whole procedure, especially in Hansen and Liu's example. Rollinson (2004: 27) also shows that pre-training can help to have "awareness raising, productive group interaction and productive response and revision".

Teacher should first clarify the benefits of peer feedback as well as knowing exactly how to do the activities so that she can make the students aware that doing peer feedback is not for teacher's time-saving, but it is the process in helping them become a critical reader and writer. In this way students would probably become more cooperative with the teacher.

The second step in pre-peer feedback is grouping. Although there are different kinds of grouping, the author believes it's a better way to keep the fixed group for some time instead of changing it from time to time because it's not for an instant to set

up a group that can work effectively. It takes time for each member to get familiar with and get used to one another's way of sharing ideas.

It would be practical to have four or five members in each group otherwise there would be many groups in a class. It will be "less manageable owing to physical space restrictions and noise factors" (Liu & Hansen, 2002: 77) in the classroom as the author has mentioned above that there are about 60 students in one class.

Following grouping comes training. As shown above, training is the basic and key step in the whole procedure of doing peer feedback. Teacher should make the students know what to do and how to do in the peer feedback activities. Teacher may model an example first by giving a passage or a paragraph and show how to give feedback. It's necessary at this stage to clarify that peer feedback is not simply to correct grammar mistakes, but to think about how to interact with the writer; then to be an assistant to help the writer revise and improve the draft.

Content is the first thing to focus on because it can "help students share their experiences, idea and backgrounds" (Liu & Hansen, 2002: 5). Teacher can use a model paragraph and give some clues like "find out one sentence that you think is the best/most impressive", "choose the point that is clearly written", "tell us one of the point that you cannot understand". In doing this students may have a basic idea on what to do first.

Then, teacher can go on focusing on organization. It can help students as writers "structure their papers more clearly" (Liu & Hansen, 2002: 110). The useful questions to ask here are "Can you see the author's main idea clearly? Where can you see it?", "Can you find any linking words?", "Does the author signal the end of the paper?", "what signals does the author use to show the order of the steps?", etc. The teacher can use the similar way in terms of grammar.

When students get to know the steps of peer feedback, teacher can use another model paragraph to let students have a try, then report what they have done on it to check their understanding.

2.2 While-Peer Feedback

Now, students can take out their first draft (as the author mentioned before that she would not include draft writing in this thesis, so all the drafts are supposed to be ready) and begin their peer feedback orally. Teacher's role in class becomes a monitor and a helper if necessary. Campbell introduced her experience in peer feedback that teacher can "stand in a corner of the room watching and listening" (2003: 55) what's happening throughout. For example, if the author sees a student sitting silently with a group, looking out of the window, she would not ask him directly why he does so. The author would probably approach in that direction and stop on the way to talk to another student, then she would turn to him and talk to him.

Timing is another thing that teacher should control here. Teacher should tell students when to have discussion and when to write their ideas on the written sheet.

Teacher call take notes on some common items or some difficulty in order to explain them in class or make sure that some students need to have individual conference after class.

2.3 Post-Peer Feedback

In fact it is very important for the students to have a reflection on what they have done in the peer feedback as well as their thinking on their peers' feedback as Hansen and Liu mentioned above. For example, what comments has he received from his peers? Will he revise his paper following their comments? What achievements has he got in the peer feedback? Students can write these on a reflection sheet and hand into the teacher with the final draft. Students' self-evaluation is a good way for them to see what they have achieved and what needs to improve.

Finally, it's still necessary to have teacher's ranking and comments on the final draft. Teacher usually has the authority to balance some "too extreme" work. Of course it can not be overused. After all these steps, teacher should give a lecture on the whole procedure to tell the students what has been going on with their peer feedback. Teacher may collect ideas from the students and information about the process of the activities, just as Sargent suggests, building the lectures from students' exploratory feedback and teaching to their question and "they're more attentive because they know that their questions, their words, and their names might suddenly appear in a lecture" (1997: 50).

In a word, the author will consider all the perspectives of the problem she has ever had and her teaching contexts as well as, at the same time, trying to overcome the constraints of peer feedback activities when she has the chance to do it again. At any time, reviewing the relevant literature is surely helpful if some new problems may appear in practice.

3 Conclusion

It is beneficial for students to practice peer feedback in college L2 writing class because there are more advantages than constraints if appropriated implemented. Of course, Teachers should consider how to do it well by following certain proper procedures according to the contexts. Teacher should train and guide peer feedback at the early stage, monitors the activities and offer necessary help when doing it, and provide useful reflections at the end. Above all, teacher's goal of writing class, and thus of the peer feedback activities within the class, is to make writers autonomous and improve their writing ability.

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College English Teaching of Inter-cultural Communication for Non-english Majors under the Web-Based and Multimedia Circumstance

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Abstract. To cultivate non-English major college students' awareness and competence of inter-cultural communication has become the urgent requirement of era and globalization. English majors have specified curriculum of inter-cultural communication, while the non-English majors have understanding problems to overcome the cultural differences. However, the traditional classroom teaching mode is limited for non-English major college students to realize and overcome cultural differences. With the development of computer and web technology, web-based and multimedia teaching mode, internet resource provides a new way to develop college non-English majors' inter-cultural communicative awareness and competence.

Keywords: web-based and multi-media technology, inter-cultural communication, non-English majors.

1 Introduction

Inter-cultural communication is defined as the communication or interaction between individuals from different cultures. Because of the cultural differences, people with different cultural backgrounds have problems and barriers to communicate or understand each other. Therefore, college English teachers and students need to realize the fact of inter-cultural communication, discover and predict the possible consequences in the progress of inter-cultural communication and search for solutions to the problems. It is necessary for non-English majors to cultivate their awareness and competence of inter-cultural communication. In the traditional teaching mode, there are some difficulties for teachers to achieve that, while the web-based and multimedia teaching mode provides many conveniences. It provides sufficient resources for students to study and discuss, this brings more impressive teaching effect, leave deeper impressions about cultural differences.

2 The Differences of Inter-cultural Communication between College English Majors and Non-english Majors

For college English majors, they have a specified environment for English study. Their teachers have relatively loose curriculum arrangement, so they have plenty time to

explain cultural differences, even display various examples to support their ideas. English majors have specified curriculum of inter-cultural communication, they can learn detailed knowledge about cultural difference. They may combine the knowledge from this curriculum and their teachers' explanation from other curriculum together to solve the inter-cultural problems. So they have better environment to realize the cultural difference and have better inter-cultural competence. This may bring them some sense of satisfaction, therefore they have more interests to accept more cultural knowledge. Foreign teachers may bring better and more opportunities for English majors to accept the cultural difference. After thinking by themselves or explained by their teachers, English majors have better inter-cultural awareness and competence.

For non-English majors, English is obligatory course, they have their own majors to study. They have limited spare time for English study, English is just a tool for them to get a better future. They may not have great interest to learn English. On the other hand, they have countable even limited periods of class for English each week. Their English teachers have arranged course schedule to finish, they have limited time to explain the phenomena related to cultural differences mentioned in textbooks, even though time is permitted, the traditional teaching mode may not provide sufficient methods and materials for teacher to do that. Therefore, students may not have clear understanding of cultural difference, they have lower inter-cultural awareness and competence.

3 The Development of Inter-cultural Communication Teaching Based on Web

Inter-cultural communication teaching leads non-English native learners to achieve and understand the cultural knowledge of English. The main purpose of inter-cultural communication teaching is to arouse the students', especially non-English majors', cultural awareness of diverse culture, improve their competence of cultural difference, eventually to adjust to the development of globalization.

In the progress of inter-cultural communication teaching, teachers need to provide the knowledge of cultural difference, except teaching pronunciation, grammar, vocabulary and idioms.

The web provides limitless resources about diverse cultures for English teachers and non-English majors to study. The inter-cultural communication teaching under the web-based and multimedia circumstance is to fully apply the web resources during the inter-cultural communication teaching. The feature of it mainly displayed in two aspects.

The first one is the application of multimedia. Teachers may provide related images, audio, literal and video materials to explain the background cultural knowledge of passages from textbook. After watching or reading those materials from teachers, students could understand the related history and customs about western countries, furthermore, they have better understanding about the passage.

Those materials may arouse students' cultural awareness, those materials may also be applied the knowledge in students' daily life. Teacher, as the leader, guidance and organizer of class activities, may encourage students to search materials to support their ideas during the presentation and the communication among their classmates. Teachers, as the assistant of students' learning activities, may offer some help for

students to guide, finish or perfect their presentation. Such as providing some audio or video materials that students are difficult to get. Teachers, as the participant of students' learning activities, may also communicate or discuss students' ideas by using some multimedia materials. All of these activities may arouse students' interest to inter-cultural communication and solve some understanding problems when they do self-study after class.

The second feature is the application of web. It brings many conveniences for both teachers and students. Students may read the passage, check and learn the new vocabulary from textbooks before class through web, after preview, they may have some questions about the passage, they can communicate with teachers through BBS (bulletin board system) or e-mail if conditions are permitted. In this way, teachers can save much time in explaining the passage and vocabulary. Therefore, teachers may have more time to introduce some cultural phenomena mentioned in the passage. Teachers can also prepare some questions related to the passage, teachers may only give some tips to these questions and leave the students to think about any possible answers to the questions. In this way, students may practice their critical thinking ability. Compared with the traditional teaching mode, web class provides flexibility to the interaction between teachers and students, encourages students to analyze questions or phenomena from different aspects, cultivates students' learning interest, and the related cultural communication is good for improve students' competence and awareness of inter-cultural communication.

4 Conclusion

Inter-cultural communication based on the common regularity of human's thought, emotion and behavior. However, the communicative rules are affected by the social, cultural and environmental factors, the cultural difference emerges. In the era of globalization of economy, politics and information, Chinese college students, especially non-English majors, face the situation of globalization in different areas, different levels. The present situation requires college English teaching to cultivate college students' the inter-cultural communication competence and awareness.

The application of web and multimedia teaching mode changes the traditional teaching mode, provides better environment for students to learn English, saves time for teachers to explain cultural phenomena related in class, arouse students' learning interest.

All the above brings conveniences for teachers to introduce cultural knowledge to non-English majors. The application of web and multimedia teaching mode can provide the students with a real and natural environment to practice English, beyond the classroom space and the time limit, with any one in the whole English world. This activity can really contribute to the improvement of students' English communication ability and stimulate their English learning interest. in addition, their newly learned computer-mediated communication skills can not only start them off in surfing the internet ocean but also gave them much confidence when facing the fast globalization world. This challenging, stimulating and promising network-based teaching practice is bound to flourish in the near future in china's universities.

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The Formation of Cultural Stereotypes in English Language Textbooks

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Abstract. The conventional way for native Chinese learners to learn English is mainly through textbooks studying. As culture and language are inseparable, language textbooks, therefore, must carry cultural information which would shape learners' cultural perception of the target language. This paper will examine how stereotypes are brought to students in language textbooks by analyzing Communicative English for Chinese Learners, and look for strategies that would be used to avoid stereotypes while writing language textbooks.

Keywords: textbook, stereotype, language teaching.

1 Introduction

The conventional way for native Chinese learners to learn English is mainly through textbooks studying. In fact it has long been realized that language textbooks would inevitably reflect and respond to the target culture, for the learning of language is inseparable from the learning of cultural. Theories are proposed by many researchers, based on researches carried out in EFL classrooms in different parts of the world, supporting the idea that textbooks may construct and carry messages of the target culture to the learners [1, 2].

It is commonly regarded that there is an enormous need for cultural teaching through textbooks, which will be undoubtedly beneficial to learners. However, the cultural involvement in language textbooks sometimes poses a dilemma to both teachers and learners. On the one hand, with the increasing attention paid to cultural studies, learners are granted better opportunities to know the milieu from which the language grows. While on the other hand, textbooks entail a risk of inconsistency and misrepresentation in providing information about the target culture. This, therefore, may lead to stereotypes and overgeneralization of the target culture, or strengthen and harden their existing stereotyped images. The result of this would be, as Clark and Clark stated: "(students) suffer from misinformation and ignorance leading to prejudice in their relationship with a culture which they meet partly, or uniquely, in the illustrations and texts of a TESOL textbook." [3].

Stereotypes and overgeneralization are indeed very hard to be completely avoided; yet it is still possible for textbooks designers to minimize such negative impact. By analyzing the images—which are created in the textbooks called Communicative

English for Chinese Learners—of people from different countries, this paper is written with an attempt to find out how textbooks bring stereotypes to learners. At the end of this paper, it is hoped that through the analysis of the data collected, there may be better ways to overcome stereotypes by using strategies in textbooks compilation.

2 Stereotype and Textbook Evaluation: Literature Review

2.1 Defining Stereotype

The concept of stereotype was first put forward by Lippman [4] in 1922: “A pattern of stereotypes is not neutral. It is not merely a way of substituting order for the great blooming, buzzing confusion of reality. It is not merely a short cut. It is all these things and something more... The stereotypes are, therefore, highly charged with the feelings that are attached to them.” Stephan further developed stereotypes into two categories: non-social group and social group. Stereotypes share a similarity with generalization when we make about the nonsocial categories. Examples such as stereotypes providing us the expectations that guide us to interact with people of different occupation and personality are raised. But when stereotypes are of social groups, they are often negative and incorrect, though positive stereotypes do exist sometimes. „When they are negative, they lead us to expect negative behaviors from outgroup members [5]. When it comes to the learning of culture, however, based on Stephan’s definition, stereotypes tend to do more harm than good to learn other’s culture, for culture itself is a social norm. Gahagan further explained the reason for the observation made above: “(stereotypes are) beliefs about the characteristics possessed by some group members and possessed therefore by any members of that group [6].”

The theories above suggest that stereotyped images or values of the target culture hinder learners from building a correct attitude, and thus influence their establishment of culture awareness.

2.2 Textbook Analysis

A clearly defined guideline is very important to any evaluation. Byram holds that language teaching must give learners “empathetic understand of (part of) the culture, and an increased understanding of learners own culture.” Byram has developed a list of content on which textbooks and language course should be based, which includes: 1) social identity and social groups; 2) social interaction; 3) belief and behaviour; 4) social and political institutions; 5) socialization and life-cycle; 6) national history; 7) national geography; 8) stereotypes and national identity [7].

This paper will adapt Byram’s list of content as the pattern of analysis for textbook evaluation. The textbook that is to be evaluated is called Communicative English for Chinese Learners (CECL), which is designed for English-major students and is currently used for the core course in Guangdong University of Foreign Studies. The CECL series consists of eight textbooks, which have to be finished within the first two years of the students’ four-year undergraduate study. The textbook series was first published in 1979, and here being analyzed is its second edition.

2.3 Research Questions

The primary purposes of this project are to see how British culture is stereotyped and to look at ways to overcome stereotyping British culture in textbooks.

The paper tends to answer two main questions:

1. Does the cultural information reinforce or even create stereotypes in students perception of British culture?
2. Why does the information help create cultural stereotypes?

2.4 Research Methodology

Textbook analysis is the first step of the research. First of all, information about British culture will be sorted out under thirty-two categories, which are covered by all seven aspects in Byram's textbook evaluation list of content. Then the research will focus on how British culture is presented by evaluating the relevant information found in the textbook.

In the second step, a questionnaire (found in Appendix) is designed to test whether this information cause stereotypes. The fourteen questions are based on the possible stereotypes that the information about British culture found in the textbooks may bring to students. The questions are stereotypical statements of British culture. Students may choose "Agree", "Not Sure" and "Disagree" to judge each of the statements.

Two groups of students are chosen to be the subjective: twenty sophomores who have just finished all of the eight CECL textbooks (called C group in the passage below); and twenty graduate students who used CECL textbooks before and are studying or have studied in the UK (called U group in the passage below). Their responses to the statements are to be compared, and the differences in their responses will be evaluated to find out: what British culture is like in their minds respectively and why.

3 Research Findings

The data collected show that there are significant differences between the two groups of students. The percentage of students who agree with the stereotypical statements is higher in the sophomore group than that of the other group, which means the stereotypes in CECL textbooks, if not cause, at least reinforces students' stereotypical perception of British culture.

The first finding is that people from the U group would be in a better position to distinguish stereotyped representations from reality. The data of the questionnaire section one show that except for question 1, respondents from U group have a lower percentage of agreement with the expressions in the rest of the questions, which are stereotypes or overgeneralizations. It proves that U group respondents are less vulnerable to stereotypes, while C group respondents are more prone to believe in stereotypes.

The second finding is that people from the U group have more positive attitudes towards Britain and British people. This finding is tenable while dealing with negative stereotypes. For example, it is true that less U group respondents think British people

are conservative. However, I fail to prove my assumption to the maximum extent. In answering question 11 and 12, which deal with positive stereotypes such as the openness and keenness of the British people, U group people show a more negative attitude than C group people. Thus I am reluctant to come to my second assumption.

It is also interesting to note that U group people are more prone to select the answer “not sure/neutral”. In responding to seven questions out of fourteen (question 1, 3, 5, 6, 7, 10, and 12), the number of U group people who choose to stay neutral outnumbered those of C group, with three of the rest questions having the same number. The answers to the second interview question “If you were asked to fill in the questionnaire before you coming to the U.K, do you think there might be some differences in your answer?” from my interviewees throw some light on such change. Among four of the interviewees, three of them admit that their answers would be different. To be more specific, all three people mention that their attitudes to question 2, 4, 5, 13 and 14 have changed after living in the U.K for a period of time.

Such phenomenon indicates that U group people start to rebuild some of their original perceptions by providing hesitant answers. They begin to doubt the stereotypes, which show they are on the process of overcoming stereotypes.

3.1 Possible Causes of Stereotypes in Textbooks

3.1.1 A Lack of Variety in Cultural Presentation

Due to the restricted length of textbooks and the vast content the term „culture“ contains, it is impossible for textbooks even those as extensive as CECL to cover every spectrum of British culture. What „diversity“ means is not to provide as much information about Britain and British as possible. Instead, it means that whenever a topic or an issue is brought forward to the students, it should be presented from different dimensions to avoid drawing a too rigid and unchangeable picture; or at least indicate other than what is presented in the textbooks other possibilities might at the same time exist. One comparatively obvious weakness of CECL is that it does not show the picture from different angles, thus it sometimes demonstrates a less variable and colorful Britain than the country really turns out to be. Take the description of the British as an example. Nine British people are described in the textbooks, and interestingly, all of these people are “slim”; six people’s heights are mentioned, four of them are “tall”; one man out of four mentioned wears casual clothes, with the rest of them wearing suits and ties. Only two cases have been found where people’s personality is described, and in both cases the word “conservative” is used. When it comes to the Americans, all of them are casually dressed in the textbook.

3.1.2 Presenting Negative Traits

As it was stated in the literature review, most stereotypes are negative perceptions about other culture. So the textbook writers should be extremely cautious when selecting negative images in representing a culture. It does not imply that they must not select negative images in EFL textbooks, but the textbook writers need to take into account that these negative images should avoid reinforcing the already existing stereotypes perceived by the students. For example, only negative images of them are shown to the students. There are three items found under the sub-category „Ethnic and

minority groups“, but all of them are talking about riots caused by the black British. Though our common sense tells us that not all black British are bad, the sheer link between black British and riots is very negative, thus the image of black British is stereotyped. Another example is that the only passage on marriage is about divorce, which is considered quite negative and will easily cause stereotype.

3.1.3 Outdated Information

CECL was first published in 1979, and since then few information has been updated. Cultural information about Britain is not fresh, some of which can even be dated back to the early 1950s. There are two disadvantages of this: first, students may lack interests in learning this outmoded information; and second, culture is changing with the development of the country. The outdated information keeps students learning the past of the country, which may strengthen the stereotypes that they already have.

4 Conclusions

So far, the two research questions have been answered. The British cultural information, after comparing the statistics of the two groups, may reinforce or cause stereotypes and thus hinder students from developing cultural awareness. As regards how stereotypes are created in textbooks, there are mainly three reasons, namely, the lack of diversity, carelessly chosen negative images, and outdated information. It seems that people who are less familiar with the target culture were more prone to believe in stereotypes.

The different attitudes towards stereotypes held by people from two groups provide a foundation for further research. This paper could be taken a step further by investigating in what aspects people change most dramatically, or try out the suggestions here provided with students to prove the validity of the suggestions.

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Writing-Research on Vocational College English-Teaching Based on Web-Blog

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Abstract. This paper constitutes an attempt to explore utility of blog for improving teaching of vocational college English writing. The paper analysed the superiority on blog-writing teaching and the current problem in students' writing. Results show that use of blog in teaching English writing is conducive to the improvement of students' writing.

Keywords: Web-blog, Writing-research, Vocational college english.

1 Introduction

In recent years, blog as a new type of network virtual community has developed rapidly. It is a kind of effective knowledge shifting- mechanism and also a knowledge management tool, whose character win the universal attention in domestic and education fields. At the same time, China's vocational education presents the good developing momentum especially the rapid development in higher vocational education. And how to improve the higher vocational students' writing level has been a popular topic with the centering on ability superior to knowledge. This paper is talking about the combination between the blog-writing's superiority and the English writing teaching practice in order to preferably serve for the Higher vocational college english teaching.

2 The Analysis of the Current Internet English Blog

For the convenience of better learn English, and better communication with others, many English learning websites have introduced a blogger for free use. If you enter "english blogs" in google, one can see more than 582,00000 pieces results. For example, Li Yang's english blog, HJenglish.com, 24en.com and so on. This prove english learning blogs on the Internet have been very popular. Modern foreign language teaching theory believes that the achievement of foreign language acquisition is closely related to two factors: one is the language ability and the other is emotion. The blog's emotion motivation function shows that A blog is a effective tool on students' self-motivation, teacher and student two-way encouragement and blogging groups' mutual encouragement. Many English teachers have began to require students to write their own network, and share the blog to the class after finding blog's unique charm and miraculous effect.

3 The Problem in English Writing Teaching

Not paying much attention on writing, backward teaching approach, limited teaching equipment and the shortage of teachers are the existing problems in higher vocational college English writing. The teacher should highlight writing's practicality, communication and the need of the actual use of English. At the same time, only checking spelling and grammar errors or just giving a simple mark make students lose the interest to write.

4 The Superiority of Web-Blog in Writing Teaching

4.1 Aided Classroom Teaching

Comparing with the classroom teaching, web-blog aided English teaching is obviously the extension of classroom teaching. Teachers can issue the teaching tasks, auxiliary materials, learning tasks, learning aids and learning plans by class-blog. Teachers also can evaluate the level of students' English writing and provide links of learning resource. The students can read and appraise others students' writings by web-blog.

4.2 Encouraging Collaborative Learning

Through converting the English learning materials to some scenes, web-blog can provide real, vivid and extensive learning materials by writing and providing video to readers. For example, we can arrange an English writing task or topic that all students should participate in writing and discussion. The collaborative learning can attract more students to join in the learning group, so the students' English writing ability can be improved.

4.3 Stimulating Function

The comment and reply function of web-blog provides a learning platform for students to think deeply. Through reading the suggestions and comments, all students can rethink profoundly. By recoding the learning procedure, students' reflection ability and learning ability have been improved. In the end the students achieve the purposes of "learning to learn". At the same time their learning efficiency can be improved. The feeling excitation function of web-blog expresses the students' self-excitation, excitation between teacher and student and excitation among web-blog groups.

4.4 Forming Knowledge Management System

The teaching method of Communication type and collaborative learning in modern English teaching world requires the wide range interchange in teacher-student and student-student. It requires the wide range cooperation when students finished their learning tasks. The student can get the knowledge from the efficient cooperation learning. Based on the web-blog, the English writing teaching article including all

kinds of comments can be saved in web-blog and formed a knowledge system that lists in chronological order.

5 The Design of English Writing-Teaching Based on Web-Blog

In the teaching practices, the first condition is the sufficient support of hardware and software. This require that the college can supply the computers and network. At the same time, the professional can solve the questions in computer network from student. First teacher should build a web-blog page in network. The network should select the large scale net station of web-blog, for example Windows Live Spaces, facebook, twitter and so on. When designing writing tasks and targets, should be planed as a whole by a semester. The teacher can demand that student write a article per week or per ten days. The topic can be come from teacher or student self. The teacher should encourage the student writing for themselves, and recoding own life. When finishing the writing, the article and the teacher's comment can be show in web-log for other students reading. After about ten week, teacher selected three out of ten students' article to require student to rewrite, then teacher give score. Of course, most of students want to grasp the main chance to get a good score, then they must be thought and revised the old article. By the fifth week or end of term, teacher requires student edit their web-blog and select the best one article. At the same time teacher requires the student write down the their learning Summary for the semester based on the their web-blog materials. The summary should show in their web-blog for shearing and exchanging with other studebts. So the lots of little progress of student can be recorded in chronological order. After the a lots of writing, the learner finished a procedure including "writing-recording", "thinking-shearing" and "knowing-learning". The writing theme can be Essays or Proposition practice, but require teacher should comment to every writing. Certainly learners also can write comments each other. By the method, the good article can be shared and the learner can know the dynamic interview, learning and progressing procedure of themselves. As a learning record and Digital Archive of vocation college english writing, many teachers can share their teaching experience with other teachers by the web-blog.

During the process, we may design some questions to remind students' creation:

1) Purpose and ideas

Is the writer's purpose clear?

Do we undemtand the main idea?

2) Structure of text

Is it easy to follow the development of the ideas?

Would it help to rearrange the sequence of ideas?

Are the ideas grouped together in a suitable way?

Should any of the paragraphs be joined together?

Should any of the paragraphs be broken down into smaller units?

3) Response as readers

Are there any points which we don't undemtand?

Are there any points which are not necessary?

Are there any points onwhichwe needmoreinformation?

6 Practical Result

In order to validate the blog-writing's effect, we made a experiment on class 51011. Many students in this class will attend CET-4, eagerly expecting to improve their abilities. Their are 54 students in this class, many of them had little knowledge of English and had a negative attitude to the writing class when entering the college. After the a half-semester blog-writing practice, their writing contents and completion time have obvious improvement. The blog designed by students themselves has colorful interface and positive contents. The amount of browsing has steadily increased. They said their English communication skills are improved besides the increase of experience. They also increased great interest in writing and strengthened teamwork's cooperation. Students gave full play to their own personalities and abilities by participating in the whole process of the classroom teaching activities. They really become the subject of teaching.

7 Conclusions

One of a big advantage in blog writing-teaching is the network can provide timely huge amount of information on themes. If students has grasped rich writing theme, it will help him make writing-conception. Voss, Tyler and Yengo have verified this viewpoint, but Hayes, Schriver, Spilka and Scadamalia discovered too rich subject knowledge also may lead to bad writing performance. Observing from the logic, the knowledge of the writing subject just necessary condition not a sufficient condition. For the network composition teaching, the shortage of the information ttwill affect the quality of the composition but the huge amount of information may also make students disoriented and confused.

It is testified that the tested students has greatly increased in the sentence patterns, content to the point, and text coherent. This study found the conjunction point between blog technology and the teaching of English writing. Blog-writing enhanced the effective English writing and improve the effect of college English writing. However, blog-writing is still at the stage of exploration, essay scoring standards can be more objective. The teaching of English writing under the environment of blog-writing has still a lot of space for research. Its application field will become more and more widely.

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Application of Action Research in Translation Teaching

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Abstract. Action research is a kind of systematical reflective activity and a recycle process as well, including planning, acting, observing and reflecting. Aiming at improving students' poor translation ability, the author has conducted a series of empirical translation teaching experiments based on the application of action research theory. Through the description and analysis of the process of this action research, this thesis reflects on the findings and insufficiency of this action research and works out the translation teaching strategies in the future.

Keywords: action research, translation teaching, application, reflection.

1 Introduction

The complexity, peculiarity, flexibility and diversity of translation subject have decided that the flexible methods must be adopted in translation teaching. The traditional translation teaching applies the modes that teachers teach translation skills in class and the students do translation exercises after classes. Teaching arrangement has such large capriciousness that the key points can not be emphasized. Since the early 1950s Chinese scholars have made great efforts to probe effective translation teaching methods, putting forward all kinds of translation teaching modes in order to conduct further exploration. These translation modes are “reduction translation”(Lin Renliang), “back and forth translation”(Bai Xi), and “grammar translation”(Fang Fang). After the reform and opening-up policy in 1980s, many translation teaching modes appear in a rash, such as “practical segmentation method”(Zhu Daqiu), “translation works comparison method”(Guo Zhuzhang), “criticism method”(LiuQuanFu), “teaching process”(Zhou Weijie), “task-based teaching”(Zhu Yuefeng), etc. Although the importance should be attached to improving students' translation ability, we note that there are few theses on applying action research theory into translation teaching so as to improve students' translation ability.

2 Definition of Action Research

The concept of action research first appeared in the United States, and it rose again in 1970s. After that it started to be applied into teaching theories. Action research is a kind of systematical reflective activity. Teachers involve directly into the teaching activities

to conduct investigation and research according to the problems arose in teaching on the purpose of improving continually their teaching skills to achieve the best effects, and solving the problems in teaching. Action research is a recycle process, including planning, acting, observing and reflecting. McNiff (1988) divided action research during teaching process into five specific steps: First, finding the problems in teaching; Second, assuming a solution; Third, implementing the methods in teaching; Fourth, investigating and collecting data and evaluating actual effect; Fifth, assuming the new problems in teaching for the next round of teaching on the basis of the analysis and evaluation.

3 Characteristics of Action Research

Herbert, Posch, and Somekh summarize five features of action research: (1) Action research is the study that the direct participants study their own social activities. If a classroom is regarded as the society environment, the teacher is the direct participant and executor in teaching. Therefore, action research is the practice that problems are generally put forward by the teacher according to the different nature of problems and the research may involve the teacher himself and his own students or may also involve parents and the principal. (2) Research problems proposed in action research are the most specific and actual ones the teacher meets in the daily teaching (3) Process and target of action research must accord with the overall educational values, school environment and teachers' working conditions. Through research the teacher can further improve their understanding of educational values, the teaching environment and teaching effect. (4) Action research adopts a set of simple methods of study. The determination of research methods depends on the need of research and the actual research condition under the condition that it should not interfere with the normal teaching order. (5) Research method is not the key point that action research is different from other study. The key point lies in that action research advocates to continually promote the process of action and reflection, finding new action plan through the reflection, and the action plan must be returned and tested in practice. The effective plan will be developed and promoted widely.

4 Application of Action Research in Translation Teaching— A Teaching Case

4.1 Subject

Two hundred and thirty-three non-English major sophomore students from Harbin University of Commerce with the course book entitled *college English*.

4.2 Problems

In the process of teaching, the author finds that students' translation level is low. After finishing learning college English I, the average score of students' Chinese-English

translation in the final exam (from test bank) is only 6.71, which is the worst score in all parts of the test; only 21.7% of students passed translation part. This situation can not meet the curriculum requirements about translation ability. The author proposes the assumption causing the students' poor translation ability: (1) Students fail to attach importance to translation study and ignore the cultivation of translation ability; (2) Students lack the translation skills; (3) Teachers stress on explaining the vocabulary and grammatical rules and ignore translation skills guidance; (4) Students don't do enough translation exercises in class; (5) There are little extracurricular translation exercises for students. In order to verify the above assumptions and find out the real reasons for the students' poor translation ability, the author conducts a survey in the teaching class in second semester. The subjects are two hundred and thirty-three sophomore students from Harbin University of Commerce mainly majoring in accounting, financial management and administrative management. The data analysis of students' translation problems (based on the SPSS13.0 processing) shows that students don't think that translation is not important. Questionnaire shows that 87.3% of the students think translation more important, but the author finds that 45.9% of students think they can master some translation skills in class; the percent of students who do extracurricular translation exercises accounts for 45.9%. Apparently there are two reasons for students' poor translation ability: first, the students lack translation skills; second, teachers fail to give translation skills guidance in class.

4.3 Action Research Plan

Based on the above problems about students' translation ability, the author formulates the action research plan for a semester: first, strengthening guidance on translation methods and skills. Though many students have mastered enough vocabulary, they may not know how to work out the translation problems. The reasons mainly lie in that they don't understand the difference between Chinese and English language structure and lack the translation skills. So it is necessary for teachers to teach students translation methods and skills in class. Second, doing proper translation exercises. Translation is a kind of practice, and skills are only applied into extra-curriculum practice to get a good effect. A large number of translation exercises can cultivate students' translation ability. Third, recommending extracurricular bibliography and extracurricular translation guidance. Due to the limited time in class, students are encouraged to make full use of extracurricular time to do effective translation exercises.

4.4 Application of Action Research in Translation Teaching

The teacher invites other translation teachers and some students to classroom to observe and record the teaching process. The content of observation must be determined in advance in order to make observation more targeted and accurate. From the first week as planned translation skills and exercises are taught in class. In every intensive-reading class when explaining the language points, at first, some Chinese sentences are shown for students to translate into English. These in-class exercises not only let students practice translation skills but also let the teacher explains translation

methods and skills appeared in the translation exercises accordingly. At the same time every week students are assigned some proper translation homework and are required to complete them independently. The teacher corrects some assignments so as to correct some common errors in the next lecture. Other assignments are assigned to each group to discuss and correct. At the end of the fifth week students are interviewed and some necessary changes in action research teaching plan are made according to the student feedback information. From the fourth week students are divided into 10 groups to do some translation activities, including grading and discussing translation assignments and finding topics and materials they are interested in and translated into Chinese or English. The translation works are encouraged to shown in various ways such as works attached some illustrations. The teacher gives guidance to each group. In the eighth weeks each group exchanges their works and amendment opinions. In the ninth week each group modifies their works according to the amendment opinions. In the tenth week each group hands in their translation works, and then the teacher and students choose the better works as the group translation production. From the eleventh week each group begins the second round of the translation activities. During the experimental process the teacher insists on keeping the log. The teacher consciously records what he observed, what he heard, and what he felt in the process of teaching. Through timely analyzing and summarizing these materials, the teacher gets over-all understanding of their practice and provides the effective reference to find and solve the problems. At the end of the semester, the second survey among two hundred and thirty-three sophomore students is conducted to collect feedback among which two hundred and twelve questionnaires are valid.

4.5 Reflection of Action Research

4.5.1 Students' Learning Effect

In the final exam of the second semester, we are delighted to find that the students' translation scores increase greatly. Students' average score rises from the previous 6.71 points to 8.37 points; 65.9% of the students passed the translation part in the exam. Exam papers are also from test bank, and teachers didn't change their teaching class.

4.5.2 Translation Methods and Skills

Translation is part of the integrated foreign language ability and is one of the major criteria to measure foreign language level as well. Mastering the methods and skills is crucial to improve translation ability. Based on the score of the question in questionnaire of "grasping certain translation skills in class" having been risen from 3.14 points to 4.48 points, we can come to the conclusion that the mode proved to be effective that in class the teacher explains the translation skills by showing the Chinese sentences and asking students to translate them. In the interview we know that students like this way of explaining language points, thinking this method is very effective, on the one hand, it can help them learn language points effectively which are tough for them to learn before; on the other hand, they can know how to do the translation. When translating students gradually learn to consider the difference between Chinese and

English, begin to consider the difference in part of speech between Chinese and English, and know some strategies to deal with long sentences. Therefore translation is indeed comprehensive ability which contains input and output skills and the ability to understand and use two languages.

4.5.3 Translation Practice

Translation is a kind of practice. Translation ability will get promoted only after the method and the skill are applied into practice. Though the mode proves to be effective that in class the teacher explains the translation skills by showing the Chinese sentences and asking students to translate them, most students get the chance of doing translation exercises. Because of the large size of class plus the limited in-class hours, not all of the students are able to think and practice in class. So after-class translation exercises are essential. In order to make students do extracurricular practice, we divide the class into 10 groups, on the one hand, they may discuss and correct the translation errors made by other groups together, on the other hand, the students can exam and supervise each other to do extracurricular practice. After each class the teacher assigns extracurricular exercises, and organizes the extracurricular translation activities. More and more students are willing to do extracurricular translation exercises. According to the investigation findings we find that the percentage of students who choose “never do extracurricular exercises” or “occasionally do extracurricular exercises” dropped significantly from 69.3% to 31.6%. This shows that extracurricular practice guidance has certain effect.

4.5.4 Teachers' Harvest

Action research not only makes the students to be influenced positively, and more important, the teacher increases understanding of the teaching process in the process of plan implementation, and increases understanding of students. By making the feasible action plan to solve the problems in teaching, the teacher brings the affirmation of themselves. Through this action research, the author also notices some problems: First, translation teaching needs to be combined closely with students' professional knowledge. Through the interview students hope that the teacher shows more specialty-related examples which reveal the demand that translation teaching should combine students' specialty as far as possible. Second, action research activities try to be as funny as possible. If the extracurricular exercises are so boring that students who are not interested in them will give up the opportunity to practice. So teachers are suggested to add some simple film dialogue translation or speech translation exercises on the spot. Third, the means of action research need to be varied. Take this action research, the teacher uses various ways such as the questionnaire, teaching diary, interview, observation, analysis, etc. Although this mode increases the difficulties in sorting data, large information collected enable us to understand the students deeply and strengthen understanding and thinking of all aspects of the teaching process. Fourth, action research plan needs to be designed practically and reasonably, because the design of the program is to embody the teachers' ability to analyze and solve problems. Plan must be designed for solving the problems and considering fully the students' English level and individual differences.

5 Basic Requirements of Translation Teachers in Action Research

From what can be seen, action research is different from the traditional research in the sense. In action research teaching process, the role of teachers can not be underestimated. They are both concrete teaching participants and also executors of action research and sometimes they are the subjects of action research. So, the teachers' professional quality and translation theory level will directly decide the success or failure of action research. Most of translation teachers are the backbones of the school with the abundant teaching experience. But the action research not only requires the teacher to possess the solid language foundation, but also requires them to know some specific linguistic knowledge and language teaching theories. In addition translation teachers are still required to know teaching environment well, to have an over-all understanding of their own strengths and weaknesses and to have a good understanding of students' psychological problems.

6 Conclusion

Through this action research we can safely draw the conclusion that not only the students' translation abilities have improved to some extent, but also the emotion and communication between the teacher and students have been enhanced. The attitude that the teacher keeps informed the teaching effect and overcomes the weaknesses has left students a positive effect.

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A Study on Learners' Beliefs about Learner Autonomy in English Language Learning

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Abstract. The main aim of college English teaching is to realize learner autonomy of English learners. Learners are now increasingly encouraged and expected to play a more active role in the learning. Many researches have been conducted on learner beliefs in language learning or learner autonomy, but few of them involve the learner's beliefs about learner autonomy. This paper reports the results of a comprehensive investigation into Chinese college students' beliefs about learner autonomy. The findings of the study will provide a general picture of learner beliefs held by college students in China and their link with learner autonomy. It can be expected that these findings will help foreign language teachers and learners further understand learner beliefs about learner autonomy, which may enable them to achieve successful college English teaching and learning.

Keywords: learner beliefs, learner autonomy, English language teaching.

1 Introduction

With the promotion of life-long learning, more and more educators have realized that it is quite necessary to equip the learners with the tool of learning and the aim of education is not as simple as knowledge transmission. Rather, the end product of education is an independent learner (McDevitt, 1977:34). Learner autonomy is not only the means to the end of effective learning, but also the desirable goal of education. No students, anywhere, will have their teachers to accompany them through their life (Littlewood, 1999).

The theory and practice of learner autonomy has become increasingly popular in foreign language education, which has inspired much insightful research (Gremmo & Riley 1995). According to Holec (1981:3), learner autonomy is an ability to take charge of one's own learning. Like its forerunner, communicative language learning, it is starting to be an unquestionable goal and integral part of language learning methodologies throughout the world(Hayo Reinders). Therefore, language teachers should consider promoting learner autonomy as their primary goal in language teaching, and teach students how to take charge of their learning as well as teaching them knowledge.

Second language learners are not always conscious of their individual learning styles, but virtually all learners, particularly older learners, have strong beliefs and opinions about how their instruction should be delivered. These beliefs are usually based on previous learning experiences and the assumption (right or wrong) that a particular type of instruction is the best way for them to learn. Learners who have undergone a systematic education process develop certain beliefs about how learning should take place. In language learning, beliefs and attitudes are shaped not only by the educational environment but also by family and social values. These influences on approaches to learning a language may encourage learners to experience new methods of learning, or conversely constrain and restrict their desire for a new learning experience.

This paper is going to focus on the investigation of college students' beliefs about learner autonomy. The main aim is to discover whether students are ready to accept learner autonomy so as to help teachers know more about students and choose proper methods to guide them fostering learner autonomy.

2 Literature Review

Over the last two decades, the concepts of learner autonomy and independence have gained momentum, the former becoming a “buzz-word” within the context of language learning (Little, 1991:2). Nowadays, autonomy is widely accepted as a desirable goal in education, and “few teacher will disagree with the importance of helping language learners become more autonomous as learners” (Wenden, 1991:11).

The growths of the interests in autonomy in education have occurred in the twentieth century in the Western liberal thought in the field of philosophy, psychology, politics and social sciences (Holec, 1979; Grakes & Grundy, 1988; Little & Singleton, 1989; Littlewood & Nunan, 1997). Some theories in these fields reconcile to bring about the concept of autonomy, which has since found a place in the mainstream education. Some approaches to educational psychology — humanism, constructivism and cognitivism — had a profound impact on the advocacy of autonomous learning.

Some approaches to educational psychology — humanism, constructivism and cognitivism — had a profound impact on the advocacy of autonomous learning. Humanism, in particular, has promoted the growing recognition of learner autonomy. Humanism focuses on the positive aspects of the people, their inner-directed conscious motivation and self-directed goals, which stresses understanding, personal assumption of responsibility, and self-realization (Stevik, 1990). Humanistic psychology asserts that learners should undertake responsibility for their own learning and make decisions about their learning. From the humanistic point of view, the primary function of education is to help students to develop the individuality, to assist them in realizing the potential that have already existed within them.

Rogers, a famous humanistic psychologist, proposes that educational objective is to develop human's adaptability and autonomy, and which has important implications for education (Rogers, 1983, quoted from Curran, 1972). According to him, learners can take their own responsibilities for their spontaneous activities, use their experiences freely and creatively, and cooperate effectively with others. The goal of

education is the facilitation of change and learning, and learning how to learn is more important than just being 'taught' by a teacher who unilaterally decides what shall be taught. Rogers' theory has contributed significantly in recent years to the redefinition of the educational process, and meanwhile, has inspired many a teacher to consider the importance of the empowerment of students in classrooms (Brown,2001).

Strongly linked to humanism, constructivism is also concerned with the individual's personal meaning or experience, which posits the view that individuals should reorganize and restructure their experience rather than internalizing or discovering objective knowledge. In Candy's terms (Candy, 1991:270), constructivism "leads directly to the proposition that knowledge cannot be taught but only learned (that is, constructed)", because knowledge is something "built up by the learner". Furthermore, language learning does not involve internalizing sets of rules, structures and forms; each learner brings his/her own experience and world knowledge to bear on the target language or task at hand.

For constructivists, learning is viewed as a self-regulatory process of actively constructing new understanding from the learner's experience, prior knowledge and collaboration with others. The teacher assumes more of a facilitator's role and the learner takes on more ownership of the ideas, thus the learner is brought into the central focus, and this is one of the most important features of constructivist learning (Duffy et al. 1991:291).

The constructivist theory has recently been related to the field of autonomy primarily through the work of David Little (1991, 1994). The key idea that autonomy in language learning has borrowed from constructivism is that effective learning is active learning, i.e., students actively involve themselves in various stages of learning process, such as setting goals and monitoring their own work. All in all, learners are responsible for their own learning in constructivist approaches (Benson, 1997).

Learner autonomy is also closely related to cognitive psychology, which emphasizes learners' mental processes (Wenden, 1997). The development of learner autonomy gains support from the notion that knowing and thinking develop with experiences. Cognitive approaches to communicative language teaching are based on the view that learning a language is an individual psycholinguistic act. From this perspective, language learners construct a mental model of a language system, based not on habit formation but rather on innate cognitive knowledge in interaction with comprehensible, meaningful language (Chomsky, 1986).

Learner belief is the knowledge held by language learner about various factors in language learning process, about how to learn language knowledge, language skills and communicative competence. Learner beliefs are formed either through personal experience or influence from other people (Wenden, 1991). When language learners, especially adults, come into the classroom, they bring with them a variety of beliefs or assumptions about language learning. According to Victori & Lockhart (1995:224), learner beliefs consist of "general assumptions that students hold about themselves as learners, about factors influencing language learning and about the nature of language learning and teaching which may have a profound influence on their learning behaviors". These assumptions are the result of their own experience. They are also the result of their personality, the educational theories they have been exposed to, their cultural background, and many other sources (Ellis, 1995).

Although researchers share some differences in their ways of defining learner beliefs, they all suggest that beliefs influence students' behaviour, i.e., language learning strategies or students' approach to language learning (Abraham & Vann, 1987; Horwitz, 1985, 1987, 1988; Mantle-Bromley, 1995; Wenden, 1987).

Studies in the area of learner beliefs have shown that learners hold a wide variety of beliefs about language and language learning and that these may influence learning attitudes and behavior. It has also been hypothesized that certain beliefs may be disabling (Horwitz, 1987, 1988).

According to Gardner & Miller (2002), learners bring their own beliefs, goals, attitudes and decisions to learning and these influence how they approach their learning. Therefore, their beliefs about language learning or learner autonomy may vary greatly from one to another. To a large extent, the beliefs that learners hold about language learning may have a significant impact on their learning outcomes. Cognitivists assume that learning attitudes and behaviors are conditioned by a higher order of mental representations concerning the nature of language and language learning. That is, learners' beliefs, as a part of metacognitive knowledge, exert either positive or negative effects on learning process. Learners' insightful beliefs about language learning process, their own abilities and the use of effective learning strategies will facilitate their learning and assist them to develop a more active and autonomous attitude which allows them to take charge of their own learning. However, mistaken or uninformed beliefs about language learning may lead to dependence on less effective strategies, resulting in indifference towards learning, poor cognitive performance, classroom anxiety and a negative attitude towards autonomy.

Studies in the area of learner beliefs have shown that learners hold a wide variety of beliefs about language and language learning and that these may influence learning attitudes and behavior.

The importance of understanding learner beliefs in language learning is clear. First, learners' beliefs about language learning influence their affective states. So belief study can provide a reasonable account for the emergence of classroom anxiety. Second, learners' language learning beliefs have impact on their choice of learning strategies. Therefore, putting language learners' incorrect and inappropriate learning beliefs on the right way will help them remove those ineffective learning strategies and instead apply effective learning strategies. Third, learner beliefs indicate to some degree learners' readiness for autonomous learning, thus play a vital role in motivation stimulation and formation of learner autonomy. In a word, to study learner beliefs can help teachers know more about students and choose proper methods to guide them fostering learner autonomy.

3 Research Methodology

The study takes the form of a questionnaire. The subjects of the study are 126 college students at Nanyang Institute of Science and Technology. Among the 126 students, there are 55 English majors and 71 non-English majors, and the ages range from 18 to 22.

Because the subjects are Chinese and the researcher's first language is Chinese as well, the data collection has been done in Chinese. The data collection instrument in the study is a 37-item questionnaire in Chinese composed of four parts. The contents of the questionnaire are summarized as follows:

Part one consists of 7 items concerning learners' personal details.

Part two consists of 6 items concerning the learners' learning motivation.

Part three is composed of 7 items investigating the learners' attitudes or beliefs in language teaching and learning.

Part four contains 17 items and is designed to discover learners' beliefs in learner autonomy in language teaching and learning.

The quantitative analysis has been carried out in the investigation in order to answer the questions put forward by the author.

The administration of the study is conducted in the students' English class. Students are assured that their names will be kept anonymous in order to express their true ideas and attitudes about language learning. The students finish the questionnaires in about fifteen minutes and the questionnaires are collected immediately.

All the data are collected and analyzed by the Statistical Package for Social Science (SPSS). In the investigation the descriptive statistics is applied to calculate the percentages.

4 Findings

The main findings of the study can be summarized as follows:

A. Most Chinese students have certain knowledge of learner autonomy, although a small number of them have no idea of this concept. The results suggest that Chinese learners are not completely passive in their language learning as they are usually blamed. Most majorities of the learners realize they themselves play crucial roles in language learning, and greater responsibility should be laid on their shoulders in language learning; however, they need help and advice from the teachers. Besides, students' response can also show their views of the teacher's various roles in the classroom. The teacher is seen as the helper, guide/adviser, consultant and facilitator. And the teacher also loses his or her authority in planning the learning process and evaluating the learners' achievements from the learners' perspective. The students have a strong desire for a positive and dynamic involvement in the language learning process. With regard to motivations, most students learn English with either an instrumental motivation or an integrative motivation, or indeed with both. Most learners have the confidence to learn by themselves, but they do not completely believe they are capable of goal setting, implementation and self-evaluation in English language learning. They are still inclined to need guidance and advice from their teachers. As for learning environments, most students think teachers and class teaching still play an indispensable role in the language learning process, but not the only dominant role as they traditionally did. This suggests that promoting autonomous learning doesn't mean the language classroom is not necessary; rather the language classroom can provide a favourable environment for developing the capacity for

autonomy. Of course, the students favour or even desire more diversified learning environments and resources, not just constrained to classroom teaching and the teacher's transmitting of book knowledge. All this suggests that Chinese students have already made psychological preparations for learner autonomy.

B. The differences between English majors and non-English majors in their beliefs about learner autonomy can be found in the following five aspects: firstly, non-English majors are more dependent on class study, and English majors are more autonomous than non-English majors in English studies; secondly, English majors enjoy English learning because they have special interest in it, so they actively participate in study activity and devote more time and energy to English language learning, while non-English majors have less interest in English learning and devote less time and energy to it. Therefore, English teachers should try their best to arouse the interest of students to learn and then promote their motivational level. Thirdly, English majors learn English with stronger integrative motivation than non-English majors. Fourthly, English majors prefer more diversified class activities with teachers speaking less and more opportunities given to students. Finally, English majors feel more confident and optimistic about their ability to master English language by their own efforts than non-English majors.

C. The investigation results show that the students put attitudes, learning strategies and learning styles in the first three places among learner factors. Therefore, developing positive attitudes towards learner autonomy and appropriate learning strategies and proper learning styles and habits are crucial to the success of the development of learner autonomy.

5 Discussion and Conclusion

The findings of this study provide many implications for language teaching as well as language learning.

The decision to promote learner autonomy comes usually from the teacher, and the success of attempts to empower learners to become actively involved in their learning depends to a large extent on the teacher's ability to redefine their roles (Hill, 1994:214, quoted from Dickinson, 1992).

As we know, the traditional Chinese teaching model is a transmission model emphasizing the importance of teachers and their functions. Teachers serve as transmitters of cultural heritage, knowledge and skills. They impart knowledge for students to absorb. Students should show their respect for their teachers by obeying and cooperating with their teachers. They should listen to lectures attentively and follow their teachers' instructions in class. The relationship between the teacher and students is based on students' respect for the teacher and his knowledge as an authority. Considering the present Chinese pedagogical context, it is quite necessary for teachers to loosen some control over the students and adjust their roles in language teaching in order to help students become autonomous.

As a result of the paradigm shift towards learner-centered education, efforts should be made to teach students how to learn and encourage them to be more autonomous. Teachers should help them form a good habit of learning in the autonomous learning process, rather than impart knowledge to students. The shift of responsibility from

teachers to learners in language teaching process does not necessarily mean a complete rejection of teachers and normal classroom teaching is redundant. Instead, the teacher will find his role becomes more varied rather than curtailed, strengthened rather than weakened (not in terms of authority but in terms of competence) and much greater demands will be made on his creativity than on his highly developed knowledge of teaching techniques (Holec, 1981:25). The teacher still should be the guide of the whole autonomous learning process. Learners need a great deal of guidance and feedback from the teacher in order to learn to organize their work on their own.

In classroom situations the teacher in autonomous learning functions as facilitator, helper or counselor. He is more of a resource person or consultant than an authority; he is a facilitator of classroom activities; he is concerned with his own sensitivity to the diversities of learner beliefs about language learning and their individual differences in learning styles; above all he is to help learners to depend on themselves to learn. More exactly speaking, the teacher will help learners plan and carry out their independent language learning by means of need analysis (both learning and language needs), objective setting (both short- and long-term, achievable), work planning, selecting materials and organizing interactions; help learners evaluate themselves (assessing initial proficiency, monitoring progress, and self- and peer-assessment); help learners acquire the skills and knowledge needed to implement learner autonomy.

No matter how well the language teachers have performed in fulfilling their roles, it is students themselves who comprise the determining factor in their ultimate learning outcomes, especially in the learner-centered teaching context. Therefore, language learning requires autonomy on the part of learners.

In the traditional English language classroom, teacher dominates the class, while students just listen passively, doing what they are required to do. As a result, students unconsciously become dependent on their teachers in managing their study and evaluating the outcomes. But simultaneously, more and more students are growing tired of such tedious spoon-feeding mode of teaching approach, and want to actively take part in the learning process. As discussed in chapter two, an autonomous learner likes to take charge of every stage of his learning and is an active participant in the social process of classroom learning. The findings in the survey indicate that most learners are willing to take responsibility for their own learning and participate in class activities, but some of them may not be ready for it or they lack self-confidence to do so. In this case, the teacher should help them become aware that a large part of their learning depends on themselves.

To become more autonomous, learners need to be aware of language, language use and language learning while also conscious of affective factors that influence their relationship with language and language learning (McDevitt, 1997). Only when learners are explicitly aware of the language learning process and the roles they play in it, may it be well for them to fully involve themselves in the language learning.

Then, learners need to be aware that they should share the responsibility with their teachers. They must realize that a lot of responsibility will be transferred from the teacher to them. They need to know how to learn, and teachers need to learn how to facilitate this process. Learners should be given more opportunities to make choices, choose materials, set goals and test their progress by themselves. They should be the

active participants in the language classroom rather than the passive audience. In other words, learners are supposed to be more responsible for their success in language learning.

Learner autonomy doesn't necessarily mean that students go off by themselves and study all alone (Benson, 1996; Dam, 1995; Little, 1996), but rather, as suggested by Little (1991), it presupposes interdependence. A large body of research (Dickinson, 1987; Assinder, 1991, etc.) has proved that cooperative learning can be useful in giving students opportunities to take great responsibility for their own learning. It is the teacher's job to organize cooperative group activities in the language classroom such as group discussion, open questions, performance etc. By doing so, students' autonomy can be promoted as well as their participation and self-confidence.

The present study has employed a quantitative approach to examine learner beliefs about learner autonomy among Chinese college students. In the study, it is found that the majority of Chinese students have some knowledge of learner autonomy, although some of them reveal a somewhat shallow understanding of learner autonomy. The findings also reveal that students are willing to take the responsibility for their own language learning, but to some extent they still need their teacher's help and guidance. Although the paper has touched upon some problems related to the learners' beliefs about learner autonomy, some of the issues still need to be studied in the future research.

In addition to attitudes, motivations and learning styles, some other learner factors and external factors also affect students' learning beliefs about autonomy. Thus, firstly, more factors should be considered and measured in the further research. Secondly, more thorough research should be conducted, using different kinds of research methods and different types of subjects in different settings, to get more valid information.

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Constitution of Practice Teaching System in Higher Education Based on Cultivating Innovative Practice Ability

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Abstract. The practice teaching is an important and relative independent part in higher education, and it is not replaced by the theory teaching in cultivating the innovative sense, innovative spirit and innovative ability. In this paper, some problems of the practice teaching are further analyzed. Then, according to content and requirement of cultivating students' innovative practice ability, the practice teaching system in higher education is constructed, and the supporting measures of implementing innovative practice teaching is given.

Keywords: Practice teaching, Innovation, Innovative practice ability, Higher education.

1 Introduction

The practice teaching in higher education is an important part of the teaching system. It is an effective way of stimulating student's interest and cultivating the innovative spirit and practical ability of students [1-3]. The most fundamental purpose of the practice teaching is to help students practice theoretical knowledge to the production, realizing the leap from books to reality and from theory to practice [4]. The practice teaching has important theoretical and practical significance in achieving its educational purpose and promoting the link between the education and the production.

In recent years, the government and education departments attached great importance to the cultivation of the students' practice and innovation ability, and the Ministry of Education also took the practice teaching as a key indicator of evaluating the teaching level in higher education. So, each college and university has taken positive and effective measures to carry out the reform of practice teaching. By multi-channel increasing investment in laboratory construction, the experimental teaching conditions have been greatly improved, which results to a positive effect in improving students' innovative practice ability [5]. However, there are still some problems and shortcomings, and there is still a large gap between the reform and the innovative talent cultivation [6]. Therefore, to effectively improve the innovative and practical ability of students and also to avoid the shortcomings, the reform of practice teaching must be further bettered. It is very important to construct an innovative practice

system with goal of cultivating the innovation ability. In addition, many effective measures should be put forward to vigorously strengthen the teaching practice.

2 Problem Analysis of Practice Teaching

Generally speaking, the practice teaching includes various types of experiments, comprehensive design, teaching practice, course design and graduation project and so on [7]. At present, it is not commensurate with the requirements of innovative talents, and the following problems still exist.

2.1 Passive Practice Teaching Mode

It is not doubt that the passive practice teaching also enables students to consolidate the theoretical knowledge. However, considering the development of innovative thinking and creative ability of students, excessive passive practice teaching may become a defect of cultivating the innovative talents. Consequently, there is an urgent need of active practice teaching. Unfortunately, students do not really become the subject in many practical activities. On the contrary, because many practice-related contents are designed by teachers, so teachers are the real subject. Strictly speaking, the passive practice activities are just like doing exercises, and thus the students are not impressed. As a result, it is very difficult to cultivate the ability of analyzing and dealing with the practical problems.

2.2 Formality of Centralized Practice Teaching

The centralized practice teaching is an important part of the practice teaching, and it mainly includes the productive practice, graduation practice, curriculum design and graduation project and so on. At present, the productive practice often becomes a mere formality of the site visits because of financial shortage and other reasons. Due to a limited number of topics in the curriculum design, the phenomena of mutual imitation and plagiarism sometimes occur. In the graduation project, some topics are too old to reflect the advanced technologies and progress of the related specialties. Some topics pay too much emphasis on the computer application ability and deviate from the specialized subject. Because of heavy workload, some topics can not be completed.

2.3 Inadequate Attention to Practice Teaching

The practice teaching is a process that students apply the theoretical knowledge to the practice to improve the ability of analyzing and solving the problem with the help of the teachers.

Due to unclear understanding of the practice teaching and the contempt of the practice ability, there is a large lack of the creativity and the ability of analyzing and solving the problem. This lack mainly manifests that the teachers can not effectively immerse the practice teaching into the theory teaching system during the lesson preparation. In addition, because of the lack of effective management control mechanism of the practice teaching, some students do not attend the practice teaching

course, and even falsify the experimental data and the testing report. The students have no enthusiasm so that the practice teaching is not performed to maxim extent.

2.4 Absence of Scientific Practice Teaching System

Another key problem is the lack of complete and independent practice teaching system. Therefore, there is no specific and detailed goal of cultivating the practice ability of students. In addition, when the experiments are arranged, the inner links and mutual relation are not taken into account. So, there is a shortage of optimizing the practice teaching. All these lead to the poor innovation ability and the solving-problem ability

3 Content and Requirement of Innovative Practice Ability

Practice ability is the ability of solving practical problems, and it is cultivated and developed in the practical activities. The innovation is a creative activity of people changing the objective reality. The formation and development of the innovation ability is based on the practical activities, and the practice ability is an important prerequisite of the formation and development of innovation capability. The result and effectiveness of innovation are reflected through the practical activities in the real world.

The practice ability has very rich contents, and its main constituent elements include basic life skills, hands-on ability, learn and thinking skills, interpersonal skills and practical ability of professional activities and so on. In higher education, we should attach importance to strengthen the self-learning ability, the information acquiring ability, the observing and analyzing ability, the experimental research ability, the presentation and communication ability, the cooperation ability and so on.

The requirements of the future occupation differ for the different disciplines and professional students. So, the requirements of practice ability they must have are also different.

Therefore, we must find different cultivating ways, construct different practice teaching system, choose different practice teaching contents, and take different means and methods of teaching according to the different practice ability requirements of different disciplines and the individual student differences of practice ability.

4 Constitution of Innovative Practice System

4.1 Constitution Principle of Innovative Practice System

When the innovative practice teaching system is constructed, we must conform to the following principles.

(1) Targeted. The constitution of innovative practice teaching system is imperative to focus on the goal of training professional talent. When the specific cultivating goal is put forward, the professional knowledge and vocational skills requirements must be

taken into account. Once the specific is made sure, it will become the goal of constructing the innovative practice teaching system.

(2) Systematic. During constitution of the innovative practice teaching system, we should combine with the law of higher education and different professional cultivating characteristics. We can not neglect the individual qualities and the requirements of the overall development. According to the practice teaching position, role and the intrinsic link, the innovative practical teaching system is built through the scientific methods, and this system must be in accordance with the cultivating programs and curriculum reform. In this teaching system, the practice-oriented teaching and the theory-oriented teaching is mutually penetrated, and all aspects is interrelated and harmonized as a unity and continuity throughout the whole process of higher education.

(3) Hierarchical. The improvement of the innovative practice ability is a gradual process, so the practice teaching in the cultivating program should also be a process of gradually deepening levels.

(4) Normative. The constitution of the innovative practice teaching system must be synchronously made accompanying with the establishment of the cultivating plan, and they must conform to the sound operating mechanism of talent cultivation. Simultaneously, we must regulate the teaching content, teaching form, and the corresponding assessment standards and requirements of the innovative practice teaching.

(5) Practical. The constitution of the innovative practice teaching system must be based on some educational theories. So, it will have the merits of solid scientific and practical basis and easy operation.

4.2 Basic Frame of Innovative Practice System

The constitution of a complete, scientific and rational practice teaching system is the fundamental guarantee of realizing the cultivating goals. We should take the talent cultivating model as the base of constructing the innovative practical teaching system, and unite imparting knowledge, cultivating ability, improving the quality as one. In the colleges and universities, there are various disciplines and specialties with great differences between their, and they have own requirements of professional practice competency. Therefore, we should build up appropriate innovative practice teaching system according to their characteristics.

In general, the innovative practice teaching system is composed of the experimental training subsystem, the exercitation subsystem, the integrated design subsystem, the social practice subsystem and the innovation and entrepreneurship subsystem. Through these five subsystems, the practice teaching becomes a relatively independent and complete system. The theoretical knowledge, the practice ability and the thinking ability of students are comprehensively promoted by this system.

(1) Experimental training subsystem. The main line of the experimental teaching is to improve the experimental ability of students, and its main goals are to make students master the basic experimental skills, experimental methods and scientific knowledge, and to promote the scientific thinking and creative thinking of students. The practical training is a special training for students on specific operation ability and the technology applications ability. Through this training, students can master the

basic skills and obtain technology applications ability in the professional fields. Through the simulating case or simulating production projects, students can acquire the ability of solving the practical problems.

(2) Exercitation subsystem. The purpose of exercitation is to enable students to understand the community, contact the reality, increase the knowledge, enhance the concept of labor and responsibility, and develop the ability to work independently.

Through the cognition exercitation, the production exercitation, the professional exercitation, the graduate exercitation and other practical teaching, students can know about the modern production facilities, equipment, production process and scientific management of enterprises, which settles a solid foundation for their future. The establishment of relatively stable off-campus exercitation base can provides a good teaching environment and conditions for fostering the innovative spirit and practical ability talents.

(3) Integrated design subsystem. This subsystem is an important part of the practice teaching in higher education, and it mainly includes the course design, integrated design, graduate design (paper) and so on. Through the practice teaching of integrated design subsystem, students can consolidate the learned knowledge and apply this knowledge into practice in a flexible manner, which enhances the students' ability of analyzing and solving practical problems.

(4) Social practice subsystem. The theory teaching experiment, teaching and exercitation teaching is very important to cultivate the innovative spirit and practical ability. However, the second class such as the academic lectures, student organizations, campus culture, work-study and social services is also essential. Through participating a variety of social practice, students not only master the culture, sports, arts and many other skills, but also train own comprehensive quality. As a result, students can learn how to learn, what to learn and how to do things. Simultaneously, students can comprehensively understand the society, and thus increase awareness of social responsibility.

(5) Innovation and entrepreneurship subsystem. In universities, the innovation and entrepreneurship education is mainly carried out by the opening experiment, the research and technological activities, the academic competitions, the entrepreneurship competition and so on. The academic competitions, especially the competitions organized by Ministry of Education are an effective carrier of achieving innovative education. It has very positive significance for driving higher education reform and development, promoting the combination of teaching and research, inspiring student learning motivation, cultivating the innovation and team spirit.

5 Supporting Measures of Innovative Practice System

5.1 Reform of Teaching Management

The innovative practice teaching system avails to the cultivation of the innovation and practical ability. However, the prerequisite is to have to reform the teaching management. Under the traditional teaching management, all students in the same specialty must follow the same step and accept the same teaching content. So, the freedom of students is very small, which is not conducive to the cultivation of

innovation and practical ability. On the contrary, the implementation of "full credit" or "flexible learning" teaching management reduces the common and the rigid requirements in the talent training, full developing the student's personality. Therefore, it can promote students' innovative spirit and practical ability. In addition, this teaching management can put the practice teaching into effect, and recognize the diversity and flexibility of students obtaining credits. They also require the reform of student assessment system in order to diversify the evaluation system.

5.2 Increase Opening Degree of the Laboratory and Innovative Practice Base

The opening and share of laboratory and innovative practice base and sharing of open base play an important role in effectively using the teaching resources and enhancing the innovative practice ability of students. We should explore different styles of open sharing and form a suitable operating mechanism according to different functions of the laboratory and the actual situation of innovative practice base. Through the establishment of an open fund and the implement of an open workload, we gradually promote the opening level of laboratory, and in the end full opening. To encourage students to actively participate the opening experiments, the achievement of opening experiments can be regarded as a necessary condition of graduation. In the cultivating programs of engineering specialties, the comprehensive, design and innovation experiment time can be added in order to strengthen the students' practical and innovative ability.

5.3 Strengthen the Building of Teacher Group

In order to adapt to the new teaching system, we must comprehensively improve the quality of teachers. Colleges and universities can make policies to encourage high-grade teachers to take some practice teaching tasks and the laboratory establishment. Through various training and development approach, teachers can not only obtain a solid foundation of theoretical knowledge and high teaching standard, also have a strong professional practice.

5.4 Enhance the Guide of Learning

Active practice is key factor of developing the innovative practice ability of college students. Therefore, we should give student chance of taking par in practice activities as a principal as possible, including the determination of the object, method development, process design, analysis and summary and so on. During this process, teachers should guide and inspire students to actively practice, and put the concept of active practice throughout all aspects of practice teaching.

6 Summary

Through the implementation of this innovative practical teaching system, students can application-oriented talents with strong adaptability, good practical skills and innovative ability. However, the practice teaching reform is an important part of the teaching reform, and it is by no means an easy thing. Along with social progress and

technological development, the practical teaching system need to be constantly improved and updated, and ultimately the teaching quality will improved greatly.

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Investigation of Chinese Basketball Coaches in Basketball-Based High School

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Abstract. Literature, questionnaire surveys, expert interviews, mathematical statistics and etc have been adopted in this study to investigate the basketball coaches in Chinese basketball-based high school including their basic situation, training status, professionalism, teaching ability, knowledge level and so on.

Keywords: Basketball-based High School, Basketball, Coaches.

1 Introduction

Coaches are the most important talent of sports development and the key for training and competition. The professional level, the quality and ability of a coach, are not only about the growth of players and game level, but also will affect the overall progress and development of the entire project. Someone once said that “How many world champions a country cultivate, first of all is determined by how many world-class coaches she has.”²

Basketball Development in high school undertaking between university and primary School is the primary crucial stage for basketball talent. The quantity and quality of high school basketball coaches is an important factor in basketball talent training.

Basketball base schools are the important bases to train players and the high schools to educate players. Therefore, a comprehensive understanding and research of Coaches status in Basketball base School, based on the existing problems and the corresponding recommendations, has a solid foundation for its practical significance in promoting the development of basketball in middle school, to encourage more secondary schools to cultivate outstanding basketball talent, but also on the improvement of the overall level of basketball.

Many experts and scholars of China attach importance to coach issues. But so far there is not a nationwide investigation and research for coaches in Chinese basketball-based high school. Therefore, this article addresses this issue.

2 Research Methods

Literature, questionnaire surveys, expert interviews, mathematical statistics and etc have been adopted in this study. Effective Questionnaires are 78.

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3 Research Results and Analysis

3.1 Basic Information of Coaches

Age and Sex. According to questionnaire results, average age of coaches is 36 years and the youngest is 25 years old, maximum age is 66 years old. In which 11 female coaches, the average age is 32 years, and 65 males, mean age is 37 years.

At present, 30% of China Basketball High School Coaches aged below 30 between 30 and 40 account for 42%, 40-50 of 12%, and under the age of 50 years are above 16% which mean young coaches as main force are in line with the coaches job character of strength, heavy task and high pressure, but also conducive to the replacement of old coaches.

It can be seen from the survey, there are less coaches between 40 and 50 year age. One important reason is the old coaches retire one after another in recent years and there also have a certain relationship with more young coach supplement and the brain drain. Coaches below 40 years of age accounted for 72% representing a "new generation", with plenty of capacity have sensitive to the new trend of basketball and cutting-edge things. In addition, a considerable number of experienced over 50 years old coaches still coach, who can help with young coaches.

Educational Background and Professional Title. From Table 5 we can see that the scholars of basketball coaches are 8% post graduate, 83% undergraduate, and 9% specialist, which shows that in the existing training system, professional academic qualifications of the coaches is relatively ideal. Coaches with specialist scholar are over 50 years of age. Therefore, our coaches' scholars are in general ideal.

As seen in Table1, 1special, 16 senior professional titles, 34 middle, 21primary, and 3 no titles. Can be seen that title structure of basketball school coaches overall is more reasonable.

Table 1. Professional Titles

| | Special | Senior | Middle | Primary | Non | In Total |
|--------|---------|--------|--------|---------|-----|----------|
| Number | 1 | 16 | 34 | 21 | 3 | 75 |
| % | 23 | | 45 | 28 | 4 | 100 |

Basketball Experience and Athletic Rank. Can be seen from Table 2, 76% of basketball school coaches have a certain professional team experience. Table 3 shows that 78% of coaches have the 2nd level of players. The coaches without player ranks are mostly graduated from the Department of Physical Education or Sports.

Coaching Experience. 12 of them coach in junior high school, 32 coach in senior high school, and 32 coach in junior and senior high school.

In China, there are 3 ways to be the coaches, after graduation from Physical Education Department, after retirement from professional team, and retired athletes after graduation the best form according to related theory and successful experience at

Table 2. Basketball Experience

| Highest Basketball Experience | National Team | Provincial Team | City Team | No Professional Experience | The Other | In Total |
|-------------------------------|---------------|-----------------|-----------|----------------------------|-----------|----------|
| Number | 2 | 27 | 21 | 20 | 6 | 76 |
| % | 3 | 35 | 28 | 26 | 8 | 100 |

Table 3. Athletic Rank of Coaches

| Ranks | Athletic Rank | 1st Rank | The 2nd Rank | No Rank | Sum Up |
|--------|---------------|----------|--------------|---------|--------|
| Number | 3 | 15 | 41 | 17 | 76 |
| % | 4 | 20 | 54 | 22 | 100 |

home and abroad. This study indicates that among coaches investigated 80% of them are working after graduation, 3% retired athletes, and 14% from professional sports team to college.

From survey, the basketball coaches with less 5 years coaching experience are 13, accounting for 17%, whose experience is still in the accumulation stage; 28 coaches with 5-9 years coaching experience, accounting for 37%, have certain but not rich experience in teaching and training, management and communication; 17 with 10-14 years coaching experience are 22%, and the other 18 with above 16 years coaching experience, accounting for 24%, are treasure for Chinese grassroots basketball, and can help with the coaches lack of experience.

Coaches Dedication to Work Condition. When asked about the attitudes of training, 96% of coach state that they are very involved in training.

3.2 Training Status of Coaches

Setting of Training Plan. It can be seen from the survey for the setting type of training plan, annual training plans and phased training programs have higher frequency, were 88% and 91% (see Table 4).

Table 4. Type of Training Plan

| | Years Training Plans | Annual Training Plans | Phased Training Plans | Weekly Training Plans | Class Training Plans |
|---|----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| f | 33 | 67 | 69 | 53 | 51 |
| % | 43 | 88 | 91 | 70 | 67 |

*The "f" in the tables of this text presents "Frequency".

Contents of Training Plan. From Table 5 we can see coaches are concerned about the training tasks and objectives, training contents, and the training methods and means.

Table 5. Contents of Training Plan

| | Players Starting State Diagnosis | Training Tasks and Objectives | Division of the Training Phase | Training Content | Planning Load Change | Training Methods and Means | Means of Measuring the Load | Competition Arrangements |
|---|----------------------------------|-------------------------------|--------------------------------|------------------|----------------------|----------------------------|-----------------------------|--------------------------|
| f | 27 | 76 | 53 | 73 | 36 | 70 | 35 | 41 |
| % | 36 | 100 | 70 | 96 | 47 | 92 | 46 | 54 |

Feedback of Training. Most coaches use the training feedback of more traditional methods, as observing and physical testing.

Table 6. Training Feedback

| | observing | physical testing | body shape measurement | physical function tests | psychological test | Athletes Self-statement | Technique assessment |
|---|-----------|------------------|------------------------|-------------------------|--------------------|-------------------------|----------------------|
| f | 67 | 60 | 32 | 36 | 12 | 42 | 43 |
| % | 88 | 79 | 42 | 47 | 16 | 55 | 57 |

Athlete Selection. Survey of athlete selection shows that coach address on family survey, body shape measurement, physique check and more of them emphasis on the physical function tests, less of them pay attention on psychological testing.

Training and Competition Hour. Results from the survey can be found (see Figure 3 and Table7) there is no significant gap in the training time and the number of weekly training between U.S. high schools and basketball school, but very obvious gap in the number of competition.

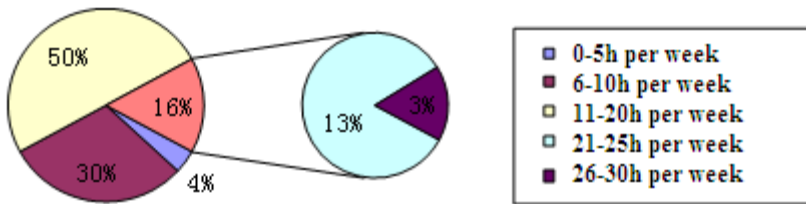


Fig. 1. Training and Competition Hour

Table 7. Regulation Competition's Number Participates Per Year

| Number Per Year | 10 Below | 10-20 | 20-30 | 30-40 | 40 Above | In Total |
|-------------------|----------|-------|-------|-------|----------|----------|
| Number Of Coaches | 13 | 15 | 27 | 7 | 13 | 75 |
| % | 17.5 | 20 | 36 | 9 | 17.5 | 100 |

A vicious circle with lack of competition and reducing teams is not conducive coaches to discover the training problems. Lack of observational learning and accumulated experience in command of competition severely restricted the training level and young coaches Grow and mature.

3.3 Professional Training Status

It can be seen from the survey 14% of the coaches have never attend professional training, 47% of the coaches attended 1-2 times, participated in training more than 3 times the number of coaches only 39% of the total. So the professional training of coaches needs to be strengthened.

71% of coaches are willing to participate in training courses and only 24% coaches choose full-time further study and lectures by Invited foreign experts, 32% agree of Organized seminars and experience sharing sessions.

3.4 Knowledge of Coaches

It can be seen from the survey results (see Table 8), techniques and tactics of basketball-related theoretical knowledge is in the first place. So coaches of the basketball school are still relatively lacking this knowledge the urgent need to be improved, which affect the coaches teaching and training seriously. Surprising that the knowledge of management and sociology in second place exceed that of psychology and pedagogy, which prove that with the development of society, the environment has changed great and traditional teaching methods already difficult to adapt, which calls for coaches to understand this knowledge. In third place is the theory of psychological and pedagogy. Young players are in the stage of physical and psychological not fully mature. Following the psychological and pedagogical law to make them healthy growth is the coaches' assignment. Philosophy, strategy and sport theory also accounts for a certain proportion of knowledge. Which indicate that the coaches still need improve social science and professional knowledge.

Table 8. Knowledge Structure Need to Consummate

| | Basic Theoretical Knowledge Of Sports | Techniques And Tactics Of Basketball-Related Theoretical Knowledge | Management And Sociology Knowledge | Knowledge Of Psychology And Pedagogy | Knowledge Of Philosophy And Strategy |
|---|---------------------------------------|--|------------------------------------|--------------------------------------|--------------------------------------|
| f | 44 | 66 | 53 | 46 | 43 |
| % | 58 | 87 | 70 | 61 | 57 |

3.5 Factors of the Coaches Current Situation

Factors of the enthusiastic of coaches training. As we can be seen from Table 9, the enthusiastic of coaches training have a great relationship with school leader attention, so in order to improve school coaches training initiative to strengthen school leaders the importance of basketball. Minimal impact on training motivation factor is the assessment system of the coach.

Table 9. Factors of the Enthusiastic of Coaches Training

| | Leaders Attention | Environment Of The Province Basketball | Income | The Quality And Quantity Of Students | Recognition Of The Extent Of Social | Family Factors | Competition System | Assessment System Of Coach |
|---|-------------------|--|--------|--------------------------------------|-------------------------------------|----------------|--------------------|----------------------------|
| f | 62 | 35 | 36 | 32 | 10 | 22 | 41 | 1 |
| % | 82 | 46 | 47 | 42 | 13 | 29 | 54 | 1 |

Primary factors restrict the profession of basketball coaches of teenagers. Most coaches agree that the lack of systematic training and practical experience is major constraints (see table 10).

Table 10. Primary factors restrict the profession of basketball coaches

| Options | f | % |
|---|----|----|
| Lack of athletic experience | 39 | 51 |
| Poor information | 38 | 50 |
| Coach of the dedication and professionalism | 42 | 55 |
| Received less systematic training | 62 | 82 |
| Lack of theoretical training | 40 | 53 |
| Specialization degree not high | 33 | 43 |
| Training Experience and practice of coach | 43 | 57 |
| Coaches evaluation system is established | 20 | 26 |

Primary factors restrict basketball talents’ training. Basketball talents’ training is the main task of basketball school. In the analysis of its constraints, 86% of the coaches agree that the education system and the basketball talents uncoordinated system is the main factor. 71% of the coaches attribute to insufficient capital investment, 62% of high school basketball coaches due to the not enough media publicity of high school basketball, 59% of the coaches also believe that the level of basketball coaches restrict the basketball talents training.

Table 11. Primary factors restrict basketball talents training

| Options | f | % |
|--|----|----|
| Public lack of perceptions and awareness Basketball | 21 | 28 |
| Not enough Media publicity of high school basketball | 47 | 62 |
| Uncoordinated in Education system and the basketball talents system | 65 | 86 |
| Coaches level is not high | 45 | 59 |
| Inadequate facilities | 33 | 43 |
| Insufficient capital investment | 54 | 71 |
| Insufficient level of scientific research | 37 | 49 |
| Imperfections in the relevant policies of High School Basketball Association | 33 | 43 |
| Economic development constraints | 13 | 17 |
| Not high level of basketball Development | 15 | 20 |
| Not high degree of Basketball socialization | 15 | 20 |

Restriction factors of basketball school development. Survey showed that 59% of the coaches hold a positive attitude for their basketball development in school; 41% of the coaches thought that school's basketball level of development in general.

Restriction factors of basketball school development seen in Table 12 that most of the factors attributed to Lack of excellent students and school policies, and 65% of the coaches also due to restricted movement of students after graduation.

Table 12. Restriction factors of basketball school development

| Options | f | % |
|--|----|----|
| Lack of talent coaches | 43 | 57 |
| Lack of outstanding students | 67 | 88 |
| School policies | 57 | 75 |
| The lack of software and hardware facilities | 28 | 37 |
| Related system is not perfect | 39 | 51 |
| Not clear laws of education and training combination | 38 | 50 |
| Restricted movement of students after graduation | 49 | 65 |
| The development of the fuzzy concept of School | 27 | 36 |

4 Conclusions and Suggestions

4.1 Conclusions

There is a fault phenomenon to the coaches in Chinese basketball-based high school; Most of coaches had the player experience; Professional title structure of the whole is more reasonable; The vast majority of coaches were very involved in the career, but there still have a considerable number of coaches in the stage of training with experience; there is also less cultured and introduced for highly educated basketball talents; The insufficient number of schools to participate in the competition, which is not conducive for coaches to the timely detection of training problems; The lack of the opportunity to observational learning and experience accumulation in competition seriously restricted the level of young coaches to improve, grow and mature.

4.2 Suggestions

Basketball Coaches training shall be placed in an important position and engage more professional training to quickly improve their profession. Training system may be adopted planned, organized with the purpose, particularly, to outstanding coaches.

Basketball-based schools shall establish a sound policies related to provide convenient conditions for acceptance of superior student. To provide guidance for graduated students they shall be partnership with colleges and universities and receive all talents through the way of self-cultivation and introduction to making training process more scientific.

Improving researches of basketball competition system for young and establishing a stable competition system, based on which increase their delivery talents reward units and individuals. While encouraging the use of favorable conditions of their school basketball base to carry out services like skills training, paid training, and

actively seeking various forms of sponsorship to expand finance sources, and the corresponding expansion of the social impact of coaches.

On the basis of increasing investment and strengthening management, the departments shall pay attention to ideological education and gradually rationalizing the interest relationship in the course of basketball talent transmission. They shall make efforts to resolve the coaches to worries, mobilize their enthusiasm, and unleash their potential.

Relevant departments shall have a sense of advocacy for high school basketball; Exploring the nature of content of "combination of physical and education" and avoiding the formalism to coordinate the education system and basketball back-up personnel training system; Increasing financial input; Improving the relevant policies in the CSBA ; Consciously enhancing the level of coaches through training.

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The Integration of Layered and Target Oriented Teachings for College Selective PE Course

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Abstract. Have conducted the system research to the lamination teaching configuration of organization and the goal teaching method, thought that the two's organic conformity may enhance the ordinary university sports teaching effect effectively, to university student's physical and moral integrity development, as well as lifelong physical culture consciousness and the sports custom fosters has the positive promoter action.

Keywords: regular institutions of higher learning, selective PE course, layered teaching organization format, target oriented teaching methodology.

1 Introduction

College of Physical Education is currently an urgent need to achieve a passive view of physical education to the changing concept of physical education initiatives in the College Physical Education students seize the opportunity to enhance awareness of lifelong physical training, physical exercise so that control methods to improve the independent exercise of Capacity and lifetime. In this paper, theoretical explanation of the hierarchical teaching method and objectives of organizational form and content of teaching analysis of the definition, aims through the implementation of PE classified teaching organizational form and objectives of the organic integration of teaching, to provide real college students Personalized physical education, to promote their physical and mental development and lifelong sports awareness and habits. And on this basis for the reform of college physical education and provide the basis for a better option to achieve PE overall objective of the Course.

2 The Hierarchical Integration of Teaching with the Goal of Teaching the Meaning of the Organic

Years of College Students measurement results show that: the physical quality of college students significantly decreased, even as students. The reason is the lack of

good exercise habits and scientific training methods. The first is the concept of lifelong sports material relatively developed in the birth of Western society, is in the 20th century, the late 60s, early 70s, the Soviet Union, Japan put forward a number of sports scholars who have grown old from birth to the need for physical activity Perspective; and on the concept of lifetime sports, objectives, implementation plan and other issues were discussed in the monograph. Most of our country's physical education college course structure sports though, some aspects of the reform of teaching content, but on the overall framework and system has no fundamental breakthrough. Most colleges and universities continue to focus only on physical education students sports skills development and physical development of the teaching objectives, both have time to take into account the children's psychological health and social development goals of adaptation, but can not be taught in the classroom under the premise of the system to meet the different levels of college students Personalized sports needs. To this end, the author's own years in the teaching of sports options for reform of the teaching and practice of layered targets through the organic integration of education can solve these problems and contradictions.

Hierarchical teaching and its significance. As the academic burden on school and learning the heavy pressure, and the lack of interest in sports and the habits of physical exercise or do not understand the scientific method, ascend the basis of university students in physical status, hobbies, sports skills, potential, motivation learning methods, are significantly different. Continuous enrollment and college options for teaching PE classes to the number of students increases every year, from just a few years ago when the Teaching Reform in the implementation of the class size of not more than 20 people to present at least 40 students per class or even 60 or more. Options before teaching college sports are taught by middle-level students, resulting in the basis of a good sports students "enough", no motivation to learn in class feeling disappointed, physical basis of poor students "eat", no matter how hard very difficult to complete the physical education teaching objectives, but can not achieve the desired physical results of physical education is not the same interest and motivation. In such a situation, the sports college elective course can not be realized on the basis of each college to maximize the existing development, to develop good exercise habits and life-long sports awareness and capacity of the mind. The author uses hierarchical forms of organization the purpose of teaching is through targeted use of different teaching methods and objectives and requirements to help students improve sports and sports interest in learning skills, physical fitness and athletic ability so that different students can maximize their potential to achieve life-long physical education purposes.

The so-called hierarchical teaching is a teacher based on students existing knowledge, competence and potential of science to the students tend to be divided into several groups and each group with similar levels of discrimination as a teaching organization. Layer is the core of teaching for all students and address individual differences of students so that students develop their own based on the original, both within each class the joy of success. Layered teaching in some Western countries, particularly the United States is very popular, but generally higher grades in primary and secondary schools to implement and rarely implemented in colleges and universities, but little physical education in colleges and universities in the implementation of the precedent. But I years of teaching practice that: hierarchical

forms of organization of teaching can better achieve the individualized PE elective classes, hierarchical improved overall optimize and realize value for all school sports, everyone can get the necessary motor skills, different people in sports get different options for the development of class to stimulate interest in learning how to learn, love learning, to achieve life-long learning.

Target teaching and its significance. What kind of teaching concepts, there is what kind of teaching practice? For a long time our schools and teachers have deep-rooted traditional concepts: the "normal school student achievement combined theory." Bloom, the famous American educator and psychologist, established the goal of mastery learning and teaching theory in the concept of the traditional concept of a bold and successful challenge. Bloom Based on the experimental and survey studies have concluded that: In addition to regular child gifted children and a low 2 to 3% of each other, and the remaining 95% of the minimal difference between the ability of students, he made that affect the learning of the three variables: that the quality of teaching, cognitive ability and emotional premise and the premise. The quality of teaching that students need teachers for the degree of cognitive premise that students learn to master new tasks required level of basic knowledge and skills. Teaching is a key prerequisite for the cognitive ability to make the students reach a certain level in order to enable students to successfully enter a new learning task, get good grades. Emotional premise that students in the learning process of attitude and motivation, can promote active learning, passive learning is hampered. Bloom firmly believes that: as long as the emphasis in the teaching of these variables, and proper control or adjustment can greatly reduce the differences between the students and greatly enhance their learning, achieve learning success. This theory holds that if the appropriate learning conditions for teachers, almost all people can learn; that in addition to serious physical impairments, etc. In addition, more than 95% in the school's students can learn better; advocate any teacher can to help all students learn well, that teachers can teach all students. Objective teaching in this theory is developed on the basis of new teaching methods.

The so-called objective approach, is a teacher-led, student-centered, teaching objectives to the main line of teaching methods, teachers and students is to target a specific emotional, cognitive objectives, skills objectives organically integrated, teachers goal-oriented teaching in the teaching process, a series focusing on the teaching objectives of teaching and learning in order to stimulate interest and enthusiasm, encourage students to study hard to achieve teaching objectives and teaching methods page 145. Can make use of objective teaching teachers to teach and students learn there is a clear requirement uniform, so that students under the guidance of teachers truly become masters of learning, give full play to their main role.

The success of the relative concentration of target teaching in junior high and high school grades, the relative concentration in science teaching. College sports option course is the student's quality education is one important way, it's not just a few students to improve the physical and the physical, but all the students' physical and mental qualities and athletic ability. Teachers can teach most of the students, most students can learn better, which is the goal of teaching in the college. Therefore, in PE elective course teaching the application of objective teaching after all, a very effective teaching method. First, the goal of teaching based on the principles of Taxonomy of Educational Objectives, will be the subject of PE teaching objectives elective course

is divided into three areas: awareness of the field, the field of emotion and ability areas, thereby ensuring the teaching of PE purpose of the concrete implementation of the syllabus to the teaching objectives of each lesson to go; Secondly, the objective evaluation system of teaching there. It is based on objective criteria for criterion-referenced test for knowledge, skills, ability to reach a degree of emotional target to conduct a comprehensive inspection and evaluation, obtain feedback, corrective standards for the majority of students, which will effectively ensure that a comprehensive PE elective course the development of education for all of the tasks.

Layered teaching and teaching objectives and significance of the organic integration. The theoretical basis of objective teaching learning and Bloom's taxonomy of educational objectives to master theory, the theory that the aim of teaching the implementation of the organizational form of special teaching needs to be protected. And this particular form of organization of teaching the individual should be an effective teaching practice; most students continue to help the good learning. I believe that this individualized teaching practice in PE elective course the most important organizational form of teaching should be based on a group-based hierarchical teaching organization, the goal of teaching and teaching of stratified Organic integration. Teaching and target the so-called layered organic integration of teaching, is the sport in college classes elective course students according to level of physical fitness and athletic ability to layer the difference of students to teaching as a method of organizing teaching objectives for students Provide the necessary learning time and individual help, taking into account the needs of poor students and excellent students, so that each student's physical fitness and motor skills, comprehensive quality can be continuously improved. Its purpose is to try to meet often said that the three levels of students with different learning needs, the core is for all students and address individual differences of students so that students develop their own based on the original, both within each class can get the joy of success, which stimulate students interest in sports, I learned to become gradually from I want to learn life-long sports purposes. Teaching and objective teaching of layered organic integration of not only the college class, live sports options, and can make it a favorite every college students quality education.

3 Layered Organic Integration of Teaching and Teaching Objectives of the Implementation Plan

3.1 Layered Organic Integration of Teaching and Teaching Objectives and Principles Guiding Ideology

Layered organic integration of teaching and teaching objectives of the key and most difficult is that both students and teaching objectives of the design layer. Level classification of students is that science is a direct impact on teaching and objective teaching of the organic layer prerequisite for successful integration, and teaching goal is a scientific and rational design of layered organic integration of teaching and teaching objectives of the key to success. Accordingly, the layered organic integration of teaching and teaching objectives should be the guiding ideology of teachers and students must first be a clear hierarchy of objectives is not the purpose of teaching

people to create a hierarchy, but using different methods to help all students improve their physical education effects, They maximize their potential. First of all, to respect the students, teachers and students discuss the dynamic layer and adhere to the principles of design objectives and requirements. The beginning of the school teachers should be announced to the students teaching the design of stratified target, target teaching to help students make clear the purpose and layered meaning, to unify the understanding of teachers and students; teachers guide each student to realistically estimate their own, by students Self-assessment, fully voluntary choice by the students themselves to adapt to their own level and to develop their own learning goals; Finally, the voluntary choice of the student teachers to conduct a reasonable analysis and guidance. Second, we should pay attention to the organic layer integration of teaching and teaching when the goal is not only to students with similar learning conditions classified as "same level" design objectives and requirements, in order to enhance mutual cooperation and meet competition, but also to adhere to the dynamic, variable sub-Target layer design principle, an improvement can "upgrade", regress should "turn level." Stimulated interest to be good teachers, guidance, Jingjiang, regulate and control only the good students at all levels, good guidance, for each of the students to create an equal chance of success is that they can enjoy success in PE classes Experience and pleasure. Third, insist on the evaluation of students at all levels to relative evaluation and formative evaluation of the combination principle. Teachers through observation, feedback, timely recognition of incentives, on the progress of students in a timely manner transferred to a large high school level, the relative backwardness of the agreed transfer layer. Layers so as to promote active student learning, so that all students learn at any time in the best condition.

3.2 Layered Organic Integration of Teaching and Teaching Objectives of the Practical Operation

As colleges and universities students of science and the difference in the quality of attitude and interest in physical education and other aspects of different, hierarchical teaching and objective teaching of the organic integration of the implementation of physical elective course, not only through the creative work to inspire teachers, students interest and motivation, but also necessary to fully explore and reflect the process of teaching the art of charm and appeal of sport to the infection itself, and motivate students so that students can each goal in a clear and pleasant environment that actively round development. Specifically, the following.

3.3 Dynamic Partitioning "Layered Target Teaching," the Student Level

Teachers at different levels in the formulation of objectives and requirements should be based on PE elective course curriculum requirements, beginning in the first semester, 2 or 3 times through the test, the students understand the physical and mental quality of the level of mastery of the function of the degree of sports and attitudes of physical education and other interest and look forward to all aspects of information, combined with the experience of the original, considering the press on the middle and lower divided into A, B, C three study groups. Make clear to students in a group when the "layered target teaching" the benefits of clarifying the hierarchical level is not equal to

man-made differences, but by an objective level and ability to learn the difference, take different teaching methods to help them improve the learning results and ultimately achieve overall optimization purposes. And must be stressed that this hierarchical dynamic, can be adjusted at any time.

3.4 Students and Teachers to Participate in Determining "Layered Target Teaching" the Objectives and Requirements

Teachers in the development of different levels of target demand, starting from the syllabus, the students of different levels to develop appropriate objectives and requirements of the macro, based on the guidance at different levels of study groups to develop the basis of the macroeconomic objectives of the class of this group, semester units and learning objectives in view, individual students according to the group's objectives and requirements to determine their own hours of specific operational objectives and requirements.

3.5 Teachers Must Be Clear "Layered Target Teaching," the Target Range

Beginning teachers should be in class this semester to the students to discuss macroeconomic targets, after the passage of individual students as a student group and set goals of reference. Student groups and individual students to develop specific objectives and requirements can be different characteristics; the difficulty level can also be due to differences in the different levels of students, to develop the students themselves. But teachers must be clearly defined target group and the range of individual student learning must include the following objectives in five areas: active participation, sports skills, physical health, mental health and social adaptation. Students to develop according to the above five areas and their own term of this team, unit and lesson objectives and to be flexible and change under the guidance of teachers.

3.6 Teachers, Classroom Design Should Fully Take into Account

Classroom design should fully take into account is a teacher in the teaching process must be based on the level of B group of students, based on taking into account the A, C groups, three cross, from easy to difficult, from simple to complex. A group of students to ensure that there are challenges, and continuously improve; C group of students to complete learning tasks and the basic relevance of the guidance by teachers to implement the joy of success.

4 Conclusions

By PE classified teaching organizational form and objectives of the organic integration of teaching, the purpose of teaching more, for different levels of students to develop different teaching targets different teaching methods to inspire students Interest, the better to play the initiative of students; teaching layered target approach, recognition of individual differences of students, the concept of "discrimination " of teaching principles, mobilized the enthusiasm of students, according to the different levels of development of each student Phase of the learning objectives, in line with

"progressive" teaching principle. Teaching in Physical implementation of the "layered target teaching ", the workload of teachers has increased over the traditional teaching model, the structure of teacher knowledge, ability have higher requirements. The need to strengthen teacher training, keep abreast of new knowledge, update teaching concepts. The PE classified teaching organizational form and objectives of the organic integration of teaching, aims to provide truly personalized college students in physical education, to promote their physical and mental development and lifelong sports awareness and habits. And on this basis for the reform of college physical education and provide the basis for a better option to achieve PE overall objective of the Course.

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Discussion on Graduation Project Reform in Local Engineering Universities

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Abstract. Current status of graduation project in local engineering universities was further analyzed, and author concluded that the students, teachers and universities are three main factors affected the quality of graduation project. Then, the methods and means of improving the quality of graduation project were discussed in detail, and some solutions had been brought forward. Through adding the comprehensive design experiments and carrying out scientific research pre-train, the innovation ability, practice ability and entrepreneurial spirit of students could be cultivated. By the production-study-research base and doing the enterprise task, students could further know about the enterprise, which can improve their competitiveness and social adaptability. The establishment of monitoring system is an effective way to ensure the quality of graduate project.

Keywords: Graduation project, Current status analysis, Solving means, Local engineering universities.

1 Introduction

Graduation project is an important part of practical teaching, and it is also last step of the completing the teaching plan and thus achieving the training objectives. It has very important significance for cultivating and improving the ability of analyzing and solving practical problems [1,2]. By graduation project, students can primarily understand. In addition, it can enable students to learn the skill of comprehensively applying theoretical knowledge, and to cultivate students' ability of independently analyzing and solving practical problems.

The graduates have to enter into the job market after the reform and opening up. So, a certain contradiction between applying for employment and the graduation project as well as the normal classroom teaching has emerged [3-5]. On the one hand, in the market economy the employers require that students not only have solid theoretical foundation knowledge, but also the practical ability of solving the problems. On the other hand, the practical ability achieved by the graduation projects are often affected and even hindered because of applying for employment. So, how to carry out the graduation project? How to improve the quality of graduation project? This has become an unavoidable important problem, especially for the engineering majors [6, 7].

In this paper, current status of graduation project in local engineering universities is analyzed. The methods and means of improving graduation project level are discussed, and some solutions are also given.

2 Current Status of Graduation Project in Local Engineering Universities

With the mass enrollment and the increase of students, three main problems emerged. First, the university can not provide each student the necessary sites and computer for graduate project. On the contrary, it can only provide a few facilities for part of the graduate students, and most students can solve their own problems by various means. Therefore, the learning time can not be guaranteed and the effectiveness can not be monitored and supervised. It is not conducive to the exchange between students and supervisors. Second, because teacher resources are limited, they can not be personally guided every graduate student. Third, university can not provide more fund while the price of materials is roaring. Therefore, the current status of graduate project is not satisfactory, and the quality is declining gradually. In this paper, there are three main reasons affected the graduate project, namely, teacher, student and university.

2.1 Teacher Factor

Because of the lack of engineering background and work experience in scientific research, engineering design and practice, many young teachers have not enough ability to guide the students to do graduation project. Consequently, it greatly obstructs the way to cultivate the engineering practice ability, and it also restricts the improvement of the quality of graduation project.

Over the years, some teachers have been always concentrating upon the teaching while their enthusiasm in the scientific research is not high. This has led to the mismatch between practical application and theoretical knowledge, and the limitation of scientific research and knowledge application capability.

With the increase of school enrollment, universities have to face with the problem of teacher shortage. As for basic courses and specialized courses, it can be solved by co-teaching classes or increasing the amount of teaching. However, it is very difficult to solve the guidance teacher shortages of graduate project. Besides the increase of the workload, it needs to provide many suitable subjects of graduation project. If too many students are guided by one teacher, the subjects of graduation project are often repeated. Also, some teachers have to perform heavier and heavier teaching and research tasks, resulting into the lack of energy and time on guiding the graduation project.

In response to these realities, how to take appropriate measures to reform and adjust the management of graduation project and how to effectively solve the contradiction between graduation project and employment had become an urgent task. It required that the teaching management established an effective quality management system, and actively explored effective methods to improve the quality of graduation project.

2.2 Student Factor

The main reasons that students spend inadequate energy and time on graduation project can be analyzed as follows. On the one hand, students can not understand the real purpose and function of doing graduation project. On the other hand, there is a conflict between doing the graduation project and applying for employment, and the status of the graduation project during the employment is becoming mean. Therefore, students often think that graduation project is unimportant and even they have no enough time to take it into account. As a result, they have to work overtime to prepare their patchwork just before thesis defense.

In addition, it is also popular choice for many students to prepare for postgraduate school and go abroad, and it will undoubtedly spend plenty of energy and time on preparing for the exam and contacting schools. Therefore, the energy and time of graduation project has to be decreased and thus the quality of graduation project will also decline.

To encourage students to obtain employment and prepare for postgraduate school, some universities reduce the requirements for graduation project, which has a serious impact on the graduation project.

2.3 University Factor

The funding shortage of graduation project is a current common problem faced by universities, especially in the engineering design field because the project development, design and implementation need more funding investment. The funding shortage directly makes the subject too easy or simple, and even makes some good subjects and ideas not completed.

In addition, with the rapid increase of the number of the graduates, the lack of graduation project places has been highlighted. The lack of places is extremely disadvantageous for literature consulting, scheme design and thesis writing. Unfortunately, most students do not have a fixed place of doing graduation project, which weakens the students' initiative of doing graduation project to some extent.

3 Methods and Means of Improving Graduation Project

In order to improve the quality of graduate project, there is a need to discuss the solving methods and means. Then, we will discuss how to improve graduate project from the following six points, and give the methods of the quality of graduate project.

3.1 Pre-participating Graduation Project for Part Students

Some excellent students had completed their credits except for graduation project when they entered into the seventh semester. According to the implementation of the credit, they can take part in the graduation project in advance.

Because of excellence and active study, the majority of these students can take part in the thesis defense of graduation project in advance. The passed students can hunt for job, go to company for practice or prepare for the postgraduate. Universities allow these students to graduate in advance. Therefore, the conflict between the graduation

project and the employment can be solved partially. At the same time, the lack of teachers and laboratory equipments can be eased due to the diversion of part of students.

3.2 Engineering Education Course

In order to develop the student's practical skills and innovative spirit, the engineering education course should be added in the universities.

The idea of engineering education is as follows. In the sixth semester, the junior can choose an interesting subject related to the engineering practice. Some of these subjects are the part of teacher's scientific research projects, some are the part of enterprise development projects, and some are current hot pre-research projects. Because of enough funding of these projects, the students can perform many experiments in the laboratory. When the subjects are finished, students need to submit physical works and a related research report. As a course, the final results will be stored in the student record and it will be the basis of evaluating the student.

Only after completing specialized course design can the engineering education course be done. It is similar to a small graduation project, and thus the engineering practical ability will be further strengthened. During the engineering education course, the students can be familiar with the process of graduation project. Therefore, the engineering education course is also called as the prerequisite course of graduation project.

The addition of the prerequisite course of graduation project is an important measure to reform practical teaching. The exploration for a few years has shown that it not only enhance the practice innovation ability of students, but also palsy a positive role in improving the quality of graduate project.

3.3 Establishment of Production-Study-Research Practice Base

The practice bases of industry-education-academy are very important practical places where graduation project are done, and they are also the main companies of the employment. Therefore, it is very important to establish the bases of the practice-graduation project-employment training with companies. In these bases, the companies not only accept students to the production practice, but also are willing to provide scholarships for students to do research. In general, these students are directly guided by the engineers from the company. After graduation, the students have more opportunity to enter the companies. The advantages of this mode are that the students have explicit goal and high enthusiasm of doing graduation project.

If the company needs the graduate students, we will arrange the interview according to its requirements. After the employment contract is signed, the students can carry out their graduation project in the company. In fact, the graduation project has become their pre-employment training. In order to adapt the future job as soon as possible, students will work and study hard. Thus, graduation project with the high quality will be achieved. Moreover, the majority of teachers have cooperation with the companies in their scientific and technological research. Therefore, these teachers can recommend some students to companies to do graduation project, and the

outstanding students can continue to work after graduation. Under this mode, the students are guided by both the engineers of companies and the teachers. It not only strengthens the cooperative relationship between teachers and companies, but also guarantees the quality of graduation project.

In general, when the students do graduation project in the company that they have signed the employment contract with, they will strive to fulfill it in order to obtain favorable evaluation. Certainly, universities also send special teachers to guide the students, keeping touch with students and companies.

The practice has proved that the practice bases of industry-education-academy not only ensure the quality of graduation project, but also promote the employment and strengthen the cooperation between universities and companies.

3.4 Implement of Bottom-Out Mechanism

To ensure the quality of graduation project, there is a need to establish strict rules and regulations and management measures. The implementation of the mid-term examination, the final results verification system and the bottom-out system may be effective measures.

Through the mid-term examination, the progress of graduation project and the effect of teacher guidance can be easily found out. If there is any problem, we can take measures to solve them in good time. The final results verification is also an important part of graduation project. Every student must be checked according to the requirements of the project task. By the final results verification system, we can master the final state of graduation project, and regard it as an important basis for evaluating the student. Also, it can avoid the thing that a small number of teachers and students do not attach importance to graduation project.

The procedure of the bottom-out system is as follows. The students are grouped (15~20 students in one group) and participate the thesis defense. According to the score, the last two students of each group will have to take part in the second thesis defense. Therefore, the students can horizontally compare with other groups. At the same time, it can ensure score more objective and fair. According to the score of the second thesis defense, the students who failed will not pass it and they must extend their studies in order to do graduation project again. There are more than 300 students to do graduate project each year in our college, and the rate of bottom-out is not less than 2%. The teachers whose student failed in the second thesis defense will burden the responsibility of being educated and being decrease the workload. This competitive mechanism has incentives to teachers and students, and thus the quality of graduation project is greatly improved.

3.5 Integrity Commitments System

Because of the phenomenon of copy and plagiarism, the establishment of the integrity commitments system is very important for teachers and students. The thesis of graduation project must be original under the guidance of the teacher, and any other information or results cited in the thesis must be indicated in reference. Prior to the defense, each thesis is assessed by the two teachers and the comments are given.

Once the serious plagiarism is found, the qualification of the thesis defense will be cancelled, and students will bear responsibility as well as the guidance teachers. The establishment and implementation of the integrity commitments system can effectively reduce the fraud and plagiarism.

3.6 Double-Blind Review for Paper

To further ensure the quality of graduation project, mutual double-blind review can be performed with other universities.

The double-blind review is that the thesis is mutually assessed without the name of teachers and students. The assessment results are regarded as an important basis for the score. The thesis that failed in the double-blind review must be modified and even redone. This mode is derived from the double blind review of master thesis. However, there are a large number of undergraduate students, so, 10% of thesis is randomly chosen and reviewed.

4 Summary

Summarily, the graduate project is a complex part of practical teaching, and it is an important way to cultivate the overall quality of students. The current status of graduation project is not satisfied and the quality is declining. This is caused by three main factors, namely, teacher, student and university. However, through adding basic engineering education courses, establishing the bottom-out system and the practice base of production-study-research, the innovation practice ability of students can be improved. The quality monitor for graduation project can effectively ensure its quality, increase graduation project level, and thus greatly improve the overall quality and practical applications ability of students.

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Studies on the Effect of Physical Exercise on Bone Mineral Density and Degenerative Changes

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Abstract. Objective: Research on physical exercise and human body bone mineral density, and the relationship between physical exercise and the degrees of bone hyperplasia and osteoporosis. **Methods:** Randomly select 53 males and 49 females aged 35-50 from healthy university students, social group members, and sports professionals in Harbin. Investigate their physical exercise history and divide these people into four groups respectively labeled as extremely high, high, medium and low groups according to their exercise intensity. Track their medical X-ray results, and use the X-ray densitometer to analyze such parts as lumbar spine, hip, femur, knee, and calcaneus. Strictly record the data, and adopt the statistical analysis of variance to test to study the bone mineral density and bone proliferation on different parts of each group. **Results:** The male overload and high exercise groups have relatively serious hyperostosis, while the overload exercise group has varying degrees of osteoporosis; in the low-intensity group, hyperostosis is not obvious, but the level of bone mineral density is lower than that of high-intensity exercise groups. **Conclusions** Moderate physical exercise can promote higher peak bone density and reduce the possibility of osteoporosis and hyperostosis. Doing physical exercise is an effective way to enhance human bone mineral density and prevent osteoporosis and bone hyperplasia.

Keywords: Physical Exercise, Bone Mineral Density, Osteoporosis, Hyperplasia.

1 Introduction

Bone mineral density is the content of mineral within the unit area or volume, and it is one of the main indicators to evaluate bone quality. Measuring bone mineral density helps us to understand the real-time dynamic changes in bone mass so that monitoring and evaluating bone mass can be done.

Moderate exercise can effectively improve sportsmen's bone mineral density [1,2,3]. Hyperplasia and osteoporosis are both expressions of bone degenerative changes. Hyperplasia usually occurs at joints, and abnormal proliferation of bone results in hypertrophic arthritis and pain. Osteoporosis is a systemic bone disease. The bone mass decreases; the bone trabecular turns thin and fractured and its amount

decreases; micro-structural damage of the bone tissue is characterized by cortical bone porosity, thinning and other reasons. This leads to the increase of bone fragility and the risk of breaking bones. There are two mechanisms of its occurrence. One is the low peak of bone mass, the other is fast bone loss, while many patients have both of these two factors [4,5]. A lot of experimental studies about human or animals show that the phase of metabolism of bone is a complex dynamic balance system. Absorbing surface, the number of osteoblast and osteoclast cells, the shape and structure of bony trabecular and the density and arrangement of bone collagen all result in the changes of bone mass and mineral density directly. What needs to be stressed is that at present there is no safe and effective method to restore the status of hyperplasia and osteoporosis bones to the former state. Thus, accurate comprehension and early prevention are very important. Moderate exercise leads to higher bone mass peak during bone growth period, increase the property of the bone from the biomechanics perspective and prevent bone degeneration effectively [5,6,7].

2 Objects and Methods

1.1 Objects

The research objects include some teachers of Harbin Medical University and Harbin Normal University, social groups, and 27 professional athletes. The research period is from February 2003 to February 2010, seven years in total. All the testing objects are Harbin residents with regular life and no bad hobbies. All the research objects, aged from 20 to 50, none has taken medicine that affects the metabolism of bone within two years, except those who have chronic heart liver, lung, and kidney diseases, and endocrine and metabolic disease and ovaries removers. There are no objects staying in bed over 3 months (e.g. as a result of trauma or hemiplegia) or special population group (such as pregnant women). There are 102 research objects in total, including 53 males and 49 females. They are divided to 4 groups: low, medium, high, and extremely high exercise intensity groups.

1.2 Research Methods

The equipment used in this experiment is dual-energy X-ray absorptiometry produced by LUNAR, US. The equipment is checked by the module provided by the factory every time it is turned on to ensure the accuracy and make the measurement error less than 1%. We trace all the research objects for seven years (at least 3 times per person), trace the body check index of seven years, collect X-ray examination and bone mass density data. X-ray check five parts of each research object: lumbar vertebrae, hip joint, femur, knee joint, and calcaneus. All the examiners are professional imaging doctors from hospitals.

1.3 Statistic Analysis

All the research materials are grouped by sex and exercise quantity and analyzed with SPSS10.0 software.

2 Result

There are 4 data collection failures in this experiment. Among those, three objects do not cooperate and give up the body check, and one loses connection. Other research objects cooperate well. The acquired data are real and reliable. Based on the data analysis of X-ray examination, bone mineral density peak of low and medium intensity groups (experiment objects are social group members and professional athletes) is relatively high after regular and moderate physical exercises and at the same time the occurrence of abnormal bone metabolism diseases such as hyperplasia and osteoporosis is less than that of high and extremely high intensity groups. X-ray examination result shows that low and medium intensity exercise increases bone mineral density and intense bone cortex. Calcium is deposited well and there are no hyperplasia and osteoporosis. As shown in the figures:

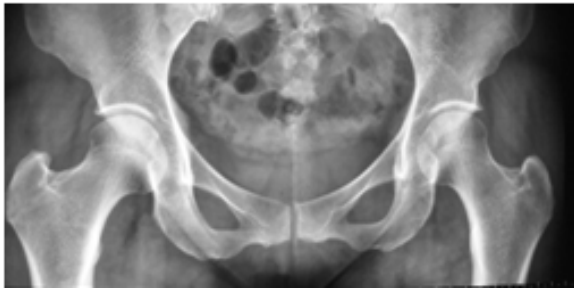


Fig. 1. No.27 Male 37 Teacher taken on 2005/4/17



Fig. 2. No.27 taken on 2010/4/17



Fig. 3. No.74 Female 41 civil servant taken on 2003/6/12

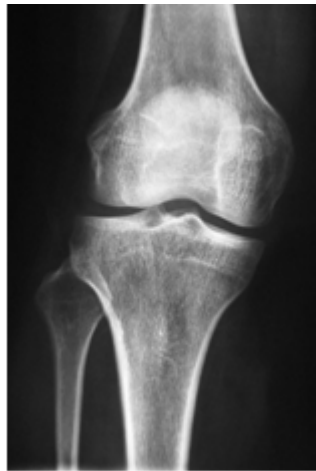


Fig. 4. No.74 taken on 2009/6/13

3 Discussion

Through the survey and research of different aged testing groups, we get the conclusion: based on the bone mineral density measurement and analysis of different exercises groups, the research result shows that the changes of human bones and exercise intensity are closely related. By scanning different parts with X-ray, we find that there are differences from low to high intensity physical activity. In the low intensity group, hyperostosis is not obvious, but the bone mineral density is lower than that in the high intensity group; high and extremely high intensity groups have more severe osteoarthritis, while extremely high intensity group has various degrees

of osteoporosis. Therefore, only the appropriate physical exercise has a positive effect on human bone health and development [8], because the changes of bone tissue morphology and function follow the Wolff's law. Bone formation and bone mechanical environment changes are directly related [9]. Moderate physical exercise can enhance the bone formation parameters, and inhibit the absorption parameters on the bone surface. So, it helps to maintain bone and broken bone homeostasis. But exercise of high intensity leads to bone micro-structural damage and decrease the self-renewal ability.

Lots of factors can reflect the impact of physical exercise on bones, such as the shape of trabecular bone, the ratio of osteoblasts and osteoclasts and the density of collagen and so on [10]. Zhang Xiao-shuang [11] has observed the effects of physical exercise of various degrees of intensity on bone morphology and found that the number of vertebral trabecular bone in moderate-intensity exercise group was slightly more than that in the osteoporosis group, and that the trabecular bone surface had more granular resorption points. But the high-intensity exercise group shows no significant difference in trabecular bone than the osteoporosis group, and micro-fractures occurs. Conclusion: Moderate intensity physical exercise has a positive effect on recovery of bone. Many similar experiments have shown that participating in moderate intensity physical activities such as dancing, distance running, tennis, aerobics, etc., will significantly enhance bone strength [12,13]. However, any movement must uphold for a long time to influence the bone metabolism. Friedlander [14] found that the bone mineral density of radius, lumbar spine, and femur only grew after 1 year experimental training, but it showed a significant growth after two years.

Moderate intensity physical exercise plays a very active role in the prevention of osteoporosis. Frequent and regular exercise makes bones stronger. Some body weight bearing sports increase the strength of the bones effectively. Gao Ping studied the relationship between osteoporosis and exercise and found that long-term moderate physical exercise had a positive effect on bone mineral density. Appropriate exercise can improve the mineral deposition rate and the composition and content of collagen. Moderate exercise generates certain load, which benefits bone structure. But excessive exercise can damage the fine structure of bone, affect bone strength, and even cause fracture [16,17,18,19].

The impact of exercise on bone mass is the combined result of many aspects. Mechanical load stimulates the bone directly, muscle contractions cause squeeze pressure and shear force stimulate indirectly, such as vertical jump. High vertical jump indicates muscle of lower limbs strengthened greatly, and through the indirect stimulation, increases the power, squeeze pressure and shear force on bones, which improves the lower limb bone strength [20]. This phenomenon is considered as "bone functional adaptation" by many experts. Dr. Frost, the world-renowned orthopedic specialist found that the relationship of human bone strength (the capacity of resistance to fracture) and muscle strength (maximum strength) is a statistical linear relationship [21]. But this does not mean that the more power the better. Long-term and high-intensity sports can change bone biomechanical properties (such as elastic load, maximum stress, stiffness, elastic modulus and other parameters) significantly [22,23, 24]. Thus, moderate physical exercise is very important.

4 Conclusion

In conclusion, long-term moderate physical exercise has the positive impact on bone mineral density and osteoporosis and should be valued extensively. It can reduce the risk of osteoporosis and alleviate its harmfulness, which is very important to maintain strong bones and body health. Then, people can maintain a higher quality of life. However, weight-bearing exercise is more beneficial to increase bone strength than non-weight-bearing exercise. The favors of moderate physical exercise are increasing bone mineral density and slowing bone degeneration [25]. In addition, studies [26] have shown that exercise is not just a stress effect on bone, but also stimulates the production of hormones, cytokines, and calcium substances, which regulate the bone metabolism. This should be paid more attention to in the future study.

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The Experimental Teaching Content Design of Network Courses Based on Open Source Software

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Abstract. The open source software progress has promoted the experimental teaching development of network courses. In this paper, by incorporating the enterprise network characteristics, the integrated network experimental teaching contents were designed based on open source software. Because open source software has many advantages, such as open source, the designed experimental teaching contents are flexible, reliable and have low costs.

Keywords: network experimental teaching, education reform, open source software.

1 Introduction

The advantage of designing the experimental teaching contents of network courses based on open source software is obvious. On one hand, due to the features of open source software, such as being free to use and availability of open source codes, the designed experiments are very flexible. Students can drill deep into the program through the experiments and carry out individualized second development, which can help to enhance their learning initiative and train their practical and innovative abilities. On the other hand, the rapid development of open source software makes it possible to design the experimental teaching contents of network courses based on open source software completely. Using open source software for network courses experiments teaching can help students to master the learning contents and construct the sense of identification to open source software, which will contribute to the popularization of open source software. Many graduates will join the small and medium enterprises with less than 200 employees, for which free and high-quality open source software is undoubtedly one of the best choices.

2 The Design of Experimental Content

As a common representative of open source software, Linux is very powerful in its network functions, so it was selected as the operating system of the network experimental teaching platform. Incorporating the teaching requirements, we utilize the open source software to realize the following network experimental teaching

contents, including the basic network construction, broadband access, firewall, intrusion detection, account management, and etc.

2.1 Network Construction

Virtual LAN (VLAN) construction is an important part of network experiments, and usually it is built by special hardware equipments. In the proposed design, the VLAN function of Linux is used to construct the VLAN, whose benefits are that it does not depend on special hardware devices and can easily realized by using multiple low-cost NICs and multiple switches on the laboratory Linux-PC. The designed experimental contents involve VLAN setup, VLAN deletion, VLAN configuration, route settings, and ARP settings.

```
[root@router001 ~]# modprobe 8021q
[root@router001 ~]# vconfig add eth0 101
Added VLAN with VID == 101 to IF -:eth0:-
cat /proc/net/vlan/config
VLAN Dev name      | VLAN ID
Name-Type: VLAN_NAME_TYPE_RAW_PLUS_VID_NO_PAD
eth0.2             | 2 | eth0
eth0.5             | 5 | eth0
eth0.1             | 1 | eth0
eth0.3             | 3 | eth0
eth0.4             | 4 | eth0
eth0.100           | 100 | eth0
eth0.101           | 101 | eth0
[root@router001 ~]# ls /proc/net/vlan
config eth0.1 eth0.100 eth0.101 eth0.2 eth0.3 eth0.4 eth0.5
[root@router001 ~]# ifconfig eth0.101 10.212.43.2 netmask 255.255.255.0 up
[root@router001 ~]# ifconfig eth0.101
eth0.101 Link encap:Ethernet HWaddr 00:16:36:53:D7:8A
          inet addr:10.212.43.2 Bcast:10.212.43.255 Mask:255.255.255.0
          inet6 addr: fe80::216:36ff:fe53:d78a/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:102 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 b) TX bytes:4908 (4.7 KiB)
```

Fig. 1. VLAN configuration on Linux platform

Figure 1 shows the experimental process of VLAN on the Linux platform. By doing these experiments, students can exercise the VLAN configuration manually.

The construction of VLAN can also be realized through the configuration file, as shown in Figure 2.

```

[root@router001 network-scripts]# cat ifcfg-eth0
DEVICE=eth0
BOOTPROTO=static
BROADCAST=10.212.45.255
IPADDR=`grep '^[0-9]' /etc/hosts | grep -iw "$HOSTNAME" | awk '{print $1}' | grep
10.212.45`
NETMASK=255.255.255.0
NETWORK=10.212.45.0
ONBOOT=yes
TYPE=Ethernet
[root@router001 network-scripts]# cat ifcfg-vlan5
DEVICE=vlan5
VLAN=yes
VLAN_NAME_TYPE=VLAN_PLUS_VID_NO_PAD
PHYSDEV=eth0
BOOTPROTO=static
ONBOOT=yes
TYPE=Ethernet
[root@router001 network-scripts]# service network restart
Shutting down interface vlan5:  Removed VLAN -:vlan5:-
                                     [ OK ]
Shutting down interface eth0:      [ OK ]
Shutting down loopback interface:  [ OK ]
Bringing up loopback interface:    [ OK ]
Bringing up interface eth0:       [ OK ]
Bringing up interface vlan5:  Added VLAN with VID == 5 to IF -:eth0:-
                                     [ OK ]

```

Fig. 2. VLAN construction

The deletion and modification of VLAN can be realized through the direct change of file ifconfig-vlanx, and the communication between VLANs can be realized through configuring the route.

2.2 The Experiment of Network Access

Connecting LAN to the internet is also one of the important parts of network teaching. Through this experiment, students need to learn some common internet access methods and corresponding control methods. In the proposed design, pppoe [2] dial-up software, squid [3] and iptables [4] and other open-source software are used to realize the experimental contents.

Pppoe connection is a commonly used access method. To construct a pppoe access environment, an experimental pppoe server needs to be created. In this experiment, the open-source software RP-PPPoE is selected to implement a pppoe server, and the students can access the pppoe server when they do experiments.

```

[root@router001 ~]# cat /etc/ppp/chap-secrets
# Secrets for authentication using CHAP
# client      server  secret          IP addresses
username     *      password        *
[root@router001 ~]# cat /etc/ppp/pppoe-server-options
# PPP options for the PPPoE server
# LIC: GPL
require-pap
login
lcp-echo-interval 10
lcp-echo-failure 2

```

Fig. 3. The configuration of pppoe server

Through the ppp dial-up and the nat function of iptables, LAN is connected into the internet.

```

[root@router001 ~]# adsl-setup
Welcome to the ADSL client setup. First, I will run some checks on
your system to make sure the PPPoE client is installed properly...
LOGIN NAME
Enter your Login Name (default root): abc
INTERFACE

Enter the Ethernet interface connected to the ADSL modem
For Solaris, this is likely to be something like /dev/hme0.
For Linux, it will be ethX, where 'X' is a number.
(default eth0):

Do you want the link to come up on demand, or stay up continuously?
If you want it to come up on demand, enter the idle time in seconds
after which the link should be dropped. If you want the link to
stay up permanently, enter 'no' (two letters, lower-case.)
NOTE: Demand-activated links do not interact well with dynamic IP
addresses. You may have some problems with demand-activated links.
Enter the demand value (default no):
... ..
[root@router001 ~]# echo 1 > /proc/sys/net/ipv4/ip_forward
[root@router001 ~]# iptables -t nat -A POSTROUTING -o ppp0 -j MASQUERADE

```

Fig. 4. The configuration of pppoe and nat of Linux

Enterprises usually set some limits on employees' online behavior, and open-source software squid and iptables could meet the requirement. By value of the simple URL filtering functions of squid, the internet behavior management can be achieved easily.

Through the experiment of squid, students can learn how to manage internet activity, based on which students could achieve a complete online behavior control through squidguard [5] and other open-source software in their future career.

```
[root@router001 ~]# cat /etc/squid/squid.conf
visible_hostname network5.zjgsu.edu.cn

http_port 7777 transparent
dns_nameservers 202.101.172.35

cache_peer z02001.1 parent 6666 0 weight=2 no-query no-digest round-robin
cache_peer z02002.1 parent 6666 0 weight=2 no-query no-digest round-robin
cache_peer z06001.1 parent 6666 0 weight=1 no-query no-digest max-conn=10
cache_peer z06002.1 parent 6666 0 weight=2 no-query no-digest

cache_mem 128 MB
cache_dir ufs /squid/cache 1000000 512 512
maximum_object_size 299 MB
maximum_object_size_in_memory 8 MB
shutdown_lifetime 1 seconds
pid_filename /var/run/squid.all.pid
forwarded_for on
access_log /squid/logs/access.log squid
cache_log /dev/null
cache_store_log /dev/null

acl net_5_ip src 10.212.45.0/255.255.255.0
acl all_dst dst 0.0.0.0/0.0.0.0
acl edu_d_ip dst "/etc/squid/destinations/cernet_ip.list"
acl zjgsu_d_ip dst "/etc/squid/destinations/zjgsu_ip.list"
acl CONNECT method CONNECT
always_direct allow zjgsu_d_ip
cache deny zjgsu_d_ip
cache_peer_access z02001.1 deny !edu_d_ip
cache_peer_access z02002.1 deny !edu_d_ip
http_access allow net_5_ip
http_access allow CONNECT
http_access deny all
never_direct allow all
```

Fig. 5. The experiment of squid

2.3 Firewall Experiment

Firewall experiment can be done through the widely used open source software iptables. In this experiment, students can learn to protect the LAN by combing the internet access experiment.

The experiment can start from the iptables command line, and graphical open source tools, such as Firewall Builder [6] and etc., can also be used to construct complicated firewall.

```

$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 10.212.45.235 --dport
8001:8100 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 192.168.6.5 --dport
8001:8100 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 10.212.45.235 --dport
8001:8100 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 192.168.6.5 --dport
8001:8100 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 10.212.45.235 --dport
8201:8300 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 192.168.6.5 --dport
8201:8300 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 10.212.45.235 --dport
8201:8300 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 192.168.6.5 --dport
8201:8300 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 10.212.45.235 --dport
8401:8500 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.15.173.0/24 -d 192.168.6.5 --dport
8401:8500 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 10.212.45.235 --dport
8401:8500 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 10.212.45.235 --dport
8401:8500 -j DNAT --to-destination 192.168.6.9
$IPTABLES -t nat -A PREROUTING -p tcp -m tcp -s 10.212.45.0/24 -d 192.168.6.5 --dport
8401:8500 -j DNAT --to-destination 192.168.6.9

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Fig. 6. Firewall experiment

2.4 Other Experiments

Open source network monitoring and debugging programs include tcpdump [7], wireshark [8] and etc., and can be used for debugging during the experiments. Through these experiments, students can master the network construction and debugging methods.

The experiments on VPN server, mail server and web server can all be realized through the corresponding open-source software such as openvpn [9], sendmail [10] and apache. By learning these experiment contents, students can master the knowledge and technology to construct the application network based on open source software.

3 Summary

By introducing the open source software into the experimental teaching of network courses, the laboratory could free from the dependence on special hardware equipments, save costs, and reduce the pressure on equipment maintenance. Students

can fully grasp the network construction related knowledge through experiments, get familiar with the open source software and use it adroitly. At the same time, the designed experiment contents can foster open source software researcher and contribute to the promotion of open source software. Because students can take part in each part of experiments, the learning interests can be fully mobilized. The designed experiment contents provide a good teaching platform for students to improve their innovative thinking and practical ability, and has achieved good teaching effects.

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Dialysis from Multi-dimensional Environment Aspect on Physical Education Professional Development

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Abstract. Physical education specialty development relying on higher education, in society, education and physical education based on the environment. Therefore, the development of the society, education, the progress of physical education and sports of the rich multi-dimensional environment change the changes will inevitably affect sports education professional development trend. In order to accurately grasp the sports education of professional development path, looking for one of the rules of sports education, we must rely on the professional development of multi-dimensional environment thorough dialysis, mining source, revising sports education of continuous professional development for the best path

Keywords: Physical Educations, The Living Environment, The Best Path.

1 Introduction

A physical education professional development environment as the domain one: the sight of the international higher education.

Currently, the international development of higher education is the basic situation: higher education in most developed European countries, "universal" stage of development, their level of socialization significantly higher than in China. According to Huang L, quarter grams vary, Li Shunying in the "Chinese sports teacher education reform theory and practice" and Huang Aifeng in "physical education teacher education, professional studies," the third chapter, "Reflection and learning: physical education teacher education professional Globalization" summarize the conclusions of the study, physical education training obtained abroad, the basic characteristics, and thus analysis of the professional development of physical education obtained abroad, China's influence physical education focus on the following two aspects.

1.1 Students 'Entrance' and Graduates 'Export' in

Implementation of foreign higher education "lenient entry, stringent exit" standard, that freshmen graduate school easier and more difficult, there is considerable attrition rate; and implementation of higher education, "Yan easy out", that is more difficult to college freshmen and easy to graduate school basically there is no attrition rate. In this

regard, China's impact on higher education abroad is better, that higher education has weakened, "seriously easy out" and increase the implementation of the "lenient entry, stringent exit" trend. This reflects the change in terms of barriers to entry in the profession and the output threshold of great changes have taken place, that is reflected in the quality of student enrollment and the quality of basic training requirements change, this is the direction of physical education professional development role of great traction and guide.

1.2 Disciplinary Curriculum in

Foreign higher education in the context of general education, education of our country and other education professionals currently in the process of transformation to liberal education, for example, Huang L, quarter grams vary, Li Shunying in the "Chinese sports teacher education reform theory and practice" in the first 151 about 03 "course program", said the basic idea of "field of the main courses, required courses discipline, limited selection modular courses, optional courses small", the implementation of "dilution professional, intensive courses," "emphasis on basic courses "and advocated" comprehensive, Arts and penetration. " Which reflects the "deep foundation, wide caliber," the idea of higher education in "mass" stage of development requirement consistent with the integration of general education; 131 about 03 "course program" should follow the basic principle is that: Stick to strengthen base, expanding its diameter, dilute the discipline, horizontal integration, vertical open. This foreign advocates of the "dilute professional, intensive courses, emphasis on basic courses, comprehensive, liberal arts permeate" more consistency. Since the existence of an entity is a professional course, the curriculum is training objectives step by step approach is the key to shaping the different types of people, so the curriculum has affected both the abstract concrete, to reflect the demands of the training objectives of macro, but also reflects the micro- people's intellectual structure, ability to structure characteristics.

2 Physical Education Professional Development Environment as the Domain II: Visual Field of Higher Education

2.1 China's Higher Education Reform Has Been Completed by the Elite Education to Mass Education in the Conversion Process - That "Thick Foundation, Wide Caliber," the New Concept of Training under Their Corresponding "Compound" of the Training Model

China implemented in 1999 to 2008, enrollment in higher education gross enrollment rate of more than 23 percent, according to international practice, can be found in China's higher education has been completed by the elite education to mass education in the conversion process. This dramatic change will inevitably lead to social change in demand for talent, and this change embodied in the philosophy and training model, the "thick foundation, wide caliber," training philosophy and "complex talent" training model, as reform of higher education trends. Zhang Shengli, Zhang down in the "thick foundation, wide caliber training highly qualified personnel - Undergraduate education

and training on the model of thinking" in the "thick foundation, wide caliber" talent of the new concept of the formation of a more detailed study of the text that: social development of the personnel requirements determine the training objectives of higher education. Proposed a "thick foundation, wide caliber" concept, and that is the basis of fundamental things, is the most basic requirements for qualified graduates, in addition to the professional aspects, should also include personality, cultural and moral level of quality and other requirements. Learn is the moral character; acquire knowledge, knowledge is only a means to serve the community. The former study is fundamental; which learning is instrumental. Therefore, the thick foundation of solid professional basis only, more importantly, have good moral standards and other basic human qualities.

2.2 Completed the Training Personnel from the Quality (Elite Education) to the Number of (Public Education) and then to the Quality (How to Improve the Quality of Training after Enrollment) and Finally Settled in Reincarnation ——Depth Explorations of Curriculum Areas

At present, training personnel in the main channel, teaching, the curriculum is the teaching of media and personnel training "blueprint"; Thus, the development of higher education focus must shift to the teaching field, and eventually turned to teaching the content of the curriculum areas. The inevitable logic of the process with the reality of higher education highly consistent, that is, higher education, the focus has shifted to the development in order to improve the quality of education as the core of the track. In response to this change in higher education, physical education reform and development has shifted the focus of curriculum areas.

3 Physical Education Professional Development Environment as the Domain 3: School Sports, "New Curriculum" in Sight

In 2001, the Ministry of Education promulgated the Compulsory Education "Physical Education (and health) curriculum standards." In 2003, they have issued a high school "sports and health curriculum standards" (hereinafter referred to as "Curriculum Standards"). It beckons to new ideas and concepts of physical education will be the physical education curriculum reform of basic education and development of the theme, we call the eighth curriculum reform or new curriculum. New curriculum, the first direct primary and secondary school physical education teachers have an important impact; followed the curriculum of physical education reform a major impact.

4 Physical Education Professional Development Environment as the Domain IV: Enrollment Policies of Sight

Admissions policy and physical education professional development are closely related, physical education is to produce the deep causes of the crisis. In recent years, enrollment in higher education sector has become the most popular vocabulary, many

of his research, but what exactly is enrollment? Why is enrollment? What are the merits and demerits of enrollment? Enrollment's deep impact? Are not very clear, it is necessary to clarify these issues in order to trigger a deep understanding of higher education enrollment, education and the community as deep, long-term effects, and ultimately focus on the impact of physical education.

4.1 Expansion of the Concept of Defining

From the semantic perspective, enrollment is to expand higher education enrollment, direct performance is a significant increase in the number of students each year. 1998, for example, the national college enrollment of 108 million, the 1999 enrollment, enrollment soared to 159 million, 510,000 more than last year, an increase of 48%. Subsequent years, college enrollment increased dramatically in 2008, enrollment for the 599 million people in 2009, is to reach 6.29 million admissions in 1990, ten times the number¹. West China Normal University scholar more than millet tree in the "Review and Reflection: the tenth anniversary of China's university enrollment," pointed out: China's university enrollment from 1999 to now, more than a decade's time. In this decade, China's higher education through an extraordinary way, to achieve leapfrog development, almost finished with the Western countries for hundreds of years time to complete the task, as the world of higher education in the history of a miracle, realized from elite education to mass education changes.

4.2 Expansion of Reflection - Comment on the Merits and Demerits

Haoge in the "University enrollment: history, achievements and criticism," said: "enrollment" is starting a compliment, now seems to have evolved into a pejorative. Ten years ago, social media and oral Code on the Code on the one-sided higher education in China is almost too conservative, too slow to ensure the quality of development as an excuse for the people eagerly looked forward to college and university enrollment in the history of merit criticism mood turned a blind eye, refusing the majority of passionate young people outside the university, are undesirable in the situation in management.

Lee Wai-kwong, the University "Expansion": the failed attempt, "pointed out: launched in 1999, the university enrollment policy, the Chinese universities are carrying up to assist the government to promote economic growth in the glorious task of the modern university history, the first time ever, this is the first time. Today, the implementation of the policy for eight years, brought us what? we see is the limited infrastructure in universities and teacher kept under conditions of increasing the number of students, because of the number at the expense of quality; is the universities carried out a desperate "to create world-class university," the movement; is skyrocketing tuition fees; is hard to millions of college graduates to go to school, employment is difficult. enrollment poses a problem: the overall decline in the quality students, the employment situation severe structural imbalance and corruption personnel have occurred.

Ning Shulin has pointed out: the following three people are the biggest beneficiaries of university enrollment. First, the education authorities in some of the fame of the believers; second, ignorant and incompetent local administrative officials at all levels of Playboy; third the size of upstart cynical bully sub².

4.3 Enrollment Policies on the Impact of Physical Education Professional Development

The development of anything should have a "degree" than the "degree" will produce "too far" the opposite effect. Such as physical education majors significantly lower entry requirements, especially with the physical education examination system changes (such as in parts of only four sports college entrance test quality increases, the abolition of the special skills tests), the Reform of College Entrance Examination (such as not take into account the special nature of physical education, the abolition of the interview, all get into the Internet), making a significant reduction in new special skills, it is difficult to meet the professional learning of special skills should have the minimum requirements, the overall decline in the quality of students; enrollment also makes physical education resources difficult to meet the fast pace of supporting the increase in places, making short-term physical education per capita amount of resources and quality decreased; undertake the task of teaching teachers to increase, job pressures, business dropped to improve time, quality of physical education is difficult protection; employers are not satisfied with the final result, students are not satisfied, dissatisfied parents, social dissatisfaction. For example Xiaduan Yang, "Physical Education in Hubei Survey of market demand and development of countermeasures," that the expansion of the impact of physical education in Hubei Province, and said: Physical Education in Colleges and Universities pace of development, whether professional or national ranking of school size the first, and there is school size and professional direction to continue widening. Profile of employment statistics show that since 2004, three years, the province of Physical Education graduates in the total employment rate is not high in the case were the following characteristics: (1) "professional counterparts" employment (ie, in school physical education teachers) progressive decline in the small. 2004 session of about 60%, about 58% in 2005 and 2006 sessions of about 57%. Professional institutions' professional counterparts, "the employment rate in the comprehensive educational institutions. (2) diversified practice areas. To calculate the first employment after graduation, about two-thirds in the teaching profession, one-third in other occupations. Such as: civil servants, state-owned enterprises, private enterprises, gym, leisure and entertainment or their own businesses and so on.

5 Physical Education Professional Development Environment as the Domain V: The Sight of Sports Institutions to Expand

Expansion of sports colleges play down the nature of physical education professionals. In 1999, enrollment in colleges and universities began to implement policies in the context of bringing the country bid for the institute's boom, sports academies also began an unprecedented expansion of the number of institutions, particularly those related with the sports university professional education , expression was even more prominent. For example, according to incomplete statistics, there are 15 independent national sports institutions and about 150 colleges and normal schools with sports (Department), this does not include Taiwan's three sports colleges and the Hong Kong Sports Institute.

According to the Ministry of Education, Division of college students released from 1999 to 2001 statistics, the national non-normal, and physical education is not related to the creation of professional sports hospital, a university are: China University of Mining, Zhaoqing University, Tibet Institute for Nationalities, Huanggang Normal College, Shaoguan University, Hubei Institute for Nationalities, Inner Mongolia University, Taiyuan University of Technology, Northwest University for Nationalities Central University for Nationalities, Guangxi University for Nationalities, Shihezi University, Xi'an Polytechnic University, Yan'an University, Yichun University, Yunnan Nationalities University, Chongqing Three Gorges College, Qiqihar University, Zibo Institute, Baoji University of Arts, Texas University, Harbin Institute of North China Institute of Technology, East China Jiaotong University, Yellow River Technical College, West Anhui University, Weifang University, Xiangfan University, Yunnan Agricultural University, China People's Public Security University³.

The professional education is not associated with the sports university opened the institute, the Department of the results: first, with the regular sports departments competing for students, reduce the admission conditions, so that the overall quality of new students decreased; Second, the college sports teachers, physical education, professional experience, facilities in a short time is difficult with the previous Sports Centre, the Department contend, so that students per capita sports resource-poor, is difficult to guarantee the quality of teaching, professional education in sports result in an extremely adverse social impacts; third, and regular physical faculties compete for teacher resources, leading to outstanding teachers resources unreasonable, irregular flow, affecting the normal teaching order.

6 Physical Education Professional Development Environment as the Domain VI: Physical Education Sight Expansion

Expansion of formal physical education major potential cause many people a false prosperity, seems to expand living space; practical effect on the contrary, this expansion is being constantly eroded Physical Education survival, its mainly in two aspects. First, the rapid increase in the number of professional, physical education enrollment has increased. For example, the total number of undergraduate physical education in the country in 1999, 67, 2008 to increase to 207, the number of graduates each year to provide more than million people ("three decades of reform and opening up China's sports", 278). Second, the training objectives of the generalization result of de-specialization training specifications and patterns. For example: physical education from the perspective of the professional production and development, it's always been the core of the training objectives of physical education teachers. After the reforms, the gradual generalization of training objectives, the "primary and secondary school physical education teachers" to "physical education specialists" to "complex physical education professionals," has been out of the training objectives of the main line - physical education teachers, the result seems to be What people are trained and capable, but the actual performance is really nothing so that we can. This trend of de-specialization, physical education will lead to the survival of "unique skills" - the loss of professional characteristics, physical education eroded the living space, the final

outcome as "Wen boiled frog", as in unconsciously to lose the gradient of Physical Education survival and development.

In summary, the enrollment for the university to provide more people the possibility to accelerate the university education from elite education to mass education transformation process; but also reduce the entry requirements, a large number of relatively low-level students to enter university, the starting point for training reduce the quality of graduates is widely questioned. "Enrollment" is the physical education a "thick foundation, wide caliber," to develop ideas and 03 "curriculum," one of the sources; basic physical education changes in the environment, focusing on the new curriculum, physical education teachers lead the new era of smart structures change, this information back to the physical education profession, but also lead to physical education curriculum reform; physical education changes in the environment, reflecting the increase in sports academies, sports spread of the teaching profession, eventually leading to physical education professional development goals of generalization and curriculum design to professional, Physical Education survival of the "unique skills" - the gradual loss of professional characteristics, physical education continue to erode the living space.

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Root Causes of Missing Phenomenon in Chinese Martial Arts Education

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Abstract. Using investigation, analysis, logical reasoning methods to illustrate Chinese martial arts education and root causes of the phenomenon of missing. The problems in reality of the modern Chinese martial arts, which are development slow, promotion difficult, being weakened and marginalized, have been traced on the perspective of globalization and East-West cultural integration in this paper. After analyzing "cultural shocks" that effects on Chinese martial arts spread and development, conclusion can be drawn as: the key way out for martial arts developing healthy and being global promoted is that its culture must be improved through East -West cultural integrating.

Keywords: martial arts, cultures, cultural shock, improvement.

1 Introduction

Chinese martial arts based on the natural characteristics of and the main contents of the martial, formed by the movement of the exercises, routines and forms of struggle is one of the traditional Chinese sports. It is a unique form of physical culture and rich in content and broad in social value, in China which focuses on internally and externally exercises. The ideas of martial arts involve the Chinese traditional philosophy, Chinese medical thought, health science ideas, bionics ideas, religious ideas of Buddhism and Taoism, and the talent ideas of "civil and military". Forms of the contents are extremely innumerable; the different martial arts are with the different opinions, which are all wise in some views, it is difficult to find the same one. There almost all kinds of martial arts legend in the immortal knight and all kinds of martial arts in the "guise martial arts" the skill description was almost magic all those make ordinary people feel more mysterious about martial arts. Which is largely obscured the true nature of martial arts, and make people confused, obscure and misunderstanding. With martial arts widely spread, these are the barriers should be across when people seeking the true meaning of martial arts. However, facing the opportunities and challenges by the integration trend of globalization in today's world, facing the reality of the integration trend after the world collision of Eastern and Western culture, Chinese martial arts don't well seize opportunities to meet challenges, develop and promote themselves. On the contrary, the trend itself has been weakened is in the extension. As a traditional pattern of global cultural system,

martial arts culture can survive only when its internal value system and the external social environment are in the dynamic balance of harmony. If this balance break and cannot adjust in time, to seek a new balance in the new environment, martial arts will survive in the crisis. Martial arts are in the current development bottleneck, and modern Chinese culture and Western culture are considerably different, hard to seek common ground. Therefore, martial arts have been weakened significant, its development has to be time for a change. The most fundamental ones should be improved in the aspects of martial arts culture.

1 The Harsh Reality of Martial Arts

According to the state general administration of sport martial arts institute of education reform of the elementary and secondary schools in China with the development of wushu (hereinafter referred to as the study of higher education press, "in June 2008) to the national 30 provinces, autonomous regions in the primary and middle schools 252 latest sampling survey: 70.3% married females who attended school did not have Kung Fu classes, and even some schools to reduce martial arts to increase more projects, like foreign fiction kickboxing Primary and middle school students understanding of martial arts is a great erroneous zone; the mode of school threw a bad influence on martial arts; Primary value choice of martial wushu classes fuzzy; Martial arts teaching material contents is different, the lack of systematic, scientific; Martial arts teaching means; obsolete, lack of science Martial arts weak teaching force; Teaching content choice is narrow, lack of appeal; Wushu ethic education not etiquette and implement. Students have five provinces and cities of north China wushu course content like less than half (42.8%), northeast three provinces more than two-thirds (69.5%) student feel harder than other wushu classes, students learn physical education not learn current textbooks of martial arts, but the content of traditional martial arts and other martial arts class content is interested in 'etc. As QiuPiXiang professor said: "although martial arts early in 1916 began to enter the school, different period and constantly into outline, listed in the curriculum, teaching materials. Today is formulated in school did not achieve the fundamental popularization, even in many schools' ', some schools in tatters of principals even made clear martial arts class can be canceled. If once martial arts class proper position in primary loss of martial arts, popularize and development will be very serious." ¹

2 The Classification and Martial Arts Weakening Chain Analysis

For the " the harsh reality that school martial arts weakened ", this study the root cause of that is due to come from students, teachers, teaching materials, teaching methods, martial arts status and the understanding of martial aspects to restrict school wushu development formed the weakening bottleneck; In the school martial arts practice, this a weakening bottleneck performance for multistage weakening chain of school wushu development applied together under the weakening of the role, the causes of the formation of a weakening chain analysis to probe the effective way of school wushu development.

Martial arts culture connotation is rich, broad and profound, martial arts contains many genres and species. If people want to know clearly about martial arts, you must focus on at least two aspects: first, to study the wushu culture; Second, across genres of uniting the martial arts. These really need more professional knowledge and long-term use feeling as a basis, for small and medium-sized student's body and mind comprehension ability and cognitive level terms, really have no good teachers, appropriate textbooks, appropriate teaching methods and effective method and persistent efforts to understand the mutual cooperation is truth. Martial arts Based on this, many students can't clear and comprehensive think martial arts culture and content rites. Analytical students understand the cultural connotation and contents of martial arts, may have a specific barriers as follows: First, martial arts culture derived from the complex, pluralistic social culture and martial arts in the process of the development in many aspects of society infiltration, which fundamentally decided to martial arts overall know more for abstraction, obscure and changeful, make students feel general unpredictable difficult. Second, martial arts content, its large moral-all of practiser devices, including the origin of many legends, all these strange for know real wushu added obstacles. Third, martial arts language description and spread the adage complex, magical metaphor, philosophy of hyperbole, excessive possess all these sayings full of mysterious colour characteristics. Such as "the combination of internal and external to martial arts, both appearance" explanation is that WaiGong should harmonious and unified internal strength, this is a traditional philosophy balance of Yin and Yang, the unity of opposites in martial arts practitioner in the specific application; And as a "hand like the meteor eye like electricity, body slender legs like similar arrow", "the two JiuChongTian" anarchy bang wushu proverb is full of fantastic parable, excessive exaggerated; "Lian strength don't practice force, strong play unusualness force", martial arts proverb is full of implied by speculation. These women between" one hand itself contains certain story, while the exaggeration composition of many of circulating during amplification of the exaggeration composition, make martial arts add mysteries, cover real martial arts. Fifth, martial arts inheritance the obstacle, martial arts way has long maintained a relatively conservative heritage approaches, such as "male-female" and "do not preach handed in the", "double", do not preach flyers "fairy transmissions", "books" and other forms in ways that don't fluent, causes students to martial arts one-sided or erroneous understanding. Sixth, martial arts literary works, film and television, the Internet causes the barriers, and in most martial arts works, martial arts masters be exaggerated writing technique described as have superhuman ability and wisdom, enabling ordinary people feel more worship and mysterious; In the film, television, network, martial arts skills with high-tech means and produced by technology showed incredible normal visual perception to suffer, misleading thought that martial-arts magical capability of existence, the reality of people and nobody can use to such a state, causing students feel martial arts first is coveted from second have a lot of deception, the composition³.

Northeast three provinces "research" shows that more than two thirds (69.5%) student feel harder than other wushu classes, students learn physical education not learn current textbooks of martial arts content. Teaching material contents trivial, complicated and difficult to master, students remember have internal relations movement in combination - martial art. Although students study so-called martial arts,

but because the action connected, linked together, before studying up will spend more time and energy; But now the majority of students and not willing to spend more time, eat lots of bitter to study martial arts, unable to break the bottleneck, so one can't remember learning movement, action do not like wushu became the norm of martial arts school, its result study natural is difficult to learn "student" feeling. Investigate its reason, on the surface, martial arts teaching material contents with demand in the student mind 176-189 inconsistent problem, is actually a school martial arts and social martial arts (or says The essential difference between folk wushu) no one clear problem. So, we will school system of education content, as in the martial arts and martial arts to enter the school within the social system before, as a cultural phenomenon of martial arts from the teaching goal, the study object, professor person, learning time, technical level, the relationship between teachers and students, professors means etc, simple comparison shows, to enter the school before the martial arts and school systems there are great differences. That is to say, from the social and cultural martial arts to school education of martial arts sport must be for larger change to just go, i.e. school martial arts development, supply students' learning wushu must undertake large renovation, must undertake the more thorough the transformation and processing, teaching material ZhaoJiYong in the theory of national traditional sports school textbooks that the ", we should strengthen theoretical study breadth and depth. Traditional ethnic sports entering school, in the operation will encounter a lot of practical problems, if not a scientific, systematic and mature theory system to guide, and will appear deviation, even errors. To the national tradition sports not only from sports, history and national characteristics of the Angle of education law even from it, culture connotation and times Angle of all the surveys and studies, found their inherent link between law and explore their available value, reveal deficiency and, showing its status and role, make its form a scientific and perfect and mature theoretical system; Otherwise, inevitable meeting produces "feel difficult to learn" results. This is the second form school wushu development bottlenecks, namely the student "ways feel difficult to learn" weakening chain.

In the human learning process, interest is positive psychological tendency, is the best teacher; A learner had the interest, will have true from the hearts of the power, can form good habits, to become a voluntary lasting action. However, the research "the investigation shows, the existing martial arts teaching material contents superficial, curt, monotonous, and cannot cause student's interest, from students to love, hard to help all students of Chinese martial arts hobby, will be difficult to develop their good habit of exercise consciously; Students present teachers of martial arts of skill and teaching methods have expressed greatly discontent, the martial arts class teaching professional teachers' teaching method monotone or no, demonstration ability is poor, can neither will martial arts external body movement performance in place, the more cannot be contained within the wushu cultural transmission and carry forward; But martial arts professional teachers only account for PE teachers of 29.2% phenomenon exists generally, professional martial arts teachers scarce also become students learning martial arts and a barrier. In the face of such teaching contents, teachers, teaching methods, students lack of learning wushu interest also is well things. Visible, students "low interest" main problems in the teaching material content is mainly drab, curt and teacher's martial arts accomplishment of the causes of low.

This creates the third way school wushu development bottleneck that students "low interest" weakening chain.

On the one hand cannot learn to understand the usefulness of martial arts moves of wushu, the actions don't know why it was done, the lack of design and attack meaning action and explain, lack of deep wushu culture and cultivated effective inheritance ways and approaches; On the other hand, don't know martial arts contains Chinese traditional culture. The research in north China "point out, middle and primary school of martial arts teaching just technology, if wushu teaching case, reflected BaoQuanLi is only. Visible and not really put some martial arts contain such as the person wants to modest, chongxin justice, China national some virtue in a series of subtly, cannot Sue, pertinently edification students. So, students of martial arts the learning effect is very hard to learn to martial arts of true meaning, "obscure martial arts movements" becomes the current school with universality of martial arts teaching in question. This form of school wushu development bottleneck, namely the fourth way to understand martial arts moves "student" weakening of chain.

Wushu is very much dependent before and after the sports, need to have a longer, relative continuous time for learning to satisfy the martial arts skills of coherence formation time and energy demand, require students to have some basic skills and the accumulation can lay the foundation for the next learning wushu, especially the study, HuanHuan conterminous, around the logical progression in nature is more evident. This from martial arts in international generic names "kung fu" can have got evidence, the so-called "kung fu" is essentially a practitioner of time, energy and the accumulation is by the quantity accumulation to use the sublimation of process. Martial arts, for flexibility, coordination, strength, speed and so on various aspects quality have high request. First, children time is to develop a flexible optimal period, plasticity; But missed the stage, and then improve flexibility is relatively difficult, and easy injury. Secondly, the inherent law of wushu itself is required within advisable, from practicing martial arts teaching but actual it is exactly the opposite. According to investigation, in elementary school stage, most of the students are not normal, the system of martial arts learning and could not reach the next to learn the basic technical secondary school martial arts body qualities required reserves requirements. Primary martial arts, completes the teaching duty according to outline the school requirements, and caused a few primary school the blank, the martial arts teaching to middle school, university of martial arts teaching increased the difficulty. This is the fifth form school wushu development, i.e. teachers difficult way bottleneck weakening of chain organization teaching.

Because people TiYuHua martial arts "to" ingrained identification, the western sports methods, theories and a series of evaluation standards also have dominated the wushu theory and technical system, education is walking along "martial arts school TiYuHua" route deformity development. According to the China national standards: the subject classification and code ", martial arts is affiliated to the national tradition sports science sports science under one of the professional secondary discipline. Today, adherent to "sports discipline" education, the martial arts education in school very difficult play its education and traditional culture body education, such as many personality education function. The "middle school PE education", "martial arts school both primary or middle school, high school textbook system, only in a numerous' body movement 'in a project, a project of different academic year period is accepted by the

student, education time always martial arts only a few hours or less"⁴. In school education from martial arts class the implementation situation, the martial arts class accounted for only a few share. This is the sixth form school wushu development ways bottleneck, school martial arts weakening of limbo chain. To sum up, wushu essence is not a simple body movement skills, also is not a simple thought culture, it is the essence of kung fu, namely has intrinsic cultural connotation of the content and external skillful the form of skill, after a long time of study practice fusion accumulation and unique physical form of uniting the way. School due to the position of martial arts students know embarrassed, the limitations of scientific, teaching material system is insufficient, the lack of special teachers with the special teachers martial arts quality is low, teaching method and single unreasonable restriction resulted from the development of wushu schools to enable the weakening chain line by school wushu development bottleneck restraints multi-level weakening chain.

3 Advice - Promoting the Development of Wushu Schools Effective Measures and Methods

With the masses, martial arts content and transmission system, constructing distinguish for martial arts project characteristics and the student body and mind development law school martial arts curriculum system, scientific, pertinence promote the comprehensive and effective martial arts school activities.

Add in sports training college students' proportion, martial arts special increase in the martial arts martial arts training the course proportion, special students from course for future PE teachers in percentage of martial arts accomplishment accumulation provide needed time and space; For the study, martial arts teaching method meets the school to find out martial arts teaching, especially effective teaching methods, in order to improve the special teaching efficiency; Establish in martial arts in PE teachers LunXun mechanism and the special ability examination system, improve the teachers' martial arts teaching level.

Strengthen the in-depth analysis of martial arts phenomenon, paying attention to education, build a wushu wushu culture phenomenon and martial arts culture "bridge" between, enables the student to the phenomenon of gradually by wushu wushu essence to see.

Martial arts, is a project, with sports other sports fitness strong body function, or the transcendental sports of ethnic traditional culture crystallization, has excellent ethnic culture and heritage education would conduct function. Increase school martial arts position, make its itself to have the wisdom of keeping fit, rehabilitation in school multiple functions can be full implementation of martial arts teaching.

4 Root Cause of Martial Arts Weakened

4.1 The Origin of Mental Barriers of Martial Arts Culture Reform – The Conflict between Nationalism and Global

For a long time, our thoughts have been stuck into the concept that "The more national, the more will be the worlds", saying that "the more national", the more

vitality, the more acceptable for the world. "In fact, it is only a bias. Everything have two sides, so we can turn that "the more national the more difficult to dissolve in the world". Then what are the obstacles between "national and the world"?

There're no contradiction between two sentences, because "national" constitutes the basic unit of "the world" biodiversity, is the basis of diversity of the world, In this sense that there is no nation ,there is no world, so" the more national ,the more will be the world's "is right. And often in the form of society before the industrial revolution, the truth of this view is more prominent.

However, the present world development trend is completely different from the pre-industrial revolution, the globalization and integration of the world, clear and powerful, has become an irresistible trend of the event. Any practices contrary to this trend will be no-go. Understand this, the ideological barriers of martial arts cultural should be modified to eliminate, in that martial arts will integrate into the world early.

4.2 Shielded Martial Arts – Martial Arts and the Western Sports Cultural Conflicts are Difficult to Compatible

Stability of martial arts culture can be analyzed from the perspective of Chinese civilization history: Confucianism established relatively uniform ethical standards for people; Relatively isolated geographical environment, providing people with a relatively closed living space; Alien cultures often become the object of assimilation because of Chinese large population; Facing alien cultures unified text show the viability of cultural tenacity; And other factors ,as examination system the formation of a fixed management system people blindly obedient Stifle people's creativity,make the Chinese culture the world's oldest Uninterrupted culture.Although the process of Chinese culture development received a lot of impact of foreign culture, such as alien invasion on the Yuan dynasty and the Qing Dynasty brought about the impact of foreign culture which are being modified, absorption, assimilation, but the basic meaning of Chinese culture did not change.

Chinese culture has seen a strong vitality, equally to martial arts. Specifically, the traditional philosophy is the martial arts foundation of cultural development, but also is the starting point of the logic and thinking pattern of martial arts. All human culture eventually can be traced to the appropriate traditional philosophy. The relevant studies of sports History and "Introduction to Chinese martial arts" written by Wen Li cited that: Philosophy played a leading role in the formation of a national culture. The law of boxing is the reflection of traditional Chinese philosophy in the martial arts techniques. Therefore, although the Chinese martial arts have much in common technically with other countries, national martial arts, they have their own national characteristics and insights on the techniques.

This traditional martial arts philosophy also extends to the content being formed. Many ideas of martial arts like boxing are inseparable with the traditional idea of philosophy, as the traditional philosophy of "Five Elements" provides the philosophical basis for the Xing Yi Quan, as the traditional philosophy of " Ba Gua doctrine" provides the philosophical basis of Ba Gua Zhang, and as the traditional philosophy of " Yin and yang theory, Changing ideas and Inner Alchemy of Taoism " provides the philosophical basis for the tai chi.This shows the essence of martial arts is different from other sports, it is extremely rich in philosophical science to guide the

exercise of human life. Boxing is all about philosophy as the theoretical and practical foundation. Thus, profound cultural roots of martial arts mainly refers that the martial arts form in the long-term, complex, multi-layered social and cultural background, experience of long, heavy moisture of traditional culture, and characterize of more and more stable, difficult to change. However, mankind enters the 21st century, globalization is the mainstream of world development, both in Eastern and Western cultures, or in economic or other industries, the trend "seeking common ground while reserving differences," is clear. Any breach of the main trend of globalization and integration are difficult to survive. The root cause which Martial arts has been weakened and cannot integrate into the mainstream of world sports is the shielding effect of the culture. Because of this, martial arts shelter their own solid circle to keep themselves away from world. So there is a considerable gap between martial arts culture and modern Chinese culture, say nothing of West sport culture. Therefore, the martial arts must take the initiative to the implementation of cultural improvement, to integrate into world culture, to have a broader space for development, and to have a better tomorrow.

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Electrical and Automation Major Courses Bilingual Teaching Experience and Research

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Abstract. The focus of the present work is on introducing and researching the characteristics and teaching approaches with experience to electrical and automation majors' bilingual courses. Based on analyzing the problems and basic modes of current bilingual courses teaching, reforms on electrical and automation majors' bilingual courses teaching are necessary and effective. The proper conditions with detailed measures and practice experience are given and have been applied. The practice results provide an overview of the bilingual teaching aspects on these professional courses. It is expected that this research can be helpful to the education study and reforms on the engineering curriculums of higher education level.

Keywords: Electrical and automation, Bilingual courses, Teaching experience, Teaching research.

1 Introduction

The bilingual teaching usually refers to the use of a second or foreign language in school for the teaching of content subjects. Since China adopted the policy of reform and opening to the outside world, English-Chinese bilingual teaching was put forward and has become one of the important measures in educational reform. The electrical engineering and automation majors are the main technical support subjects in the construction of industry, agriculture, national defense, and science and technology development. With widely application of microelectronics, computer, communication and information technologies, the electrical industry has got rapid developments, which has shown an excellent chance for the education of electrical engineering and automation majors and the requirements for cultivation have also been enhanced [1-3]. With the rapid development of modern science and technology and the acceleration of economic globalization, electrical and automation professionals and their foreign counterparts exchange information and technical more and more frequently.

Electrical and automation technologies are the important means of realization of technological modernization of China's industrial, agricultural, national defense and science and technology, improving productivity, product quality, working conditions and energy conservation techniques. Our country aims to develop electrical and

automation and other engineering technologies, and will have to absorb the foreign advanced technology. The electrical and automation professional training of the students, who are the future engineers, technological backbones of the factories and mines, and the English level of them will directly affect their role to play. Therefore, electrical and automation majors should be able to apply second language training for the latest academic and professional knowledge, participation international competition combined with the talent. The purpose of bilingual education is to promote students' second language proficiency, control and automation control engineering of advanced technology, cutting-edge understanding of the development trend of professional disciplines.

2 Purposes and Basic Modes of Bilingual Teaching of Electrical and Automation Courses

Currently, the bilingual teaching activities are popularly carried out in domestic higher education level colleges and universities, implying the internationalization trends and demands of higher education. However, the bilingual teaching has shows some detailed problems in performing aspects. Its teaching process gives higher requirements for the teacher and students. By the bilingual teaching practice in Hebei university of science and technology, the authors have got deep understanding on the purpose and meanings of bilingual teaching of electrical and automation courses.

2.1 Purposes and Meanings

The purposes and meanings of bilingual teaching can be classified as:

1) Bilingual education as a second language providing places to practice is to improve students' ability to use a second language through teaching. Although the emphasis on English education is widespread, the students become involved with a lot of time and effort, but its effect is not commensurate with the investment. The proficiency in English and student test scores are inconsistent, which rooted in our English teaching with authentic exam-oriented education, so that English related education based on exams extended from secondary school education to the university. Students in the learning process lack of ability to use language and the examination has become the ultimate purpose of learning. The bilingual education provides English practice sites, and its main role is to strengthen students' English proficiency, i.e. reading, listening, and writing capacities [4-6]. In this sense, bilingual education is undoubtedly improving the efficiency of learning English, training of professionals proficient in both languages as an excellent way.

2) Bilingual education will help students master the vocabulary and knowledge of the expression, for future scientific and technological exchanges to eliminate the language obstacles. In the era of rapid development of science and technology, the internet and digital multimedia provide the convenience for international exchange of scientific and technological between workers easier than ever, with tracing the latest development of cutting-edge technology and international scientific knowledge ability to communicate becoming the basic quality of science and technology workers. Students in the university learning and reading a large number of English teaching

materials is a training of abilities on information technology mastering and exchanging to lay the foundation for future research in science and technology.

3) By using the original materials, the expertises of foreign materials can be absorbed by the essence of each other. Foreign materials usually focus on relating the practice part, reflecting the development and application of cutting-edge disciplines. Bilingual education through the use of excellent original material and their teaching of complementary advantages can optimize the professional curriculum content and teaching methods with excellent effects.

2.2 Basic Modes of Bilingual Teaching of Electrical and Automation Courses

The bilingual teaching process is usually on English and Chinese languages based speaking, explaining and interpretation etc [7-9]. It can be divided into three modes:

1) To master the technical terms as the main purpose of bilingual teaching

The bilingual teaching materials in Chinese, English reference books, have been chosen to read some chapters; teachers teaching in Chinese writing on the blackboard and explain the technical vocabulary. The teaching aids links are mostly in Chinese. This is the most simple model of bilingual education, requiring students to master vocabulary, reading some English texts, to master the general expression, but the students' English proficiency requirements are quite loose, so the pressure brought by the language on our students is very small, but it is interesting for the students with spare capacity in the school by providing self-development space. This model of demands for English proficiency of students is not high and can be extended with a large area. The students can also accept multiple courses for bilingual education without feeling pressure to learn, while involved in a variety of courses in English to accumulate.

2) To improve the abilities of reading and writing of technical English as the main purpose of bilingual teaching

The model use materials in English and Chinese reference materials, reading materials in English, difficult parts of the reading reference books in Chinese; the teacher writing on the blackboard in English, but taught in Chinese to explain specialized vocabulary and frequently used expressions; teaching aids links is in English. This bilingual education model, which requires students to adhere to read English textbooks, improving their English reading speed and comprehension of English expressions; in operations, training, professional English writing skills; the requirements of students' English proficiency bring some pressure for the selection of students, which can not simultaneously open more courses of this model of bilingual education programs. English as non-native language, even the best students, never touched in English to understand the new knowledge, their reading speed and comprehension are worse than the mother tongue. In order to ensure that students can hold after-school English reading materials, classroom interpretation can not keep a lot of doubt points, and the students can get better understanding of the core knowledge in the classroom to provide assurance for the after-school reading smoothly. If the use of classroom English lectures and reduce the efficiency of the students, after-school reading comprehension problem because of the classroom learning can not compensate for the deficiency, which will reduce the professional knowledge learning. To this end, teachers in bilingual education should have a high

efficiency of classroom teaching, student attention to classroom learning, to obtain professional knowledge and English skills improvements as a double harvest.

3) To cultivate and develop all-round abilities of English reading, listening, writing, speaking as the main purpose of bilingual education

This English teaching pattern adopts English teaching and reference books. The teacher writes on the blackboard and speaking mainly in English, Chinese language only used in difficult parts for explaining with a small amount, and all aspects of teaching aids are in English text. In these teachings, the English proficiency of students is higher, and only after the selection of English and professional double excellent learning ability of students it can be carried out. These outstanding students have a strong consciousness on overcoming difficulties, and can consciously implement the teaching, training with English language learning, also with accustomed to thinking, to understand the expertise of professionals to become proficient in English.

3 Proper Conditions for Implement the Bilingual Teaching

Bilingual education can not be without teachers, students, teaching materials three elements. Learning through professional knowledge to improve their English language proficiency learning mode, with the usual learning the language itself is different from the process of bilingual education is to provide students with the opportunity to use English or place, students by learning to improve English skills, students mainly rely on themselves to achieve their own applications, rather than by teachers' teaching. Therefore, the key point in bilingual education is to make students agree with it ideologically and from the action up to implement it and it becomes a pleasant practice. Teachers and teaching materials serve in the process.

3.1 Teacher Conditions

Bilingual teaching makes requirements for the teachers to be with professional skills and English proficiency. Firstly, the implementation of bilingual education teachers should achieve a considerable level to teach in the professional competence and learn methods, which is handy when using Chinese language teaching, so they can implements bilingual education not bear teaching methods and language the dual pressures, and there is the potential to improve teaching efficiency. Obviously neither of bilingual teaching reduces the quality of teaching as the cost, nor can it increase the burden on students as a precondition, to rely on teaching efficiency for English language skills improvement. To improve teaching efficiency, the teacher factors play a key role. Implementation of the first and second modes of bilingual education, primarily the teachers are required to have strong English reading skills, read a large number of curriculum-related reference materials, and memorize the course of professional terminology and common expressions with standard pronunciation for comparison. Due to mainly Chinese teaching, it is with less demanding on the teachers' speaking ability. In the third mode of bilingual teaching, the teachers must have good English proficiency, special speaking ability. Professional knowledge talks are different from oral communication, which strives to refined, accurate, and lively and

enlightening. It is best that the teachers have received specialized training. In short, teachers in bilingual teaching should have excellent professional competence, good teaching methods of English language ability to invest more energy than the mother-tongue teaching, in order to improve teaching efficiency by neither reducing the professional quality of teaching as the cost, nor to increase heavy burden on students as a precondition to achieve double harvest on professional competence and proficiency in English. To do this is not easy, but only this, bilingual teaching makes sense and vitality.

3.2 Teaching Materials

The good parts of key factors of teaching materials are the original books (textbooks). The selection of original material mainly considers the following factors:

The first is whether the content system and teaching programs in the school curriculum after the pre-guide have a good convergence. Secondly, the breadth and depth of content meets student-level requirements. The third is the content integrity and advancement of the system. The fourth is the language with the readable and enlightening. Fifth is the diversity of examples and exercises. Since China and western countries have differences in the teaching system, a set of original material is usually difficult to meet the teaching requirements, and must also choose a set of Chinese textbooks, or as a reference, or as a textbook (as bilingual education model may be). Two materials complement each other, learn from each other.

3.3 Quality of Students

Students' actively cooperation with the bilingual teaching can really be the key to improve their English abilities. In the process of bilingual teaching, English language skills is the second goal, it is subordinate to the professional knowledge and thinking ability of the first goal. For science and engineering courses, learning outcomes assessment, even if proposition and answers in English, the examination results and English language ability related degree is almost negligible, which is due to the general questions asked for the engineering calculations needs good understanding of meaning of the questions to answer using fewer words. Therefore, bilingual education in English language learning is learning without the pressure of examinations, only the students in thought want to accept this teaching model, the teaching can be done independently to each link in order to achieve English language capabilities. Not only expertise in science learning and thinking ability as the first goal, but also the bilingual teaching of poor English skills students are allowed for professional competence and training not affected, or the English will be building constraints in the professional capacity of students, particularly the implementation of the professional foundation courses to be chosen as bilingual courses, because these courses are the key points for the students learning to enter the profession. Therefore, in the process of bilingual teaching, the students' English proficiency differences are great, which should be considered normal and the low related degree of course assessment and the English proficiency is reasonable.

4 Measures and Practice of Bilingual Teaching for Electrical and Automation Majors

For the introduction of bilingual teaching, the students began to be suited. Combined with students' learning characteristics, the use of good teaching methods can improve the learning interests, reducing the difficulty of the original materials brought, so that the students likely accept or like the teaching methods to achieve a multiplier effect. Bilingual teaching mainly refers to the students to learn English in order to obtain his own professional knowledge or ability in its focus on the learner's purpose. By bilingual teaching, the students not only learn professional and but also to improve English level, which has the effect of kill two birds with one stone. Whether to continue the work on the frontier of professional fields or facing severe employment situation, require that students not only master a solid professional knowledge and basic English communication skills, and should also have strong English reading, translation and writing skills.

4.1 Adopting Various Teaching Forms and Teaching Means

In bilingual teaching, taught in cross modes of English and Chinese, which is bound to slow down the speed of lectures. But the original materials are with large amount of information, in order to not affect the progress of teaching, multi-media teaching methods must be adopted. English electronic lesson plans can increase the information on the classroom. In addition, students can download lesson plans at any time; in the class more energy can be used to listen to their lessons. Students see intuitively, graphically to learn the content, reducing the stiff, boring blackboard teaching, greatly stimulating the enthusiasm of students.

4.2 Teachers Teach as Close to the Original Text, Highlighting the Technical Terms

Teachers in teaching may explain the contents by leaps and bounds styles according to the needs of teaching. In bilingual teaching, the students' difficulties should be considered as far as possible by teaching order of textbook. If focusing on teaching content, the teacher can tell the students in which pages and which line, so that students can identify with learning. Such as "advanced language" words "programming" of the variable's data type in teaching, because the integer values, floating point, double precision numbers and the character type for students are new concepts. So let the students turn to corresponding page when in the teaching with corresponding interpretation of several types (integer, float, double, character), so that the students go to remember and understand.

An important issue of bilingual teaching is the processing of terms, it directly affects whether the students can keep up with the progress of teaching, and the ability to understand the content. So the technical terms should be high lightened in the lesson plans, and professional technical terms should be repeatedly stressed, to make students can use English to describe the basic content of this course. In each chapter summary,

the teacher should prepared in English, and summarize each chapter terms for the students' convenience to review and master. If possible, professional glossary can be issued to students in this course for easy access and memory.

4.3 Strengthening the Interactive Teaching Methods

Students using English textbooks and teachers teaching in Chinese are easily and simply out of touch compared to Chinese teaching. Using of multimedia teaching section, the teachers may communicate with the students out of the classroom time. The activities can be discussions of programming ideas, answers of key problems on knowledge, and small exercises and other activities on class. The practice effects proved that these methods significantly help to construct active classroom atmosphere so that students can better understand some of the book important paragraph, changing the single model of teaching and learning, which forms teacher-led learning mode on the main part of the students.

4.4 Preventing the Students from Relying on Chinese Supplementary Materials and Allow Students to Do a Rehearsal

In teaching, it also found that some students in the learning process rarely read English language based teaching materials, totally dependent on Chinese support materials. These certainly not achieve the desired results. To prevent this problem, teachers can increase the class Q & A session, the relevant foreign language teaching materials and layout specific operations, or allow students to write summary. Usually results can be 10% of a total score of 20%. The final exam should be in English out of question and answer. These methods are urging students to read foreign language teaching and gradually help the students form the habits.

In bilingual teaching process, the rehearsal is very important. At the end of each lesson, the teachers may introduce the next lesson main content and the corresponding textbook pages, requiring the students' full preparation. Otherwise, the students will not understand and read correctly, causing a vicious cycle with emotional weariness.

4.5 Making Reasonable Progress and Plan Instruction

According to the stepped and broad features of teaching English process, to establishing a reasonable teaching plan at different times has different emphases. Electrical and automation majors as theoretical and engineering practice are quite strong engineering professionals. In the process of learning professional course by bilingual teaching, the students understanding of learning content and mastering the professional knowledge have big relations, judging from the teaching plan arrangement, most of the school's specialized courses are arranged two semester respectively, in the third and fourth grades semesters. According to the progress of rational design of specialized courses content, the bilingual teaching courses should be properly chosen and planned under the scientific guide of teaching affairs office.

5 Conclusions

From the practice results, according to the requirements of specialty education of electrical and automation majors based on different objectives, researches on bilingual teaching are necessary and effective. Based on the analysis of proposes and basic modes of bilingual teaching with problems countered in practice, the proper conditions for implement bilingual teaching and some measures and practice are presented in detail. However, there is still a long way to go in bilingual research and practice. It still needs further improvement to continuously enhance the quality of bilingual teaching and establish new research-based bilingual for engineering specialties' education methodologies.

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Discussion on the Teaching Methods of Electric Circuit Courses in Computer Majors

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Abstract. Electric circuit courses are the major basic subjects about hardware curriculum of computer majors in undergraduate college. The teaching quality of these courses would influence the students' learning effect of the following hardware curriculum. In this paper, several problems exist in the teaching and learning activities of electric circuit courses are introduced firstly. And then, some teaching and learning methods are discussed in order to improve the students' learning quality of electric circuit courses.

Keywords: Teaching method, Electric circuit courses, Computer majors, Hardware curriculum.

1 Introduction

With the fast popularization and widely application of computer science and technology in every field, more and more people have acquired the basic knowledge of software and hardware of computers, with which they can maintenance their computers in a good working state to satisfy their daily requirements. So it is necessary to assign a higher development goal for the students of computer majors including "Computer science and technology", "Network engineering", "Software engineering" in undergraduate college. For this purpose, training students' developing ability of computer hardware should be paid more attentions than before.

As fundamental courses in hardware curriculum of computer majors in undergraduate college, electric circuit courses such as "Fundamentals of Circuit Analysis" and "Fundamentals of Electronic Circuits (or called 'Analog Electronic Circuits' and 'Digital Electronic Circuits')" are the compulsory courses in teaching plan. The teaching quality of these courses would influence the students' learning effect of the following hardware curriculum. But many problems which would be disadvantageous to the study of the knowledge still exist in the teaching and learning activities of electric circuit courses.

Many teachers and researchers have paid attention to the teaching method of electric circuit courses [1-7], which are helpful to improve the learning effect of students on circuit courses.

In this paper, we collectively call the following courses: “Fundamentals of Circuit Analysis” and “Fundamentals of Electronic Circuits (or ‘Analog Electronic Circuits’ and ‘Digital Electronic Circuits’)” as “Electric circuit” course, to introduce some problems exist in the teaching and learning activities of these courses firstly. And then, some teaching and learning ways are discussed in order to improve the learning quality of students in electric circuit courses.

2 Improve Students’ Understanding to Electric Circuit Courses

Many students pay efficient attention to the computer software curriculum, whereas neglect the studying of hardware lessons. Some students think that the job of software developing is the only work that is fit for a university graduate of computer major. While other students would consider that the computer hardware developing work is unnecessary or very difficult in today’s situations.

The reason causing these problems is that the students did not understand the value of mastering the developing skills of computer hardware for the further. So it is necessary for a teacher to make his students clarifying the learning goals of computer hardware knowledge and enhance their learning interest of hardware lessons.

Referring to the electric circuit courses of computer majors, we could try to bring up students’ interest on the circuit knowledge by the measures of introducing global knowledge of circuit applications in computers at the beginning of the course and in every lesson. The content structure is shown in Fig. 1.

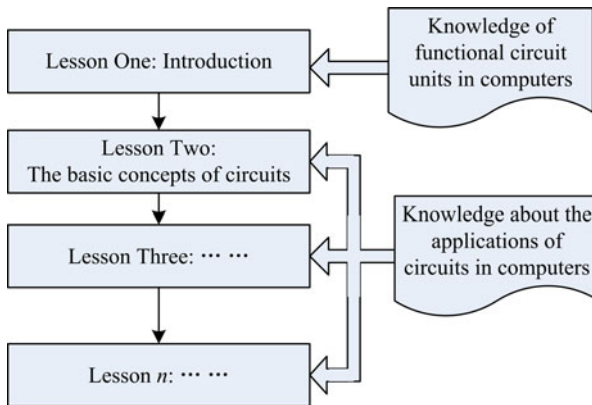


Fig. 1. Introduction of electric circuit knowledge in computers

2.1 Introduce the Application Knowledge of Electric Circuits in Computers

In the beginning of electric circuit courses, we could introduce the knowledge of the representative applications of circuits in various kinds of components of computers to make the students understand the importance of circuits in computers and increase the studying interest to electric circuit lessons.

The examples of circuit's application in computers which we can tell students briefly in electric circuit lessons could be designed in many ways. For instance, we can introduce this knowledge according to the basic functions of circuits such as energy supply, information transfer and processing, state detection and control, and so on [1]. Several examples are as follows.

Application of Circuits in the Power Source of Computers. The function of a power in a computer is to supply energy to the computer system. Generally, a so-called power is a converter which converts the alternating current of commercial power into direct current of lower voltage [8]. Through above-mentioned introduction in circuit lessons, make the students realize the application of power circuit in computers. If you are teaching lessons with multimedia classroom, you can display some pictures of computer power with projector, which could give the students a visual impression of power circuit.

Application of Circuits in Computer Bus. The bus in computers is a typical example of the application of circuits in the field of information transfer. There are three kinds of bus within computers called data bus, control bus and address bus [8]. When we teach the contents of circuits' functions in lessons, we can talk about the working principle of computer bus briefly. Because of the interest in computers, the students would understand the knowledge about circuit application in information transfer more profoundly.

Application of Circuits in Computer Mainboards. Mainboard is a key component in computers. Most of the functional circuit units are situated on mainboard. Among these units, CPU (Central Processing Unit) is the most important component which takes the control and calculation tasks in computers. So the working state of CPU is an important monitoring object within computers. With the elevation of integrated degree of CPU, the quantity of heat increases remarkably which causes the rising of CPU's temperature. To avoid the high temperature damage to CPU, a monitoring circuit is set on many mainboards near CPU chip to detect the temperature of it [8]. When the CPU's temperature is lifted up to a threshold value, this monitoring circuit could take measures to protect the CPU chip. Although the scale of this temperature monitoring circuit is not large, the main elements of a monitoring system are all contained in it. Through this example, we can tell students the importance of monitoring circuits.

2.2 Integrate the Knowledge about Computers into the Lessons of Electric Circuit Courses

Besides introducing the application knowledge of circuits in computers at the beginning of electric circuit courses, we can also tell students the knowledge about computers in every lesson of electric circuit courses to enhance their learning zeal. Some examples are as follows.

Oscillating Circuit in Analog Electronic Circuit and Computers' Clock. The oscillating circuit is taught in the course of analog electronic circuit [2]. When teaching this content, we could talk about the composing principle of computer clock which have relation to the oscillating circuit. This example could also make the students to think more applications of oscillating circuit in our daily life to lift up their learning interest on circuit lessons.

Trigger in Digital Electronic Circuit and Computers' Memory. Memory is an important part of computer which keeps the programs and data used in the running process. So its capability determines the performance of the whole computer system in some extent. In computer memory, trigger [2] is a basic unit which is charged with the memorial function. When the trigger is taught to students, the knowledge of computer memory could be introduced simultaneously to make them understand the value of circuits in computers..

Combinational Logic Circuits in Extending the Functions of Computers. In the course of digital electronic circuit, various kinds of combinational logic circuit units are interpreted to make students know how to analysis and design the combinational logic circuits to meet the actual needs. At this time, we can show to students some actual examples of the applications of combinational logic circuits in extending the functions of computers.

For example, when we tell students the knowledge of nixie decoder [2], we can ask the students to consider that how we can control this nixie decoder through computers to make nixie tube display the digits we have input in computer. We can also introduce the LED screens which are widely used in all fields in our daily life to transfer information through displaying characters and tell students how a computer control it.

3 Improve Students' Learning Method on Electric Circuit Courses

The characteristic of electric circuit courses is that they are linking theory with practice. At first, the theoretical foundation must be established to ensure the students could recall them in actual application. And then, how to use these theory to analyze and solve actual application problems is also a key ability which the students should master.

3.1 Make Students Attach Importance to the Electric Circuit Theory

Many students of science often ignore the importance of memorizing the theoretical contents in mind, which result in the errors in analyzing and designing circuits. So it is necessary for teachers to emphasize the importance of memorizing theoretical contents in order to make students mastering efficient circuit knowledge for the following applications.

3.2 Encourage Students to Do More Practical Exercises

Although some examples are explained by teacher in classroom detailedly and many exercises are done by students after school, the additional circuit analysis and design exercises are needed for students to master the ability of circuit analysis and design steadily. So teacher should tell the students the significance of doing extra exercises in the introduction lesson and introduce some course references. Furthermore, because the students' ability of circuit analysis and design is build step by step, many questions may be generated in the process of doing exercises. So, the teachers should answer the questions of students about these exercises patiently at any moment.

4 Conclusions

In this paper, based on the importance of hardware curriculum in computer majors of undergraduate college, some teaching methods about electric circuit courses are discussed for the purposes of increasing the learning interest of students on the circuit lessons, which can improve students' learning effectiveness of hardware courses ultimately.

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Teaching Reform and Sports Injury Precaution in the Skating Curriculum in Universities

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Abstract. The teaching quality of undergraduates winter physical education has an important effect on Chinese ice - snow sports development. The undergraduates sports injury precaution and teaching reform in the skating curriculum are significant for popularizing and developing Chinese ice -snow sports. With the methods of questionnaire, documentary information and mathematical statistics, the article has an investigation and analysis on the current status of undergraduates sports injury and teaching quality in the skating curriculum. The results show that the ice fields are relatively available but there are some influencing factors resulting in more undergraduates sports injury in skating curriculum, such as the ice quality is not good; the teaching time of skating curriculum is less; more universities use the demonstration teaching method and some ones uses multi- level and multi -group teaching method and game teaching method, the teachers' income is low, the teachers enthusiasm is low for teaching reform. It suggests changing the teaching idea of winter physical education by understanding the function of winter skating physical education in developing the undergraduates health personality and helping their obtaining employment, upbuilding the reward system of skating teaching, improving the teaching condition, richening the teaching means, actively preventing the sports injury.

Keywords: skating curriculum, teaching reform, sports injury, precaution.

With continuous reform of Chinese education system, schools have transferred from exam-oriented education to quality education in cultivating talents. It has a far-reaching impact on the development of education career [1]. As social industries in China change from labor-intensive types to knowledge-intensive ones and the ways of creating value keeps on upgrading and transiting, the leading methods of enterprises of creating value are low carbon, environmental protection and self-owned intellectual property rights. In order to meet the demands of the society, colleges accelerate the pace of undergraduate education reform and focus on teaching methods of solving problems, innovating and serving the society with knowledge, etc based on that of imparting traditional knowledge. Physical education as an integral part of undergraduate education, major problems such as how to perform the function of physical education, how to organically combine physical education with other subjects' education, especially how colleges in North China combine physical education in winter with training essential qualities for future talents in the society confront management level in colleges, physical education teaching management and the faculty which need to be seriously considered and solved.

Heilongjiang Province is a powerful one in launching ice and snow sports in China. It successfully hosted the third Asia Winter Games and the Harbin 24th Winter Universiade in 2009. In 2010, athletes in Heilongjiang Province won gold and silver medals in the 21st Olympic Winter Games in Vancouver. Heilongjiang Province intensively launches ice and snow sports. And colleges in Heilongjiang Province provide a new force for Chinese ice and snow sports. Millions of teenagers take part in ice and snow sports team or high-level college ice and snow sports program and winter sports can be seen everywhere in colleges so that they make an active contribution to the realization of Heilongjiang Province being a powerful one in ice and snow sports.

Early in 1954, technical colleges in Harbin such as Northeast Agricultural College and Northeast Forestry College, etc offered skating courses. After China State Sports Commission, Ministry of Education and Ministry of Health issued the promotion of Labor and Health System throughout the country in 1955, Sports Commission and Provincial Education Department of Heilongjiang Province determined to add skating courses to physical education in winter. Even today, colleges and universities in Harbin such as Harbin Institute of Technology, Harbin Engineering University, Heilongjiang University, Harbin Normal University, Harbin University of Commerce, Harbin University of Science and Technology, Northeast Agricultural University, Northeast Forestry University and Heilongjiang Institute of Science and Technology, etc offer skating courses as one of the compulsory curriculums in winter physical education[2]. Colleges and universities in Heilongjiang Province offer the most comprehensive skating programs with the longest duration among institutions of higher education in China.

Winter physical education in colleges can promote students' anti-distress ability, social adaptability and cultivation of team work. Teaching practice indicates that skating courses can not only improve college students' comprehensive qualities such as speed, strength, agility and balance, etc, but also favor for cultivating their volition qualities. However, it also reflects the high rates of college students' sport injuries in skating courses. Doing ice sport is easy to fall over hence rate of sport injuries is relatively higher than other land activities, which has a great impact on college students' health. These negative impacts can not be neglected. The author deems that precaution of college students' sport injuries is key to innovation in teaching mode of skating courses in colleges and universities. Teaching reform of skating courses in colleges and universities aims to perform function of winter physical education in cultivating college students' social adaptability, competitive and innovative spirit, etc. And preventing sport injuries in skating courses is the only way to arouse students' interests in skating courses in which they gradually learn anti-distress ability, social adaptability, team work and awareness of life-long physical activities. In order to carry out skating teaching activities better, the author makes an investigation on teaching mode of skating courses in Harbin colleges and universities and situation of college students' sport injuries, makes an analysis of the injuries' characteristics and causes, and puts forward pertinent measures of teaching reform and measures of preventing students' sport injuries in skating courses to minimize effects of winter physical education.

1 Research Objects and Approaches

1.1 Research Objects

The paper adopts methods of follow-up investigation and takes 300 students aged from 18 to 20 in 10 colleges and universities such as Harbin Institute of Technology, Harbin Normal University, Harbin University of Science and Technology, Heilongjiang University, Harbin University of Commerce, Harbin Engineering University and Northeast Forestry University as research objects, among which 160 male students and 116 female students.

1.2 Research Approaches

1.2.1 Questionnaire Method

According to research contents and investigation goals, the author designs a questionnaire on Harbin college students' sport injuries in skating courses and invites experts to examine the validity of the questionnaire. Then 300 questionnaire were sent out to research objects, 276 questionnaire responded (response rate and validity rate is 92%). It also adopts validity rate and re-testing to examine the validity and reliability of the questionnaire. The content validity rate is 0.84, reliability coefficient (correlation coefficient) 0.97, which conforms to requirements of statistic research.

1.2.2 Documentation Method

Reading books on ice sports and sport injuries in ice sports and consulting relevant articles of a decade in CNKI, Wanfang Database and Vip Database, etc to provide theoretical basis for the research.

1.2.3 Expert Interviewing

Conducting interviews of classroom teachers through face-to-face interview, telephone or network, etc to solicit opinions of PE teachers from all sides on winter PE teachers' treatment, causes of sport injuries and precaution measures, etc.

1.2.4 Mathematical Statistics

Adopting SPSS13.0 software to make common mathematical statistics of relevant data.

2 Results and Analysis

2.1 Teaching Venue and Classes

All the investigated colleges and universities have their own skating rinks and those which have many campuses own several skating rinks, but the teaching venue of skating courses has lots of bumps, cracks and impurities. Teaching hours are generally 10 classes to 12 classes, which are lower than land activities of PE teaching.

2.2 Main Teaching Methods

These investigated colleges and universities adopt teaching method of mixing female students with male students, among which most allow students to use different ice skates such as speed skates, ice hockey skates and figure skates in skating courses and 3 colleges teach only speed skating. Most courses adopt demonstration teaching method, and few adopt grouping, leveling and games teaching methods.

2.3 Treatment of Teachers

PE teachers of skating courses have no special grants or subsidies, no specialty apparel or anti-coldness apparel such as gloves, hats, cotton-padded shoes or face guards and no relevant prompting measures. Some young or elder classroom PE teachers have low initiative in teaching and single teaching method.

2.4 Sexual Identifications of College Students' Sport Injuries

Among 276 investigated students, 90 freshmen have had sport injuries of different degrees (injury proportion is 32.61%, male injury proportion 31.25% and female proportion 34.48% which is a little higher than male one); 50 sophomores have had sport injuries of different degrees (injury proportion is 18.12%, male injury proportion 18.75% and female proportion 17.24% which is lower than male one).

3 Discussion

3.1 Problems of Skating Curriculum

3.1.1 Single Teaching Method

Ice sports are conducted in high-cold environment. Ice skates have small bearing surface, which have low friction coefficient with ice surface. Center of gravity moves quickly when doing ice sports. Due to poor balance, students easily tend to fall over. That is the subjective factor of more injuries in ice sports than other sports [4-5]. Most colleges and universities adopt demonstration teaching method. Those which adopt grouping or leveling teaching methods mainly base on demonstration teaching method, and games teaching method is just supplementary. Single teaching method lowers students' interests in skating courses so that they lack enthusiasm and initiative in learning skating knowledge and skills. That is the objective factor of college students' sport injuries in skating courses.

3.1.2 Limitations of Teaching Conditions

Skating courses are conducted in the process of high-speed gliding and technical routines. Hence, skating courses require high standard of venues [6-8]. Although every investigated college or university has skating rink, the management of teaching venue is to some degree non-standard and the teaching venue lacks essential protection measures, has lots of bumps, cracks and purities so that the injury rate increases a lot. Skating courses are less than other land courses and winter physical

education accounts only 7.2% for all the PE classes. Less teaching classes and the urge to accomplish set teaching goals make skating courses the crash ones so as to inevitably cause sport injuries.

3.1.3 Low Enthusiasm of Teachers in Teaching Reform

Skating courses are outdoor ones so professional anti-coldness articles such as gloves, hats, cotton-padded shoes, goggles and cotton-padded clothes are necessities for PE teachers. But, most schools will not provide these necessities which need preparing by teachers at their own charges without any anti-coldness subsidies. That lowers some teachers' enthusiasm in teaching reform. Teachers overly use attendance or classroom rules to discipline students so that the students are in passive learning situation and repeatedly have injuries or sickness. The author believes that teachers' lack of responsibility is another reason for low enthusiasm in teaching reform: first, injury rate of sophomores who have some fundamental skills in ice sports amounts to 18.75%; second, PE teachers are unwilling to adopt proven teaching methods in teaching practice such as tentative teaching method, club teaching mode, exercise teaching model, integrating teaching, dynamic asynchronous teaching, implicit learning method and interest-driving method, etc[10-16]. Hence, improving winter PE teachers' treatment is the basic measure to solve problems of high rate of injuries and single teaching method in skating courses.

3.2 Measures of Teaching Reform in Skating Courses in Colleges and Universities

3.2.1 Transferring Teaching Philosophy and Establishing Incentive Scheme

In teaching systems of colleges and universities, PE teaching is not simply imparting sports skills. PE teaching philosophy of traditionally imparting some sports knowledge and learning some sports skills and ways of physical exercises has been superseded. But many PE teachers have formed the target-oriented teaching model over time due to the influence of teaching philosophies such as competitive sports and physique education, etc. As a result of lack of general understanding of many leaders, PE teaching managers and students in college and universities in PE, PE teaching philosophy is still in the stage of exam-oriented education. Single teaching method of skating courses, teachers' low enthusiasm in teaching reform and college students' high rate of injuries sufficiently proves the above.

Facts have proved that skating courses can cultivate and improve college students' practical operating ability, social adaptability, communicative language competence, interpersonal communicative competence, anti-distress capacity and will to solve difficulties and students can analyze and solve problems dialectically by the way of critical thinking in the process of correcting movements. New teaching philosophy of skating teaching is that PE teachers employ all the available methods, approaches and contents to give full play to skating courses' functions in cultivating students' fine qualities and all capacities and to cultivate sports spirit of confronting and overcoming difficulties and consciousness of competition [18-19], self-study, innovation [20-22] and life-long physical exercises [23] by participating ice sports and to cultivate good moral qualities [24-25] such as teamwork, mutual help, respect

to others so that they can quickly adapt themselves to their life of careers or positions or environment of work and competition in short terms and every college student can be useful talents for social development and construction.

The priority of teaching reform of PE teaching in colleges and universities is transferring winter PE teaching philosophy and elevating winter PE teaching to the level of forming college students' healthy personality^[26] and promoting employment [27].

Leaders at all levels, administrative departments and managers of PE teaching in colleges and universities shall attach great importance to winter PE teaching and establish corresponding management systems, incentive policies and concrete measures to solve the present problems of winter skating courses in colleges and universities.

3.2.2 Improving Teaching Conditions

Colleges and universities shall strengthen the management of teaching venue of skating teaching, enhance the evenness of ice surface, promptly clean up broken ice and mend crack of ice surface. Besides, they shall strictly control the number of classes or people at the same time for intensive or large numbers of people are difficult to dodge and easily injured.

All colleges and universities shall increase the proportion of winter PE teaching in total PE classes to give full play to skating courses' roles and functions in forming college students' fine qualities, healthy personality, dialectical thinking, spirit of innovating and confronting difficulties and ability to adapt environment and consciousness of life-long physical exercises.

3.2.3 Enriching Teaching Methods and Actively Preventing Sport Injuries

At the same time of establishing incentive scheme of skating courses, schools shall require that teachers take active part in teaching reform and enrich teaching methods by attempting to apply those methods proven to be effective such as tentative teaching method, club teaching mode, exercise teaching model, integrating teaching, dynamic asynchronous teaching, implicit learning method and interest-driving method, etc to skating teaching and boldly innovate these methods according to students' practical situations to actively prevent sport injuries and minimize their sport injuries.

For students lack understanding of sport injuries, teachers shall make full use of classes to explain causes of sport injuries in ice sports and their precaution measures in order to strengthen self-protection consciousness in case of injuries and minimize rate of sport injuries [28]. And schools shall enhance education of safety knowledge and make students learn correct posture of falling off. Unreasonable arrangement of warming-ups will easily cause sport injuries for excessive or insufficient warming-ups are inducement to sport injuries [29], hence teachers shall reasonably control the contents and intensity of warming-ups. Warming-ups can increase body temperature, lower viscosity of muscles and enhance its flexibility to avoid sport injuries.

4 Conclusion

In winter PE teaching of colleges and universities, in-depth development of teaching reform in winter PE teaching is restricted by high rate of injuries in skating courses.

Problems such as how to lower rate of injuries in skating courses and how to perform skating teaching's functions in cultivating college students' healthy personality and promoting employment, etc need to be seriously considered and explored by administrative departments of higher education, managers of PE teaching and all the PE teachers in colleges and universities. We firmly believe that all the problems are temporal and will be solved as long as colleges and universities follow the road of teaching reform in skating courses.

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Study on Teaching Quality Assurance System Construction

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Abstract. Maintain and improve the quality of teaching is the lifeline of my school teaching, but also the army noncommissioned officers education key to sustainable development. How to improve the quality of teaching non-commissioned officers of education is a persistent issue. This paper seeks to present our school by teaching professional artillery repair process of teaching quality problems, factors affecting the analysis, to maintain and enhance the quality of classroom teaching strategies. To build a school teaching quality assurance system to provide basic reference.

Keywords: Quality, Assurance, Teaching.

1 Introduction

ISO9000: 2000 standard of quality is defined as: "a set of inherent characteristics meet the requirements of the degree."

Teaching refers to the course content of both teachers and students teaching and learning as an intermediary common activities, the school's basic approach to achieve the aims of education. According to the definition of ISO9000 quality shows on the quality of teaching is the teaching of the inherent characteristics of customer satisfaction level. "Characteristics" refers to the students' knowledge, abilities and qualities. "Request" refers to the customer's needs and laws and regulations described. "Customer" means the employer, the state and society, students. "Teaching quality" is the customer's needs and expectations of teaching and learning activities associated with the concept.

Quality assurance is a planned, systematic evaluation process of school or teaching programs. To determine an acceptable education, academic standards and school structure has been maintained and strengthened. It usually includes the hope that schools establish effective quality control mechanisms. Requirements of quality assurance agencies to develop specific measures to ensure improvements in the quality of teaching in schools and implementation.

2 The Necessity of System Construction

Teaching is the central task of the school, teaching quality determines the quality of the training level of the pros and cons related to the school's survival and development.

After my school education, non-commissioned officers up to decades of development, has made great achievements. First, the overall construction of the school soon, school conditions improved significantly, the number of enrollment has increased significantly. Second, non-commissioned officers will train two-three people as the goal of the training model matures. Third, the school students are to achieve the required quality, head of the headquarters and forces to be recognized.

However, the technical performance of weapons and equipment, the accelerating pace of updates, the new situation of our teaching put forward higher requirements, how to better adapt to the changes in this series, to further ensure the quality of teaching of our school is excellent every place in the teaching front a comrade in front of a major issue, the constraints to improve the quality of teaching there are many factors, such as teachers, curriculum construction, teaching the process of standards is still not perfect, it is necessary to build quality standards-based teaching quality assurance system, to ensure that our school in the new era, a new phase of the quality of teaching, to ensure that troops trained personnel to meet the needs of the new era.

3 System-Level and Factor Analysis

Teaching quality assurance system is a multi-layered, multi-faceted teaching management system, the main body of administrators, teachers and students, including the object of disciplines, curriculum, teaching, teaching methods and so on. Affect the quality of teaching anti-aircraft repair of complex factors, including the following two aspects:

3.1 Analysis of Subject Element

NCO is the main teaching activities, including teaching activities of the managers responsible for management and monitoring of the teaching process, teachers and students directly involved in the implementation of the whole process of teaching and learning activities.

First, the teacher factor analysis. Teachers are teaching the dominant factor, the quality of teaching plays a key role in teacher knowledge is a very important aspect of teacher feedback on the course to have good professional knowledge and skills.

Second, participants factors. Students are participants in the school teaching the subject, is learning task recipient of knowledge and information feedback, and also learning goals, should be masters of the classroom. Student factors can include students' learning attitude and learning ability. Determine its attitude towards learning to learn initiative and enthusiasm.

3.2 Analysis of Object Element

Teaching quality assurance system is generally the object of teaching resources, teaching resources can be divided into material resources and non-material resources. A non-material resources, including curriculum development, teaching methods, teaching and research, curriculum development directly affects the quality of teaching and curriculum resources are abundant, whether materials meet current needs, whether the speaker qualified teachers will be eligible for an impact on the quality of teaching is good or bad.

To deepen the teaching content as the core of educational reform, strengthen the curriculum development, supporting a rich curriculum resources, suited to the new situation armaments training curriculum. Second, material resources, including funds, books and materials, network construction, site equipment and instrumentation equipment. Ordnance equipment maintenance training high-quality talent is inseparable from the protection of material resources, which is non-commissioned officers school teaching the material basis of the quality assurance system.

4 The Construction of Teaching Quality Assurance System

According to the new situation of high-quality military personnel training requirements and our school personnel training program provides non-commissioned officers ordnance repair of non-commissioned officers teaching quality assurance system should include the organizational system, the standard system, the institutional system and evaluation system of four parts.

4.1 Organization System Construction

Organizational system is the first system in most other high-level system, the main by the following subsystems:

First, a decision-making chain of command. The system's main role is to plan the school's overall teaching objectives, tasks, and ensure the correct direction of development of teaching, the development of relevant quality standards and the human, financial, and material security policy planning, dynamic obtain comprehensive teaching.

Second, the teaching operation system. By the school (department), composed of the Department teaching the system by running the command chain of command decision-making, organization and implementation of quality assurance of teaching and teaching management, to implement the decisions and instructions to the specific teaching work. The quality of teaching the whole process of monitoring and inspection to ensure that school teaching to work well.

Third, the teaching of information systems. NCO academies teaching information is the basis for teaching quality assurance system, there is no accurate, comprehensive and objective teaching information, we can not guarantee the quality of teaching in schools. Teaching information systems, including the teaching collection of information, teaching information processing, assessment and diagnostic teaching information and teaching feedback.

Fourth, the teaching conditions to protect the system. By the Senate, to teach security, financial, military, and teaching and research together constitute the security system in accordance with the conditions of teaching student input - the middle - the whole process of carrying out the corresponding output protection, to provide the necessary human, financial, and material support to ensure effective teaching and learning activities.

Fifth, teaching and research system. By experts, teachers teaching and management staff to strengthen teaching and research system and mode of teaching methods, teaching the necessary reforms, with the correct theory to guide the reform of teaching practice.

Sixth, teaching supervision support systems. School education committee, the office workers, teaching supervision group composed of experts teaching supervision system can support the teaching of the young track faculty guidance, the school's effective teaching quality assessment.

4.2 Standard System Construction

"No rules no" rules for an activity for its importance is self-evident. Is no exception for teaching activities, to establish a standard system for the entire teaching quality improvement in the quality of teaching has an important significance. Standards mainly for teaching all aspects of the implementation of standardized, uniform requirements with the constraints of teaching activities, to avoid different standards affect the teaching effectiveness, teaching and even to have a negative impact. Teaching quality standard system should be focused on establishing quality standards for classroom teaching, practical teaching examination and assessment of quality standards and aspects of quality standards. Classroom teaching is based on practical classroom teaching is to improve development, and test is on the front of the two tests.

First, teaching quality standards. More than classroom teaching, and susceptible to a variety of factors, it is necessary to regulate various aspects of teaching, the formation of enforceable standards for the implementation of steps conducive to teaching management and monitoring, improve teaching quality.

Second, the practice of teaching standards. Practice of teaching is to apply theoretical knowledge to practice on a stage, is to achieve training goals, an important means to achieve the purpose of teaching, practice teaching to clearly put forward various aspects of quality standards, such as experimental teaching standards, teaching standards of training and so on.

Third, examination and assessment of quality standards. Exam as a test of the main aspects of classroom teaching, the quality of teaching has a significant impact, should the examination papers of various sectors such as the life system, examiners, markers, test analysis, the corresponding quality standards. Regulate their operation, the specific steps of the proposed binding targets.

4.3 Institutional System Construction

System of teaching quality assurance system is the focus of system construction, the quality of teaching to provide long-term development of institutional protection.

First, check to listen to the leadership class systems. School (Department) of leadership should insist on listening to check the class, in-depth teaching front line to solve the practical problems of classroom teaching, to master the dynamics of teaching and the resulting information and issues back to the teaching department or security department, and teaching by the teaching authorities to protect sector-specific implementation.

Second, the daily teaching inspection system. Adhere to strict inspection system of teaching, to establish a scientific and reasonable way to check, at a critical time to strengthen the teaching work to be checked. Academic subjects include the participation of school inspection, mid-term examination and final examination, lectures at all levels of the system. Beginning of school, should be to stabilize the

teaching order for the purpose, mainly the teaching preparation, with a focus check class teacher lesson plans, courseware, teaching materials and classroom implementation;

Third, the graduate survey and tracking system. Establishment forces - institutions, information communication systems, the timely collection of evaluation units of the graduates and feedback.

Fourth, the teaching quality evaluation system. Academic subjects each semester of school teachers in all midterm and final speaker twice the quality of teaching evaluation. Evaluation, including evaluation of supervisors, leadership evaluation, student evaluation and self-evaluation. Excellent teacher of the assessment should be given in the corresponding rewards for unqualified teachers should be eligible for cancellation speaker faculty, the part of the speaker faculty need to re-qualification process before they can again be Speaker of the course of the qualification.

Fifth, teaching evaluation system. Information from the Academic Section staff to guide students to collect their daily teaching situation, information, and timely statistics to reflect. Academic moment to reflect and to verify the information re-evaluation, and timely feedback, problem solving, improving teaching. Sixth, reward and punishment system. Establish reward and punishment system, a clear reward and punishment purposes, to develop detailed incentives to encourage young teachers to actively participate in teaching and research and reform, encourage students to active learning. Teaching and treatment at the accident immediately identified the principle of operation.

4.4 Evaluation System Construction

Teaching quality assessment aims to discover and improve our teaching problems affecting the quality of teaching and promoting the healthy development of the teaching work. It is with the organizational system, the standard system, together constitute the institutional system of teaching quality assurance system.

First, evaluate the quality of classroom teachers. Classroom teachers, including student evaluation of quality assessment, peer assessment, the steering group of experts in evaluation. Integration of the appropriate scale factor in accordance with the above three evaluation methods to get results is the quality of the teacher's teaching performance.

Second, high-quality curriculum evaluation. Mainly based on curriculum objectives and tasks of the construction program evaluation reporting, generally include teaching materials, teaching staff, curriculum content, assessment methods, teaching research and teaching effects.

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Study on Higher Vocational Education Textbook Problem

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Abstract. The textbook work is a basic work of the higher education, the textbook quality will affect the student training quality directly. The compiling of the higher vocational education textbook should embody the higher vocational education character, taking the employment as the direction, giving prominence to the application, the whole character, the advanced character and the created character. The writer is a teacher in the higher vocational college, according to the experience of the textbook writing, analyzing the problem in the higher vocational education textbook, and put forward some resolving such as establishing the reasonable textbook construction plan, confirming the write goal accurately, adding the proportion of the " double qualified teacher " compiler.

Keywords: Higher vocational education, Textbook, Study.

1 Introduction

The textbook is the core of the, the educational thought, the course system and the teaching method are all reflected on the textbook finally. To some extent, the textbook's quality decides the training quality of the higher vocational education. The vocational education is different from the common higher education of academics type, research type and engineering type; it is to train the skill talents who will fit the manufacture, management and services for the development of the district economy or vocational development. It's training target have the occupational, professional and applied characteristics etc, the high quality textbook that accord with request of the higher vocational education characteristic is a important assurance that will realize the training target. Our country's higher vocational education make a development at the end of 90's in 20th century ,it's a late start, but it development speed is very quick. In recent years, although many our country's higher vocational colleges compiled and printed various higher vocational education textbooks, these quality can not fulfill the request of the higher vocational education's development, such as lacking higher vocational education's special feature, old contents, and disjointing the profession and occupation's development etc are existing, it can not fit the actual demand of teaching in the higher vocational education college. Therefore, if we want to realize the talent's

training goal of the higher vocational education in deed, the urgent works are enhancing the textbook construction in the higher vocational education college, making the textbook more according with the request of the talent's training goal. The existed problems of the higher vocational education textbooks are analyzed by the writer as follows.

2 The Higher Vocational Education's Special Feature Isn't Clear

Higher vocational education is an important component of the higher education, it services for the area or vocation's economic development, it differs from the common higher education colleges which trains the students as academics, research and engineering type talents, the higher vocational education colleges mainly train the talents with skills and applications. The notice 《some idea about improving the quality of the higher vocational education completely》 ([2006]16) puts forward some ideas: taking the improvement of the higher vocational education's teaching quality as the subject, advocating the new teaching mode such as work and study alternating, task driving, item directing, station practice etc, form their own school characteristics, that is service for the area economy and society's development, taking the employment as a direction, adopting the school pattern which is school-enterprise cooperation, work and study combing, carrying out the " dual-certification system", training the student's occupation's ability.

The notice 《the views of strengthening the construction of higher vocational education textbooks》 (HED,MOE [2000]19) pointed out: "overall, with higher vocational education characteristics textbooks is extremely scarce, many vocational colleges are still using the undergraduate college or secondary academy's textbooks, the textbooks construction still lag behind the development needs of vocational education." At present, textbooks used in vocational college there are two main situations: First, the higher vocational textbooks are the undergraduate college or secondary academy's textbooks which are deleted or added, Second, the higher vocational textbooks are written by several professional teachers of a higher vocational school or several professional teachers of several vocational schools jointly. Most of which focus only on the increased and reduced changes, emphasize on the knowledge's system too much, the proportion of the basic theory is too heavy, the proportion of applied skills is too light, and the phenomenon of copying each other more serious, although the textbook's covers are all marked "The Higher Vocational Education Planning books," but there are very few textbooks with originality and can embody the characteristics of the "Higher Vocational Education".

2.1 Not Embody the "School-Enterprise Cooperation, Work-Study Connection" of the Higher Vocational Character

Base on learning the character of vocational education from Germany, Australia and Japan etc, the scholars in our country have studied the teaching model around the "School-enterprise cooperation, work-study connection" which corresponds the vocational education of our country. At the same time, the higher vocational textbooks are re-planned and writed using the model of "action oriented", but most of "action

oriented” textbooks only are modified on structure, the contents doesn’t truly meet the teaching model of “action-oriented”. Now the "Project-oriented", "task-driven" are theory mostly, and it doesn’t meet the needs of social jobs.

2.2 Not Embody the "Double Certificate" System of the Higher Vocational Characters

Currently, most of the higher vocational education have implemented a "double certificate" system. It is not only required students to get diploma, but also to obtain the professional vocational qualification certificates. However, there have no the effective connection between the content of the existing higher vocational textbooks with the standards of the skills identification provided by the administrative department of human resources and social security. It can not meet the students’ need to obtain a professional qualification certificate; some higher vocational schools use the test books as the higher vocational textbooks, which greatly weak he basic theory education of the sustainable develop ability of students.

3 The Category of Textbook Is Numerous, But Quality Is Poor

In the last few years, a large number textbooks are published, which solves the need of higher vocational education on “quantity” of textbooks. But with the continuously development of the higher vocational education, these textbooks more and more can not meet the need of higher vocational education on “quality”. Mainly as:

3.1 Ignore Regional Economic Differences, Can Not Meet the Regional Economic Development

The higher vocational education mainly service the regional economy development. Chinese territory is broad, and the distribution of natural resources is uneven, and the regional economic development of the East and West, southern and northern is different. In order to achieve the training object of the higher vocational education, it should set flexible course according to the every regional economic effective demand, and organize to write the textbook that can be with the regional industrial adjustment and technological upgrading. But actually, the higher vocational school hasn’t form a close cooperative relation with local enterprise. Moreover. Because of the limitations of the training equipment and teachers, while choosing textbook or writing textbook, the higher vocational school still keep general textbook as principle, even taking into account the difference of regional economy to write textbook, generally it also lags behind the actual needs of local enterprise for many years.

3.2 Contents Is Old, Not with the Times

Along with the rapid development of economy, every trade will continuously appear new theory, new technique, new craft, new equipment and new material etc.. In order to train the high technical ability talented person meet the needs of the society and economy develop, the higher vocational textbooks should also continuously renew a

contents, only in this way, it is possible to carry out the training objective of the higher vocational education.

In our country, now the editors of the higher vocational textbook are mainly the professional teachers, who are engaged in teaching in the higher vocational school. Although they have more abundant professional theory knowledge, most of them don't work on enterprise and their understanding on the vocational characteristics and the corporate status mostly remain at the perceptual level, and there have a gap between their hands-on ability with which the engineers' and technical persons' on enterprises. Consequently it is very difficult that the textbook is synchronous with the actual needs of the enterprises, causing there are a lot of reference contents from other textbooks, and the contents of training the hand-on ability of the students and obtaining knowledge ability are weak, and can't timely integrate into new theory, new technique, new craft, new equipment and new material into the textbook, so the quality of textebok is poor.

3.3 Lack of Unified Standard and Quality Assessment System

Currently, the same kind of textbook lacks unified standard and quality system to regulate the higher vocational textbook, producing a series of quality problems, such as the textbook contents are repeated, and the convergence is poor, and the name or statement is discrepancy:①Because the promotion of the teacher in higher vocational school and the fierce and market-oriented competition between the presses, that causes the textbook version of a same course is numerous; ②A great number of teachers in higher vocational school undertake the heavy teaching task, so they have little time to write the textbook, causing the textbook contents are similar and the textbook levels are uneven; ③ In order to increase circulation, the press usually divide the same professional series textbook into several parts, that are arranged to write by the different higher vocational school, causing the textbook of every course in the same profession become a system itself, and it is not mutually conneted with each other; ④ Every editor of the textbook have different understanding on some common problems, and lack of communication with each other, causing there are much problems, such as some contentses are repeated in different textbooks, and the name of a same structure is different or the concepts expressed are inconsistent.

4 The Number and the Content of the Training Textbooks Can Not Meet the Teaching Needs

The higher vocational education is the education to bring up the hand-on ability of the students. The period of practice teaching in the higher vocational school is usually more than half of the total. In the last few years, the constuction of training bases in the higher vocational school is successful. But as an important step to materialize the feature of personnel training and realize development target, the construcation of training textbook lags behind the constuction of training bases in the higher vocational school. That directly influence the vocational skills training of students. It is represented as: ① As the differences in the local economy and the training condiion of the higher vocational school, the training contents are different and the training textbooks is not

currency, resulting in some training courses have no training textbooks; ②Although some colleges wrote the training textbooks according to the training condition of oneself school, the contents are not meet with the request of the companies and the Pertinence is poor.

Aim at various problems in the higher vocational textbook, in "12th five" plan, we should adopt the actively effective measure to strengthen the quality construction of the textbook and ensure to realize the personnel training goal of the high vocational education. While writing a textbook, we should enhance the professional targeted of the textbook, fostering the student's practical ability as the mainline, optimizing and integrating the course content, ensuring the moderration of the basic theory; and we should timely reflect the new technologies and the new developments in the professional fields, ensuring to timely update the content of the textbook; and we should strengthen the connection with companies, and periodically send the professional teachers to the company to training, enhancing the understanding the actual production of the companies, to improve the professional teacher's practice ability; and we should join company in writing textbook, to make the textbook contents connect with the request of the company, to improve the quality of textbook, to facilitate students to obtain "two certificates". Other the Higher Vocational Education and the press should strictly control the validation work, and set up the standard of the textbook choice and evaluation. It can not be published that the textbooks are not pass verification. With the continuously deepening of reform in the Higher vocational Education, it is an inevitable choice to carry on suiting actual reform to the higher vocational textbook.

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Research on Curriculum Construction of Workplace English in Higher Vocational Education

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Abstract. The talent training model of combining learning with working is the lifeline of higher vocational education. Owing to lack of communication between vocational colleges and enterprises, workplace English curriculum, which undertakes the task of training students' English competence in workplace, lags far behind the demand of many enterprises. This paper first analyzes the existing problems of workplace English teaching in higher vocational education. Then it proposes work process-oriented pattern in curriculum development and action-oriented pattern in workplace English teaching. And last the paper discusses faculty construction of workplace English in vocational colleges.

Keywords: workplace English, higher vocational education, curriculum construction, combining learning with working.

1 Introduction

The training goal of higher vocational education is to cultivate advanced technology-applied talents. Higher vocational education is quite different from common higher education and rich in vocational characteristics which are so closely related to the future career orientation of the students. The talent training model of combining learning with working is the lifeline of higher vocational education[1-4]. This training model is one education mode combining learning and working. The education subject is students. It is carrier-oriented, making full use of education environment and resources inside and outside of school and combines organically classroom teaching-based college education and practical experience-based real work.

2 Major Problems in Higher Vocational Workplace English Teaching and Cause Analysis

The core of school education lies in talent training while the core of talent training lies in curriculum construction. The talent training model of combining learning with working requires carrier-oriented curriculum teaching and organic combination of curriculum learning and real work. Owing to lack of communication between

vocational colleges and enterprises, many vocational colleges follow the old teaching pattern of workplace English which is not based on the demand of enterprises. Therefore the graduates have poor applicability and their workplace English competence often can not satisfy the need of the enterprises. The workplace English competence of higher vocational graduates lags seriously behind the market demand, which has become a bottleneck troubling English teaching reform in higher vocational education.

2.1 Obsolete Teaching Materials for Workplace English

Workplace English in higher vocational education is one vocational skill curriculum which should be aimed at improving students' specific job skills in English. Now the teaching materials of workplace English are mostly reading articles of which the content is relatively monotonous and obsolete. Moreover, the teaching materials is disconnected from work processes and tasks in specific job positions, falls short of the demand of employment-oriented vocational education and deviates from the training requirements of practical application in higher vocational English teaching. Consequently, this problem has seriously affected the teaching effect and restricted the development of students.

2.2 Scarcity of Qualified Workplace English Faculty

Currently workplace English teachers come from two main channels: one is teachers for specialized courses, the other is teachers for English courses. Due to the level of English language and weak English teaching abilities, teachers for specialized courses tend to give more professional explanations and ignore language skills practice; therefore, it can not meet the need of the training requirements of English practical application for higher vocational college students. Although English teachers acquire higher English language skills and teaching capabilities, they often do not understand the real work situations and work processes owing to their non-professional background. So in classroom teaching, English teachers always pay too much attention to the explanations of professional vocabulary and phrases, which often splits the inner relationship between professional work contents. In this way students can not properly grasp professional knowledge.

2.3 Old Workplace English Teaching Pattern

At present workplace English teaching pattern in higher vocational colleges follows the style of "paragraphs explanation + translation", or "translation + words." Teachers crams knowledge into students by the means of word for word explanations. Students have become passive recipients. They do not get the chance of participating in all aspects of classroom teaching. It's hard for them to achieve their independence, subjectivity and practicality under such an English teaching pattern.

Workplace English Teaching, as an important part of higher vocational teaching, must comply with the overall objectives of higher vocational talents training, highlighting the cultivation of English practical abilities of students. Workplace

English teaching must reflect the needs of different vocations, the real work processes and different work tasks in different work positions. Actually there arise many problems in higher vocational workplace English teaching, so close attention must be paid to these problems and corresponding reforms must be carried out. Workplace English teaching must accord with the needs of the enterprises to improve students' workplace English skills and to train the talents enterprises truly need. To solve the problem, measures should be taken to implement curriculum development and teaching pattern of higher vocational workplace English.

3 Establishing “Work Process-Oriented” Pattern in Curriculum Development

Aimed at eliminating the disadvantages that the traditional vocational education deviates from the real work world, work process-oriented vocational education is one integration of theories and practice vocational education model whose guiding principle is that the teaching content must be closely related to the work process. Based on the work process, the curriculum system of higher vocational workplace English must be reconstructed in curriculum development. According to different work positions and different work skills requirement, the teaching content must be adjusted so as to train the talents who meet the job requirements. This is an innovation construction of workplace English curriculum in higher vocational education and it will play an active role in developing students' abilities and qualities. The construction of work process-oriented workplace English in higher vocational education enables the training of students' English abilities to have close ties with the work positions, work process and work tasks of different majors, which can greatly enhance higher vocational students' employment competitiveness.

3.1 Making Enterprise Investigation to Get First Hand Teaching Materials

Enterprises investigation is required of the talent training model of combining learning with working in higher vocational education. By making enterprise investigation, workplace English teachers can fully understand the enterprises' requirement for students' English practical abilities in different work positions.

In the process of developing the workplace English course for international freight forwarding, English teachers and professional teachers in our college made investigations in some enterprises. By making enterprise investigations we get the typical operating mode in international freight forwarding enterprises, as shown in Fig.1.

From enterprise investigation we have identified the talents' training goal for workplace English course for international freight forwarding and have determined the main work processes and typical work tasks. In short, by the means of enterprise investigation we can develop different workplace English teaching materials for different majors.

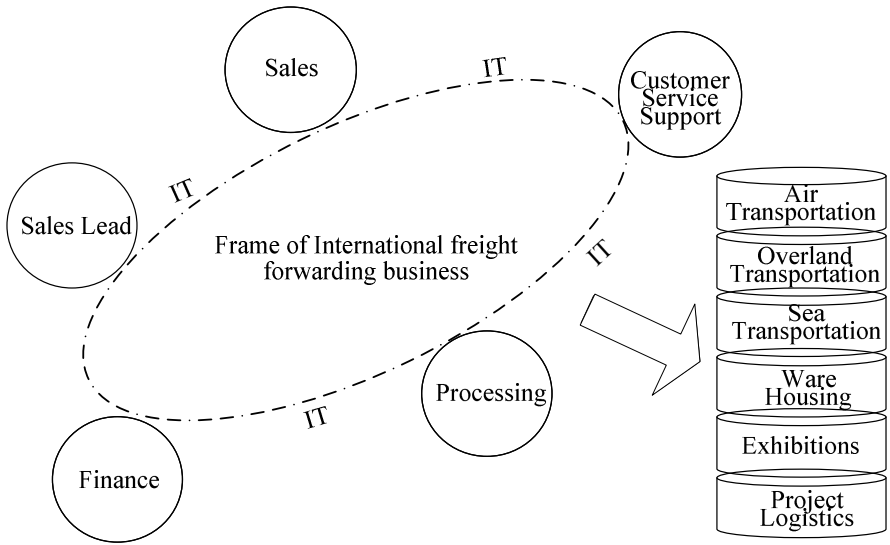


Fig. 1. Typical Operating Mode in International Freight Forwarding Enterprise

3.2 Identifying the Teaching Goal of Workplace English

By making enterprise investigation, workplace English teachers can further defined the knowledge goal, the competence goal and qualities goal of different workplace English to best meet the enterprises’ needs for talents training.

4 Establishing “Action-Oriented” Workplace English Teaching Pattern

Teaching pattern is a stable structural framework of teaching activities and its procedure under the guidance of certain teaching theories. Action-oriented” workplace English teaching pattern emphasizes cultivating students’ English practical abilities to solve specific practical problems in specific work positions and it plays an important role in higher vocational talents training. In the curriculum construction of workplace English we should focus on action orientation in teaching materials and teaching organization etc to change the teaching-centered teaching method into a learning-centered method. Under the action-oriented workplace English teaching pattern students can make vocational activities practice in real or near real work situations to acquire experience, knowledge and competence related to specific work positions. Ref. [5] summed up 6P teaching pattern for workplace English to promote the seamless joint between the talent training and demand of enterprises.

4.1 6P Teaching Pattern for Higher Vocational Workplace English

6P teaching pattern for higher vocational workplace English is shown in Figure 2.

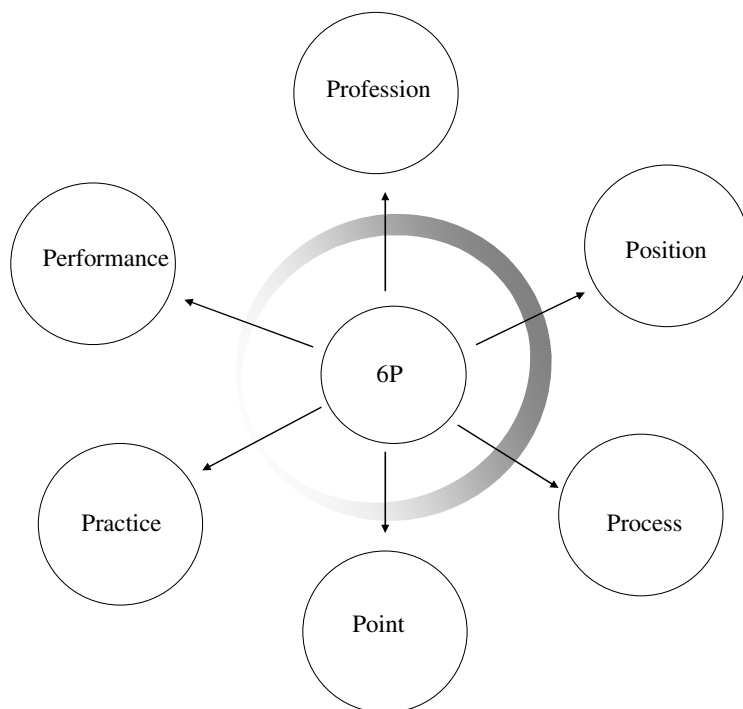


Fig. 2. Teaching Pattern for Higher Vocational Workplace English

Profession. Profession refers to that vocational teaching content of different professions is regarded as the teaching line.

Position. Position signifies that typical work tasks of different positions compose the teaching modules.

Process. Process demonstrates the work process of different profession makes up the teaching content.

Point. Point indicates the language requirements for different work processes constitute the key language skill points.

Performance. Performance signifies that by the means of English performance and simulation drillings students' English practical abilities can be greatly improved.

Practice. Practice means the practical training of different work positions can further strengthen students' English practical abilities.

4.2 Reformation on Teaching Methods for Higher Vocational Workplace English

Higher vocational students have few opportunities to practice English in current teaching pattern. English teachers in our college have made reforms in teaching methods and teaching organization.

Case Teaching Method. The merits of case teaching method is that it can enhance students' abilities in analyzing and handling practical problems. The training goal of higher vocational education is to cultivate advanced first-line highly skilled talents with strong practical abilities, so case teaching method is indispensable in vocational education. Cases serve the teaching objectives, therefore, they must be aimed at specific work process and work tasks.

Role-Play Teaching Method. In workplace English classroom teaching teachers must make work plans and assign different work tasks for students who play different roles in different work positions. At the end of the learning process the teacher can also play the role of general manager to examine and evaluate students' working achievements.

Project Teaching Method. In order to meet the needs of students specializing in different majors English teachers divide workplace English teaching content into a number of corresponding teaching modules related to different majors. Meanwhile, English teachers are grouped responsible respectively for various projects teaching of different majors. Last but not the least, teachers should carry out detailed and deep investigation in enterprises to strengthen the communication with the enterprises and accurately grasp the market demand.

5 Faculty Construction of Workplace English

We have gradually realized in the process of curriculum construction that "cooperative teaching" among professional teachers and English teachers can bring into full play the teaching advantages so as to best meet the need of students.

Teachers can try the following methods to conduct the "cooperative teaching". (1) professional teachers and English teachers together analyze and determine the learning requirements of students. (2) They together design classroom teaching activities for workplace English. (3) They together exchange teaching thoughts and viewpoints. (4) They together learn and work out syllabus and teaching materials.

6 Conclusion

Workplace English teaching plays a significant role in improving the training qualities of higher vocational talents and meeting the demand of enterprises. This paper makes an exploration of the curriculum construction of workplace English in higher vocational education under the talent training model of combining learning with working.

In the future we will further implement the "work process-oriented" curriculum development pattern and "action-oriented" teaching pattern in workplace English teaching to further enhance the training qualities of higher vocational education.

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The Ways of Postgraduate Industrial Design Education Evaluation and Training Goals

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Abstract. The existing postgraduate Industrial design education stage is defined as two different training type, namely "academic" type and "professional practice", and there are different methods of assessment, such as: ask to dissertation or graduation design attach design report or specification be the graduate assessment way to the postgraduate student. These are different evaluations reflect on the different understanding of education targets and the education management quality it is will affect the quality of graduate education. In this problem need system research and the discussion, and build a reasonable evaluation of graduate student way is better for classifies industrial design education. It is will make postgraduate industrial education, more definite goal and clear classifications and connect every stage then stress profile itselfse, more effective and meet industrial design education law of nature teaching system.

Keywords: Industrial design education, Postgraduate education goals and quality, Graduate student evaluation method.

1 Introduction

Industrial design postgraduate education stage have some puzzles now, especially at classified different master degree type which have different degree name but most of them are in line with the same teaching methods and contents. So this will affect students and teachers` judgement at how to teach and how to study. In this paper we will focus on this problem and discuss some of these degree types to merge into one type that could be a better way to construct a graduate quality evaluation system.

2 The Problem

Students are the school's "products", the quality of "product" is key of education success or failure. It is most important observation point is the quality of graduates inspection in the process of evaluation. Although the scale of our industrial design education development very quickly, a lot of schools get it because prevalence, But the time of introduction of industrial design education is short, it is not form a

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complete system, teaching philosophy, the teaching goal is lack of consensus. Graduates qualities have difference academic levels. A lot of employer not satisfied from capability of graduates so schools and companies haven't reach a consensus. Due to The different quality of the graduates judgment standard which make so many schools set industrial master degree and then get rid off it quickly. Although the human resources market is strong in the recently have cover many problems at certain degree, but along with the development of society and markets mature, the require of industrial design graduates should be rise so problems and contradictions will highlight. With the industrial design major graduate students, for example, although the seven years study, once in design institute most did not have prominent design advantages compare with undergraduate but their salary much higher. This will affect the enterprise of hiring enthusiasm. if make the design theory with graduate as employment conditions advantages to undergraduate, on the one hand, the general design agency won't pay special attention on the theory, and at the same time graduates are just coming into the theory of the research is in the ready state during the period of school, most graduates independent study ability is not strong, even some institutes have this aspect demand are very difficult to find a suitable candidate. So with graduates their words, they are in a embarrassing position which employers are not satisfactory and the students themselves are blankly.

It is not hard to find the cause analysis carefully, among them different graduate training goal and quality assessment standard is one of the important factors, it reflects our industrial design graduate education goal and guiding ideology, and affect the quality of graduate student training directly.

3 The Different Teaching Goals Understanding Affect the Focus of Teaching Goals

Industrial design is a huge system it is include, vocation education and college education and undergraduate and graduate and philosophy doctor, five subsystem. Some else explain these five stage as artisan training and technician training and junior designer training and senior designer training and theoretical research. This each one of five stages have a major target themselves, all of these constitute a complete system.

It is the major teaching goal is guide students in the pre stage of designer, help students get the design capabilities and the ways of design think and help them understand the general design procedure, in the period of undergraduate education. The major of industrial design require students should have a lot of theories and skills, but undergraduate just have general design methods far from production require. On the basis of undergraduate education, the graduate education goal is guide students became professional designer which have comprehensive of professional knowledge and skills should reach the top of capability skill and familiar with the requires of corporation according to process of produce and market achieve design project get in the industrial chains smoothly.

Apparently in the postgraduate stage related theory course more than undergraduate, on the one hand, increase theoretical knowledge and philosophy achievement, on the other hand there are some students interested in professional

theory research, which is a ready for work in theory research institute to do, prepare for doctoral phase of the theoretical study. Although at this stage also require students to write some papers, but more is aim to make students understand the theory, master theory and use the general method of study theory. In the practice at this phase students are generally around the existing design theory transform it to practice applications, little students really achieve some theory innovation at this stage.

Industrial design major belongs to cross subject, but according to the discipline catalogue scratch it belongs to the literature , new discipline catalogue is adjusted, so dissertation is the form of graduation evaluation that lasted a long time. But unfortunately most industrial design graduate in theory research and training is insufficient and the academic research prepare adequately, so paper quality is lower and plagiarize most serious and real innovation papers rarely to seen.

In fact the industrial design undergraduates` main goal is design skills, but the postgraduates application for degree should complete dissertation, most of graduates are beginner in theory study, lack of basic theory training. But due to the requirements of graduation make students ignore meant to further strengthen the design skills to do theory research. At the same time to make the students design ability weakened so even the design capability or theory capability all lost. Some scholars have clearly against the undergraduate and graduate student in essay form as the results of graduation evaluation. The training of outstanding design ability rather than set the goal most students can not finished, strengthen design skills capability at the postgraduates stage, to the student ability to complete the inspection of the design of "art" really the cultivation of undergraduate course design level, in order to with better identity talents professional design skills to the society.

The high level training of designer need the theory, so at the postgraduate level related theory course is also larger proportion to the undergraduate stage, make more than the design of the graduate students develop the ability of comprehensive, a higher quality and accomplishment especially at the theoretical aspects of accomplishment, avoid students to become artisan only but cultivate in line with the needs of the market needed designer. Obviously as industrial design graduate education subject pure research or pure skills training is biased. Of course there will be part of students have the interest of theoretical research and hope in the after graduate to continue their study for doctorate. For these students can early into the system theory of learning and training according to the arrangement of the supervising professor, but it should not be professional training main line.

4 Different Standards Influence on the Graduate Quality Evaluation

The industrial design education graduate students be divided into the stage of "academic" and "professional" type, although the students' academic and professional have a same level of diploma, but them have some difference actually, such as academic school system have a longer time also successive postgraduate and doctoral programs of study opportunity, this kind of students seems to prepare for special theory study in the future. And the so-called "professional" type emphasize the design practice ability training, complete technical training, so in the assessment of graduation form appeared three evaluation methods:

- a. Some according theory research criteria to finish 20-30 thousands words dissertation.
- b. Some according design practice criteria to finish 5 thousands words design specification and design project.
- c. Some require both design project and dissertation are finished, according 4:6 to scored.

Through this diverse assessment requirements to reflect the different understand with education quality requirements, each school has still not form the evaluation system aim industrial design graduate student's quality inspection ways of evaluation and standard, it is not good for industrial design graduate education of normalization and systematization. Three criteria for industrial design reflect the teachers` teaching target and the postgraduate stage task different understanding.

According to the liberal arts dissertation criteria more emphasis on the students study ability and achievements in research, the inspection of graduation requirements are good for the theoretical research work in the future or to pursue a doctorate degree that is its advantages. But it is appear some problems in practice even it perfect in logic. The industrial design undergraduate main task is to complete basic design skills training, be able to pre role of the designer smoothly into the market, and the system of basic theoretical research training have not finished at this phrase yet. Graduate students gradually began to get some theoretical training and theoretical research, but according to the requirements of the rules of the academic to complete research paper most of them are still feel difficult. In practice it is embarrassing according to this standard for most of industrial design postgraduate dissertations are not meet the basic qualities. At the same time which new problem is students concentrate on theoretical research and sometimes ignore design ability training cause graduate students in design ability than undergraduates have no obvious compared advantages, but then have shortage preparation in the theoretical research, lead to industrial design graduate student in the embarrassing stage.

Asked to complete the graduation design project and 5000 words design specification, which is the master (MFA) art of graduation examination requirement and engineering master has the same requirement. The starting point is very clear that is postgraduate stage is the highest stage of design training, its goal is to emphasize design ability, with the graduation design project to examine the qualities and 5000 words specification is design instruction, this style has advantage is that students design skills training be concentrated, undergraduate and postgraduate teaching consistency is better, the design training aim is focus on skills and after graduation most of them get better employment competitive. But reduced paper requirement that will make students ignore theory attention and training. It has a gap if lack of basic theory attainment and design process theory thinking from the qualified master degree.

Another postgraduate quality evaluation require students complete a graduate design project and relevant dissertation to apply master degree, and the design project should more than undergraduate at several respects of innovation and produce and marketization etc.. At the same time graduate students should have thinking at the design theory especially aim at applied design theory. If according to graduate design project plus dissertation, score divide four to six, Its advantage is stressed in the design ability training under the premise of the theory of both students study training, avoid them into focus only on design skills and ignores the theory thinking "artisan" state.

5 Conclusion

Based on the above analysis, we think that first at the industrial design graduate education of stage students be divided into the so-called “academic” and “professional” type is not appropriate, it not only improve the education of the students quality at the negative effect even give students misleading, and bring much more repeat works in the management so merger both of them is a better choice.

The second, more reasonable industrial design graduate quality assessment methods should highlight the graduation design ability examination, more targets to the graduation design project plus dissertation as quality evaluation standards for instance design and research report according to the seven to three or six four the proportion of score. It is emphasize the graduation design project is given priority and examine completing the design the report assessment of students on the theory of design thinking and ability.

Relative to the undergraduate graduation assessment emphasize design project plus design specification and doctoral to the form of research papers evaluation, the methods of assessment of the industrial design graduate education aim is more clear, it is make graduate students not only get better design skills but also succeed to doctoral education stage, the method of teaching is also in line with international industrial design education on the mature of the practice of developed countries.

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On Problems and Countermeasures of Web-Based Language Teaching from the Perspective of Constructivism

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Abstract. Available educational technologies can substantially improve both student-teacher and student-student interaction and can develop students' self-access learning ability. In the times of information explosion, web-based education is enjoying great popularity because of its undeniable advantages, which is paid high attention by more and more people in educational field, including language teaching. Based on the systematic analysis and study of web-based language teaching, this paper has made a research into the practical problems of web-based teaching mode for college English and then proposes relevant measures in the course of the implementation of this teaching mode guided by constructivism.

Keywords: constructivism, web-based teaching, educational technology, college English teaching mode.

1 Introduction

With the deepening reform of higher education in China, the use of computer-aided language teaching has become the inevitable trend and shows its unique advantage of unprecedented vitality. The computer-aided language teaching increases classroom capacity, improving the quality of teaching, help to achieve the effective teaching results and to enhance foreign language teaching reform. On the basis of multimedia and Network Communications technology, the new college English teaching mode provokes profound changes in teaching theories, teaching methodology, and multimedia design, etc., which can provide students with more materials, creating a lively learning environment. The research of web-based language teaching paves the way for L2 teaching and learning on campus and is compatible with college English teaching reform in China.

1.1 Constructivism

Constructivism is the further development of learning theory after behaviorism and cognitivism and it is regarded as a great innovation of modern teaching theory. With the development of Information Technology, especially the World Wide Web, language teaching activities depend more and more on this theory. Peter E. Doolittle and William G.Camp state that constructivism is a theory of learning that has long

been engrained in both philosophy and psychology. The essential core of constructivism is that learners actively construct their own knowledge and meaning from their experiences [1]. According to David Moshman, constructivism is frequently described as a continuum. The assumptions that underlie this continuum vary along several dimensions and have resulted in the definition and support for different types of constructivism [2]. Cognitive constructivism is the most typical category and Jean Piaget is honored as the founder of the theory. Piaget's theory suggests that people can not be offered information that they immediately understand and use. Instead, people must construct their own knowledge through experience. Therefore, knowledge is the result of the accurate internalization and reconstruction of external reality; this process of internalization and reconstruction of external reality is learning [3]. Accordingly, the core of the knowledge structure of one person is not transmitted by others. Knowledge is not taught by teachers, but gained in the social and cultural background with other people, including teachers and learning partners with the help of necessary information.

1.2 Constructivist Approach to Learning

“Constructivist learning theory acknowledges that learners encode their understandings in language, hence communication is essential for all learning. Learning is a social act that cannot occur in isolation from others, even if they are not physically present. Knowledge, therefore, is something that belongs to both the individual and the community. Learning is set in context so that children and students are aware of the purposes and applications of their learning, and recognize the effect that the context itself has on their learning [4]”. It concentrates on both people's activeness and the environment's effectiveness. Language is the tool of communication. So communication plays a key part in the process of language learning. During the language learning process, people must attach great importance to both the activeness of learners and the effectiveness of the environment.

1.3 Constructivist Approach to Teaching

Bruce Joyce advocates that language teachers teach their students how to acquire information, how to remember language knowledge, how to master language skills, how to learn to think in the target language and how to express with the language, etc. [5]. During this process, the learning environment is very important for both language teachers and learners. Bruce Joyce also claims that teaching model is the description of the learning environment; he defines teaching model as the typical and steady teaching procedure or stage, which is established under the guidance of certain teaching ideology [5].

Based on the constructivism learning theory, constructivist teaching model is formed. The teaching model can be interpreted as a model emphasizing student-centeredness, in which teachers act as organizers, guides, helpers and promoters to maximize the activeness, initiative and creativeness of learners with the elements of contexts, conversations and collaboration, etc. to help learners achieve the meaning construction of the knowledge they are learning. Within this model, learners are the active constructors, but not passive receivers; teachers are the guides and promoters,

but not knowledge fillers; textbooks are not the contents taught by teachers, but the subjects of learners' active construction; and media are not the means by which teachers impart information, but the cognitive instruments by which learners build up contexts and carry out collaboration and communication. It is clear that teachers and learners are playing different roles compared to traditional model and they have different relationships with each other in the new teaching model guided by constructivism.

2 Problems of Web-Based Teaching Mode for College English

With the high-speed development of information technologies, the World Wide Web has provided a powerful stimulus for the production of a range of electronic materials for foreign language education and therefore changed the way of language education quite dramatically. The major contribution of the web is the way in which information can be assessed and reviewed. The web enables teachers and students who are connected to exploit the available resources on virtually any site within relatively short time. The traditional bounds of the classroom and the class group are broken. The "same time, same place, only some people" traditional educational environment is giving way to "any time, any place and anybody" web-based instructional models [6]. This development significantly increases the potential scope of foreign language learning and teaching.

However, in most Chinese universities and colleges, web-based language teaching is still at the initial stage. There are still some problems in the transformation of teaching methodologies from the traditional didactic instruction to learner-centered instruction. And the teaching effectiveness with the assistance of the great power of web has not reached a satisfactory level in the modern teaching environment. During the process of college English learning, new problems begin to emerge while web is employed as a primary source of information in the search for data. For instance: how does one evaluate the usefulness of an Internet web-site? How do teachers prepare students to evaluate whether they can trust the validity of the claims made there? How much Internet research is sufficient to demonstrate control of a topic; how many web-sites should students be required to contact? What are the ethical rules about the sharing of information?

In the process of using web-based resources for English learning, it should be stressed that web-based learning is only of real benefit if it contributes to a clearly enhanced learning environment. The quality of this environment will be determined by its human input—the pedagogical content of web-based activities, the motivation and initiatives of students, and the guidance which they receive. In the case of college English learning in Chinese universities, the average teaching hour per week (4-5 hours) is far from enough for developing students' learning autonomy and for successful language learning, so it is quite necessary that students learn by themselves for extra hours after class. On the other hand, learner autonomy cannot be achieved without the opportunities to learn or be taught; it can be achieved over time with practice, experience, guide and support. Although most students want to learn English well, many of them are not so likely to learn independently.

Constructivism emphasizes learner-centered environment, which requires teachers to transfer from a knowledge filler to an aid and promoter in students' knowledge construction. It indicates that teachers should adopt new teaching model, methods and ideas, which is a challenge to the traditional ones. In the computer auxiliary language teaching and learning environment, the role of teachers change from simple language teaching, study and guidance to the organizers, teaching and learning partners. In the process of teaching, teachers have to design teaching and learning, and to stimulate students' motivation to mobilize students' enthusiasm and organize the classroom activities to give students a greater autonomy. But some college English teachers could not be fully aware of this point.

The implementation of college English teaching mode based on web and classroom has changed the role of foreign language teachers in conventional classrooms. To cultivate students' autonomous learning in language, teachers should change their roles deeply which involves the changes of concepts, abilities and teaching methods. The final teaching objective of teachers is not only to teach students to learn knowledge, but also teach them how to learn and imparting them effective learning strategies. In educational circle, teaching students how to learn and imparting them effective learning strategies have been considered as effective methods to ease their burden and greatly improve teaching quality.

3 Study on Countermeasures

During the college English teaching process, computer is used in language learning, and some Internet-based activities are carried out both in and after class. Computer is a beneficial tool for assisting language learning and teaching. The implementation of web-based activities had helped promote students' language learner autonomy. With its vast amount of resources, its convention access and its great function, application of computer in the classroom is welcomed in most Chinese universities and colleges. Language teachers, home and abroad, have made and are making profound innovations by incorporating this technology into language classrooms. Many researchers have suggested that computer-mediated communication is helpful for the development of learners' communicative competence. In this case, researching on these kinds of learning that occurs in such an electronic environment has become increasingly important in helping us understand the best ways of using online technologies in tertiary programs worldwide.

Autonomy is widely accepted in language learning, especially in college English learning. Because of the students' different needs and different personalities, autonomous and independent language learning out of the classroom, with the teacher's instructions in learning strategies, is efficient for some introverted students who feel anxious and oppressed in the classroom. This kind of learning is feasible because self-access materials, such as learning materials, libraries, language laboratories, the Internet etc. can be available and the students, as adults, have already possessed the ability of controlling over self-assessment for their autonomous learning. Web enables the students to learn language materials with guidance and aim, and experience both interest in finishing the tasks and the exciting feeling of exploring network system for information and knowledge. So this kind of learning is

helpful for cultivating students' habit of regular reading and for developing their independence and autonomy in English learning.

As is said by David Little [7], the teacher' role is to create and maintain a learning environment in which learners can be autonomous in order to become more autonomous. Thus language learning task designing is critical for developing learner autonomy, and the learning task should have the following features: encouraging learners to take responsibility for their own learning; encouraging learners to take an active approach to the learning task at hand; involving listening, speaking, reading and writing activities in which learners are socially interactive; guiding learners to evaluate and reflect on their learning. For example, students on computers work with web-based language content; students interact with one another and a teacher through a computer (online class); on-line chatting activity is both theme-centered and daily-life related, which is carried out in the synchronous chatting forum on school web-site.

The use of computer and web puts forward higher requirements for college English Teaching. College English Teachers do not only have a wealth of expertise, but also possess the necessary computer skills.

New teaching model has focused on students in the learning process, emphasizing students-centered, which can not be ignored. According to Fullan [8], the more powerful technology becomes, the more indispensable good teachers are. It would be foolish to suppose that clicking in to an education website will generate the same opportunities as in a classroom. Learning is an interactive and dynamic process. Online teaching materials can have quite different effects for different users. Its effectiveness resides in how it is put into use. A teacher should always be a good instructor rather than a mere computer operator while using the resources. Apart from devising and organizing appropriate tasks, one of the teacher's role should be to identify linguistic problems that might acquire more explicit treatment and more focused practice offline, providing explanations, supplementing or clarifying practice made by students, guiding them in the use of both the online and offline resources. Besides, teachers should always try to stimulate students' interests and pay attention to the importance of the role of a student as a researcher and experimenter in the process of learning. As for the online information, it is designed to perform certain functions which may or may not lend itself in some way to language learning; it is a source that helps reach the teaching objectives; it is only a means and a catalyst to promote interaction among students and between students and teachers.

While transforming some content to a multimedia format may be a "cool" and popular thing to do, it by no means ensures learning gains. As a result of the greatly increased power and lowered costs for creating and delivering multimedia, there is an emerging feeling that teaching can be improved by extensive use of multimedia in large lecture courses. Therefore, it is proposed that the developing web-based teaching do not mean a simple transfer of its content from traditional textbook to hypertext. Instead, the appropriate use of technology depends largely on a clear understanding of the features of the technology. Teachers need to have a level of expertise that enables them to use learning technologies comfortably and online teaching needs to be part of the practicum experience for all teachers. Good use of technology can add value, but simply adding it to a bad learning program won't improve it. It is worth mentioning that having the right technology and delivering good learning program using that technology is essential but insufficient [6].

An effective web-based learning strategy must be more than the technology itself or the content it carries.

In the web-based teaching mode for college English guided by constructivism, the first thing college teachers need to be aware of is that by adopting web-based learning, teachers are not just introducing new technology for learning; teachers are introducing new ways to think about learning. All in all, it would be irresponsible to be led purely by the latest technological breakthrough. We should not forget that wonderful technical features do not necessarily mean effective teaching or learning. It is important to look beyond that trimming to see what the real content is.

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Studies on the Development of Outward Bound Course in Institutions of Higher Learning in China

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Abstract. Outward bound (OB) first appeared in Europe during World War II, it was introduced into the mainland China 50 years later and has gradually become a course in institutions of higher learning. Based on previous documents and the author's own experiences, this paper makes studies on the application and development of OB in physical education (PE) in those institutions by adopting scientific approaches of inducing, deducing and reasoning etc. It analyzes the feasibility of introducing OB into PE and integrating them in institutions of higher learning from different angles and various levels so as to deepen the innovation of PE in China.

Keywords: physical education in institutions of higher learning, outward bound, course study.

1 Introduction

Outward bound (OB) originated in Europe in the 1940s to meet the needs of World War II and it has become a new way of training in modern western countries after years' development. OB was introduced into the mainland China in 1995, focusing on employees in enterprises. It was first used as the means of social training and after several years' practice, it went into universities at the beginning of 21st century. OB is designed as a course on management, human resource development or physical education (PE). As a PE teacher in the sport university, the author will make a study on the development of OB course in Chinese institutions of higher learning from the angle of PE.

2 The Feasibility of Introducing OB into PE in Chinese Institutions of Higher Learning

2.1 Guidelines to the Introduction of OB into PE

OB attracted the attention of universities when it was introduced into China, but it was only designed for adult education in some institutions of higher learning. Later, OB was adopted for the joint training of Master of Business Administration (MBA) by universities and OB schools out of the campus. However, it is since 2002 that OB has deeply rooted in the campus, some domestic universities began to design syllabus on OB and built special training equipments to carry out various OB activities, which

indicates that OB has returned from social education to school education. OB course aroused great interest from the students and is popular among them; therefore, more and more universities and colleges embraced OB in their syllabi, some have set up OB course and some are preparing for this course. OB will have a brightening prospect in institutions of higher learning in the future with different courses being designed to meet different requirements in different fields, such as OB on applied psychology, management, military and leadership, etc.

OB is an educational mode by means of physical activities; it organizes relative training projects and arranges courses according to various characteristics of trainees, which is identical to PE. The trend of introducing OB into PE is the need of time and it helps education adapt to society and improve students' comprehensive qualities. Based on the guideline of "health first", OB course attaches great importance to PE culture contained in the content and organically combines ideological and moral education with wellness training, cultural and scientific education as well as education of living skills and sports skills, which is an effective way to implement quality education and promote the all-round development of the talent.

2.2 Consistency of Purpose between OB and PE

OB in institutions of higher learning is to enhance students' comprehensive qualities and achieve the goal of "surpassing oneself and steeling the team". And PE aims at improving students' physical and mental health as well as their abilities of adapting to society. Since both OB and PE pursue the goal of helping students merge into society and focus on the cultivation of their comprehensive qualities, they are consistent with each other in the purpose of education.

2.3 Similarity of Educational Means and Methods between OB and PE

OB merges teaching content into the trainee's practical experience. It helps the trainee to transform previous ideas into better ones and formulate more efficient action plans by arousing his instinct and the most direct way of thinking when he faces challenges and offering appropriate guidance. Thus a new character of the trainee has been formed during the process of experiential learning. Similarly, students trained by PE will master movement skills and develop sportsmanship through repetitive practice.

3 Construction of OB Course

When OB is designed as a part of PE course, the concept, goals, means and methods of teaching are totally different from those of OB in social training.

3.1 Goals to Be Achieved

As a new course in PE, OB differs from traditional courses in teaching content and methods: it no longer completely centers on theoretical courses and values the development of students' comprehensive qualities more than simply imparting knowledge. The reason for introducing OB into PE course and using it as the major means of training is that it assists students in constructing correct sports spirit,

promoting the “health first” awareness, fostering interest in sports, strengthening sports training, improving physical and mental wellness and enhancing abilities of adapting to society. According to the goal system framed in the *Guideline to Physical Education in Regular Institutions of Higher Learning in China* (published by the Ministry of Education in August, 2002) and considering the content of OB course, five goals needs to be achieved.

The first goal is about participation in sports activities. We should arouse students’ interest and help them form the habit of participating in OB. When they have a strong desire to do physical exercises and challenge themselves, they will enjoy the fun of challenging their limits and gaining victories through teamwork and have the awareness of “lifetime sports”, and then they will consciously take part in sports activities and adopt scientific methods.

The second goal is about motor skills. Students should master basic concepts, skills and abilities of OB, get familiar with ways to understand objective things and solve problems, expand knowledge structure and be able to efficiently transfer previous learning to practical use. They should also grasp the key to promoting physical capability and competitive level and participate in challenging OB activities and competitions to exploit physical potentiality and enhance physical skills. In addition, students should carry out scientific physical trainings and be capable of scientifically instructing other people in taking exercises.

The third one is about physical health. We should make use of various basic sports activities such as running, jumping and climbing etc. to strengthen students’ body functions and fully develop their physical capabilities, through which illness can be avoided and their health will be improved accordingly.

The fourth goal is about mental health. Base on the knowledge of psychological cognition, OB should enrich students’ psychological activities, increase the sensitivity and flexibility of their mental process like feeling, perception, attention, memory and thinking etc., help students to develop personalities, temper will and set up self-confidence so that they will have a pleasant mentality, possess good psychological qualities and thus be healthy in mental conditions.

The last goal is about adaptation to society. We should cultivate students’ teamwork spirit, enhance the consciousness of interpersonal communication and relative skills, and help them appropriately handle the relationship between others and themselves, individual and organization as well as cooperation and competition. Meanwhile, students should be good at cooperation and moral in sports, form good habits, and finally enhance their abilities of adapting to society.

3.2 Curriculum Type

The content of OB consists of two parts, i.e. theoretical part and practical part.

3.2.1 The Arrangement of Theoretical Part

OB activities are designed for producing some desired effects, one of which is making students actively take part in trainings to practice more and enjoy more. They will experience more through enjoyments, understand more through experiences and learn more through understandings. OB is a comprehensive course and involves knowledge of many fields; as a result, the theories of it are quite complicated, which include the

origin and development of OB, guidelines, risk precautions and protections, collision and communication, leadership and management of OB, the construction of personality and team spirit, knowledge of promoting sports skills, knowledge of hygiene, nutrition as well as healthcare and so on. All of these theories are put into practice through recognition and experience: the former refers to passing on knowledge summarized by predecessors to students by giving lessons and analyzing in classes so that they can learn indirectly; the latter is gained from actions, that is, putting theories into practice and testing learning in practice so that students will obtain first-hand information and understand more in OB, furthermore, they will grasp knowledge firmly and deeply after their recognition have a qualitative leap by revision, sharing and teacher's guidance.

3.2.2 Classification of Practical Part

The practical part is composed of indoor training, site training and outdoor training. Indoor training focuses on some ice-breaking games and puzzles. Site training provides classic OB projects in sites with special equipments like high stand and rope net etc. which are built according to the features of OB. Outdoor training puts students into wild environments and tests them by simulating certain scenes or arranging some activities. Students should use knowledge and skills to fight against difficulties and conquer themselves. Besides, they should also use the wisdom and power of a team to solve problems and safely accomplish tasks as planned. Therefore, the contents of outdoor training are comprehensive, which include field survival, weather forecast, terrain recognition, orienteering, hiking, camping, danger prevention and emergency rescue, etc. and it is through these projects that we achieve the goal of "tempering will, cultivating mind, perfecting personality and steeling the team".

3.3 Training Process and the Implementation

The training content involves basic theories, necessary security skills, projects on site training and comprehensive outdoor training, control and guidance etc. The training is based on the teaching of single project, assisted by integrated projects and comprehensive practice projects.

OB on theory and practice will have a teaching plan of discipline and subject respectively and be implemented according to the routines of PE. The plan of outdoor training should be more detailed and considerate since it should not only be well prepared for students, teaching materials and teaching plans as required in traditional teaching, but also fully consider factors like teaching stages, students' mastering of knowledge and their body conditions, arrangement on time and routine, landforms of training sites, logistical support and contingency plan, etc.

4 Results and Analysis

4.1 Stimulate Students' Motivation and Cultivate Their Interest in Sports

Students' motivation for learning something always comes from certain needs which may convert into interest and gradually become a hobby. Compared with traditional sports value, the value of modern college students has totally changed. Besides the common value of keeping fit and making improvement in morality and intelligence,

students' major needs has turned to pursuing fashionable and exciting sports items and developing social and competitive abilities to adapt to society through colorful sports activities. OB course is the combination of many subjects; it is more interesting and challenging than other sports items. Students' interest is greatly aroused by activities in OB like running, jumping, climbing, building a human wall and making a human pyramid, etc. and their zeal for sports soars to unprecedented heights. Many students want to practice more after training and some student cadres even employ methods and knowledge learned from OB and carry out OB activities in the League and their classes. In recent years, the number of OB competition is increasing in mainland China and the teams are mainly from institutions of higher learning. And more students will participate in OB after it is listed in syllabus as a new sports item.

4.2 Promote Students' Practical Abilities and Making a Qualitative Leap in Recognition

Recognition of objective world embodies the socialization of human beings and this recognition comes from both direct and indirect knowledge. In traditional education, students learn from predecessors' experience, which is imitated, repeated and memorized mechanically without understanding. However, OB helps students participate in activities first and then raise their understanding to a higher level by introspection and summary. This understanding will be stored in deep memory and finally form into corresponding abilities. The recognition process of OB begins from training to feeling, sharing, summary, application and to solving problems, and here both the training and solution part emphasize practice. OB focuses on teaching through lively activities, therefore students' recognition of objective things from personal experience are fresh and vivid and they will have a deep memory. In addition, their previous learning is tested and verified in practice and is changed from quantitative stimulation to qualitative leap.

4.3 Follow the Rules of Psychological Development and Cultivate Healthy Mental Qualities

Although experience in OB is based on sports activities, the breakthrough of recognition process lies in psychology. We need to find out the root of current problems and solve them by analyzing trainees' mental conditions and psychological activities in OB. Through challenging themselves and finding solutions, students will not only exercise and strengthen their bodies but also release their mental pressure, keep an optimistic mood and form a positive attitude. Furthermore, they can purify their souls and enjoy life in the casual atmosphere of activities. OB increases the sensitivity and flexibility of students' mental process like feelings, perception, attention, memory, imagination and thinking etc. and make them calm, decisive, persistent, daring to explore the unknown and conquer difficulties. It also improves students' perseverance, patience and the ability of enduring hardships.

4.4 Learn to Get along with Others and Adapt to Society

The rapid development of scientific technology brings great material wealth and causes many social problems at the same time. For example, the increasing use of technology

reduced people's humanity, making them lose passion and solicitude for others, traditional humanistic education has gradually been replaced by education of professional skills and the cultivation of talents was substituted by the training of abilities. Unfortunately, human development is ignored, which is embodied by the increase of IQ (intelligence quotient) with the decrease of EQ (emotional quotient). One important goal of OB is "steeling the team and constructing team spirit". To achieve their common goal, the students in a team must break the barrier, get along with each other in harmony and arrange human resources reasonably and efficiently so that every one can make full use of their advantages, unite together, cooperate intimately and finally accomplish the teamwork. This work manner in OB offers us a model to follow in current social life, which teaches students to combine their own abilities with social needs, considering both the character of one person and the harmony in society, and dealing with the relationship between oneself and other people, individual and society, person and nation appropriately. Furthermore, students will learn to get along with others, live with others and strengthen the ability of adapting to modern society.

4.5 Expand the Space for PE and Improve the Arrangement and Innovation of Courses

The introduction of OB into PE and putting traditional PE in natural environment enriches the form and content of PE, requires more teaching time and expands its teaching space. In particular, some theories, concepts and methods adopted in OB inspire institutions of higher learning and provide essential reference for the arrangement and innovation of their PE courses.

5 Conclusions and Recommendations

5.1 Conclusion

OB in Chinese universities is a comprehensive activity and helps to stimulate students' potential, enhance their mental qualities and survival skills, and strengthen the team spirit, all of which is achieved on the basis of sports activities by using psychological recognition as the breakthrough and adopting means and methods of organizational behavioral science as well as the theories of management and leadership. It is inevitable and necessary for the introduction of OB into Chinese institutions of higher learning so as to improve quality education and promote college students' comprehensive qualities in full scale.

5.1.1 Enrich the Content of PE and Perfect the Theoretical System of OB

Setting up OB course in universities enriches the content of PE, stimulates students' learning motivation, cultivates their interest in study, expands the time and space of PE course by making it more practical, interesting, efficient and challenging, and also embodies the variety and value of this course. OB has gradually developed from a course to an education concept and learning mode, which is applied in many relative fields and becomes a leading brand of outdoor experiential teaching in China. As far as the teaching mode of OB is concerned, the training is carried out in simulated natural environment by experiencing carefully designed outdoor activities with the risks being

controlled. It has set up an experience learning system with Chinese characteristic but this system is not perfect enough and needs to be tested, enriched and improved in both theory and practice by more brave explorers.

5.1.2 Increase Students' Intelligence, Change Their Behavior and Provide New Way for Employment

OB is one of the effective means of achieving goals set in university PE course to make it social, scientific and life-oriented, which is in accordance with the *Guideline to Physical Education in Regular Institutions of Higher Learning in China*. OB is also a useful way to cultivate talents in full development since it well combines theory with practice and helps students get more perceptive about objective things and realize the process and laws of solving problems more clearly through experience, sharing, promotion in intelligence and change in behavior. OB is a burgeoning sports activity and a new career which offers more jobs and more opportunities for college students.

5.1.3 The Promising Future of OB

The teaching mode of OB is new and dynamic and it is the innovation in both education concept and teaching methods. OB meets the social requirement for high-quality talents and represents the new development tendency of PE in universities. It helps students better understand their potentials, strengthen self-confidence, temper the will, inspire their imagination and creativity and enhance the abilities of solving problems. At the same time, OB can increase students' awareness of group participation, improve their interpersonal relationship and cultivates teamwork spirit. Nowadays, OB market is flourishing in China and OB course develops rapidly in universities although it is in the early stage. Leaders and educators should take OB seriously, accelerate the construction of OB infrastructure and reinforce the training of OB teachers. In addition, OB should be carried out in flexible ways and it can be either an elective course or required course or even a special course for outdoor sports majors according to school conditions. Considering the history of OB in Europe and America, OB has a long way to go in China, and there is much room for its development with a broad research field, which indicates a promising future for the teaching and scientific research of OB.

5.2 Suggestions

5.2.1 Avoid Risks

OB is a sports activity with high risk and both teachers offering guidance and trainees in experience undertake the potential risks, the existence of which is one of the charms of OB. In the view of sociology, seeking for security in dangerous activities has become an increasingly valuable aim. Therefore, OB in universities should be designed difficult in certain degree with some risks, but the risks must be under the control of teachers and the standard operating pattern should be employed in "safe practice" to deal with risks.

5.2.2 Guarantee the Security

To avoid potential risks, security management is a crucial factor to be considered in OB. During the process of training, teachers and students must stretch tight the string of security and put it in an important position. When carrying out OB activities,

universities should pay attention to the security of sites, equipment and operation. And to guarantee the security of OB, we should scientifically and systemically design the course, keep the security consciousness anytime and anywhere, use equipment authenticated by international authorities, adopt strict and standard operating methods, possess rich and practical teaching experience and prepare flexible and effective security plans. As long as we treat OB seriously, realize the features of our projects, admit the existence of risks and remove insecure conditions, prevent insecure behavior and control insecure environmental factors during teaching process, we will obtain greater security.

5.2.3 Cultivate Qualified Teachers

Teacher resources is a core element in OB teaching because teachers must guide students at any moment during the whole teaching process and help them to transform their experience into the knowledge of life. In other words, professional teachers ensure the achievement of teaching goals. To open OB course, the teachers must have solid knowledge basis and be able to teach in theory and operate in practice. Therefore, in order to improve the effect and quality of OB course, we must at first solve the problem of cultivating teachers.

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