COMPARATIVE STUDY ON THE COLLEGE COMPUTER EDUCATION OF THE DEAF

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Abstract : In many countries around the world , universities have set up a professional called Computer Science and Technology for the deaf students, the cultivating scheme is the reflection of different kinds of talents cultivation in different colleges and universities. This paper will focus on the Chinese colleges which offer professional Computer Science and Technology for the deaf students, through analysis these college's cultivating scheme to study the Chinese computer science education in college. Thus we choose three Chinese colleges and an American college to do comparative studies, those all colleges have set up the Computer Science and Technology for deaf, and the main method for studying is to analyze the similarities and differences of the professional curriculum system between three Chinese colleges and the American college. The aspects of the study concentrate on the teaching plan, the training target, educational system, credit hours and so on. Finally, we draw the Conclusion: the cultivating scheme of the three Chinese colleges position their education in practical and popularization, each college highlighting its own characteristics and applicability. But compare with the American college, there are having not enough attention to the deaf culture characteristics, also there are disadvantages in lack of inclusive education.

Keywords : Hearing-impairing student , Computer Science and Technology , curriculum system

1. INTRODUCTION

With the development of society, the rights for the disabled have attracted more and more attention. In 2013, the right to education for the disabled has been better protected; it has a great meaning to the further improve for equal participation in society for people with disabilities. Chinese government has run 194 special schools for senior middle school class (Department), with 7313 students study there; and have run 125 deaf high schools, 5704 students in there; there are 198 disabled medium occupation schools with 11350 students, 7772 graduates, among them 6200 people obtain the occupation qualification certificate. The country has 7538 disabled persons enrolled in the general colleges and universities.   According to the total number, in China hearing disability has a number of 20540000. Obviously, the number of hearing impaired who accept the higher education is rarely. How to provide more perfect curriculum system in order to protect these deaf receiving higher educations and it should be pay more attention. This paper compares the similarities and differences of the domestic and foreign computer professional curriculum system, so as to provide an objective reference for development of China higher education of deaf people. In this paper, we use the formulation of Professor Jiang Zongli to analyze deaf undergraduate education, focus on the major of computer science and technology.

2. THE DEAF COMPUTER EDUCATION IN CHINA AND ABROAD

2.1 THE FOREIGN COMPUTER EDUCATION OF THE DEAF

At present, the marked characteristic of special education in Europe and the United States is inclusive education. In the background of the inclusive education, almost all of Europe and the United States computer professional can receive the application of hearing-impaired students.

In America, the settings of Computer specialty mainly according to guiding plan which published by the Computer Society of the Institute for Electrical and Electronic Engineer(referred to as IEEE-CS) and the Association for Computing Machinery (referred to as ACM), the university undergraduate specialty settings covered Science, engineering, medicine, education, liberal arts, management and other disciplines.

2.2 CHINESE COMPUTER EDUCATION OF THE DEAF

In China, According to the Degree granting and talent training course catalogue (2011), computer science and technology is the discipline belong to the engineering category, it can be awarded the science or engineering degree. Bachelor's degree need takes 4 years to learn. The school which will mentioned in this article, named the Computer specialty as Computer Science and Technology, four years of schooling, acquire the degree of Bachelor of engineering.

Since 1962, the first student with computer specialty degree graduate form America Purdue University, at present the Chinese schools set up 847 computer specialty. Some universities can receive the hearing-impaired students, in the third part, this article will be discuss three college which are receive hearing-impaired students, they are Beijing Union University (BUU), Tianjin University of Technology College of special education (TUT), Jinling Institute of Technology(JIT), and an American university called Gallaudet University (GU)for compared.

3. COMPARATIVE STUDY ON THE UNIVERSITY COMPUTER TEACHING OF THE DEAF

This section will be comparing the three Chinese universities with the American University called Gallaudet in the aspects of educational objectives and curriculum system.

One of university from china is The Special Education School of Beijing Union University, it was founded in September 2000, affiliated to Beijing Union University. The college has set up four department (Department of special education, art department, the Department of biology and medicine, electronic information department) and a center (Beijing City special education teacher training center); has a the city level key specialty, it has 8 specialties facing the whole country recruit students, involving education, agriculture, medicine, engineering, literature and other disciplines.

Another Chinese university is Tianjin University of technology institute of technology of the deaf. It is the first school receiving the hearing-impaired students. The deaf college enrollment began in 1991. There are two specialties, computer science and technology and Art and Design.

There also a Chinese university will be mentioned is Jinling Institute of Technology of Nanjing. Currently, the university only computer specialty can receive the hearing-impaired students.

At the same time, this article will also choose an American university called Gallaudet as a contrast, the American Gallaudet university is in Washington D. C. it was established in 1856, it is specifically for the hearing-impaired students, in each class the number of hearing-impaired students at least 95%. Gallaudet university have more than 40 undergraduate specialties, covering science, engineering, medicine, education, liberal arts, management and other disciplines. The specialties related to computer are Information Technology, Computer Science, and the school system for four years. The Information Technology students can award Bachelor of Science Degree; computer

science students can choose two different courses, which respective obtained a Bachelor of Science degree or Bachelor of Arts Degree.

3.1 EDUCATIONAL OBJECT

The three Chinese colleges combine with education level, physiological characteristics and the scope of employment to design their educational objectives.

The Computer science and technology major of Tianjin University of Technology emphasizes in graphics and multimedia technologies and computer application technology direction.

Beijing Union University College of Special Education College mainly focuses on cultivating students talents in network management, website construction and maintenance and network system development direction.

The direction of Jinling Institute of Technology is the application of multimedia technology. The three schools are generally focused on the basic theory, professional knowledge acquisition.

Foreign university education influenced by the inclusive education has a broad higher special education, and Graduates of Gallaudet University can be engaged in a programmer or analyst, as science or business application programmers in government or industry, or admitted to graduate to further study. Information technology graduates become IT sector professionals, such as: network system management, information safety, database application, web development, software integration, terminal support, and worked in government, business, health, education and entertainment.

3.2 Curriculum System

In this section, the article will be focused on graduation credits, curriculum categories, teaching period distribution and specialties courses to discuss the similarities and differences of each school in computer education.

3.2.1 GRADUATE CREDIT

Graduate credit is an important component in educational scheme; it reflects the learning capacity of four years from one side of the whole. USA one credit corresponds to 15 teaching hour, China one credit corresponds to 16 teaching hour. Table 1 lists four schools Graduate credit. From the perspective of graduation credits, we find it is hard to show the learning quantity difference between Chinese university and foreign university.

Table1 Graduate credit

School name	Degrees offered	Graduate credit
BUU	Bachelor of Engineering	160
TUT	Bachelor of Engineering	160
JIT	Bachelor of Engineering	180
GU	Bachelor of Science/ Bachelor of Arts	120

3.2.2 CURRICULUM CATEGORIES

Chinese Computer Society Education Committee compiled "Chinese Higher School of computer science and technology professional (Applied)" (referred to as the "subject tutorial") mentioned computer application subject curriculum system is composed of 5 platform, namely the basic socializing course, professional basic course, professional elective courses, application ability course and basic quality courses. Table 2 compared those platforms. It can find all universities have those kinds of platform in university education.

Table 2 course platform

course platform	TUT	BUU	JIT	GU
basic socializing course	Public basic course	General Studies	Public basic course	General Studies & Pre-Major Courses
professional basic course	specialized course	specialized course	specialized course	specialized course & Related course
professional elective courses	specialized course	specialized course	Professional development courses	specialized course (Major)
application ability course	specialized course	practice teaching	practice teaching	Free Elective
basic quality courses	Public basic course	Public basic course	Public basic course	General Studies

3.2.3 TEACHING PERIOD

The teaching period and its proportion can reflect the knowledge orientation and specialty direction of college.

Teaching period of computer specialty courses of the Beijing Union University of special education as table 3 shows. Teaching period distribution for hearing-impaired students is same with Average hearing students. Shown from the side, the school tends to inclusive teaching plan. (See Table 3 Teaching period distribution of the BUU)

Table 3 Teaching period distribution of the BUU

Curriculum categories（Graduate credit，Teaching period）		比例	
General Courses Platform(63，1072)	General education required courses（55，944）	34.4%	39.4%
	General education elective courses（8，128）	5%	
Public basic course(20 ,320)	required courses（10，160）	6.3%	12.6%
	elective courses（10，160）	6.3%	
Major Courses Platform （35，560）	required courses（18，288）	11.3%	22%
	Limited optional courses（11，176）	6.9%	
	Optional courses（6，96）	3.8%	
practice teaching	Scattered practice teaching（4，64）	2.5%	25%
	concentrate practice teaching（36，864）	22.5%	
diathesis education（2，48）		1.3%	1.3%
total　（160，2992）		100%	

Teaching period distribution of specialized courses of Gallaudet University is showed in table 5.

Table 5 Teaching period distribution of the GU

Curriculum categories	Teaching period	Proportion
General Courses	36-40	30%-33.3%
Pre-Major Courses	10	8.3%
Major Courses	45	37.5%
elective course in application field	15	12.5%
Free Elective	10-14	8.3%-11.7%
total	120	100%

Comparing China and foreign universities education for the hearing-impaired students, from the Teaching period distribution shown, the proportion of the general education and the professional education is close, they are all concentrated in the proportion of 3.5:6.5, and they all put the Major Required Courses as the main content.

4. CONCLUSION

This article lists each of college's educational objectives and curriculum system in detail. From these data, we can find the cultivating scheme of the three Chinese universities position their education in practical and popularization, each college highlighting its own characteristics and applicability. But compare with the American college, there are having not enough attention to the deaf culture characteristics, also there are disadvantages in lack of inclusive education.

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