

## Reform of Bilingual Teaching of Packaging Engineering in China Universities and Colleges

Manru Chen<sup>1,a</sup>, Yucong Zhao<sup>1,b</sup>, Baohui Wu<sup>2,c</sup>, Guifen Gong<sup>1,d</sup>, Guozhi Li<sup>1,e</sup>

<sup>1</sup>College of Art and Design, Shaanxi University of Science. & Technology Xi'An, China 710021

<sup>2</sup>College of Foreign Languages & Communications, Shaanxi University of Science. & Technology Xi'An, China 710021

<sup>a</sup>e-mail: chenmr@sust.edu.cn, <sup>b</sup>e-mail: zhaoyucong@sust.edu.cn, <sup>c</sup>e-mail: wubh@sust.edu.cn,

<sup>d</sup>e-mail: gonggf@sust.edu.cn, <sup>e</sup>e-mail: liguozhi@sust.edu.cn

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**Abstract.** The different senses between Bilingual Teaching and English for Special Purpose are emphasized. The construction of Packaging Technology, a National Bilingual Teaching Demonstration Course, is specified. The educational model of Packaging Engineering Students is proposed, which will meet the international requirement on packaging education. Regional universities and colleges can refer to this study for the internationalization of cultivating professionals.

### Introduction

In 1952, the first School of Packaging in the world was founded at Michigan State University, USA. With reference to its school running model, China commenced her packaging engineering education at the tertiary level at the beginning of 1980s. Up till now, over 70 ordinary institutions of higher learning have the undergraduates for packaging engineering, most of which are the local universities. Shaanxi University of Science & Technology (originally Northwest Institute of Light Industry) is the first one in China to enroll undergraduates of packaging engineering. Later on, it enrolls postgraduates of packaging engineering with related discipline. At present, it is preparing to enroll PhD candidates.

Bilingual Teaching is defined as being able to teach various subjects in a second language or foreign language at school, i.e. to teach courses of non-linguistic disciplines in other languages (mostly English) than the mother tongues or to synchronize the acquisition of second languages and major knowledge. Bilingual Teaching offers more opportunities for students to be exposed to applying foreign language and to enable them to acquire second language subconsciously so as to make them realize the transition between “learning foreign language” and “applying foreign language”. This will promote the bi-cultural or multi-cultural communication and blending, and cultivate and improve the students' abilities to apply English.

The Ministry of Education, China issued in 2001, an official document No. 4 entitled *Suggestions for Improving Teaching Qualities of Undergraduates in Universities and Colleges*, which officially started bilingual teaching in China universities and colleges. In 2003, the Ministry of Education started the assessment of undergraduate education work for universities and colleges, in which there is an observation item of bilingual teaching. Later on, All the universities and colleges actively explored and practiced the rules, methods and models of bilingual teaching[1]. In line with it, there are three absences[2] in bilingual teaching, namely absence of teachers, absence of textbooks and absence of teaching methods. In 2007, the Ministry advanced *The Reform of Undergraduate Teaching Quality and Teaching Engineering in Universities and Colleges*, stating that bilingual teaching courses should be promoted; bilingual teaching should be encouraged, and those overseas scholars who have come home should be encouraged and facilitated to give major courses in English so as to strengthen oral and audio English and the ability to communicate in English and comprehensively apply English. From 2007

through 2011, more than 500 courses are approved to be constructed as The National Bilingual Teaching Demonstration Courses, 98% of which are the basic major courses or major courses. The teaching team with the authors as participants gives the course of *Packaging Technology* as a compulsory basic major course for the sophomores of the Packaging Engineering. In 2010, *Packaging Technology*[3] was approved for the construction as the National Bilingual Demonstration Course.

### **Requirements of Quality of Packaging Professionals in Internationalization**

Under the circumstances of internationalization, especially during the process of China's transition from large packaging country to strong packaging country, there is an urgent need of packaging professional talents. Therefore, bilingual teaching in universities and colleges is not simply to give major courses in English instead of Chinese but to actively adjust the teaching modes and methods. Besides, the model of cultivating professional talents with international horizon and competitiveness should be explored.

A. The students should possess the ability to fast retrieving and reading English literatures and references on packaging. As an industrial technology, packaging's development is closely related to social progress. We have already known that the global forerunner of higher education on packaging is the School of Packaging, Michigan State University, USA, and packaging engineering has been developed very quickly as a new discipline for nearly 30 years in China.

Throughout the world, US, Canada, and Great Britain are the most advanced countries in the development of packaging technology and disciplines, and most relevant references come from English literatures. This determines that the packaging discipline has a strong international commonality, which has relatively stable expression, lexical meanings and terminologies. There are consistent comprehension and interpretation among different languages. To enable the students to enter global packaging technology or participate in international communication, it is necessary that the major courses of this discipline be taught bilingually. Through bilingual teaching, packaging professionals will be cultivated, who will follow international frontier and master directly, accurately, and timely the market trends, technological development, and international laws for packaging.

B. The students should be able to express them fluently in oral English and communicate well and have no lingual problems when cooperating with foreign colleagues in packaging areas. This requirement is especially prominent when an increasingly large number of students are employed in international packaging companies.

C. The students should possess accurate writing abilities. They should be able to write materials such as professional technical papers and professional research report, especially technical documents as the technical report or test report closely related to their job.

### **How to Cultivate International Packaging Professionals**

According to statistics, about 70% of the web information is communicated in English. Therefore, to strengthen English teaching is one of the important contents in higher learning adjustment. Bilingual teaching is significant to China's higher learning as to whether we can realize open education. The more universities are to adopt bilingual teaching, there will be more bilingual professionals, and it will be more quickly for us to adopt advanced international technology. Bilingual teaching enables the courses to be internationalized. The corresponding curriculum and specific teaching materials will be consistent with world-famous universities and colleges. The normalization of part of the important courses will lead and set an example for other courses of the universities. The keys to construction of bilingual teaching courses are bilingual teachers, curriculums, textbook compilation, and teaching modes.

**A. Bilingual teachers.** Universities and Colleges should have sufficient teachers who are bilingually proficient and can teach major courses in English. Bilingual teachers are regarded for a long time as the

bottleneck of bilingual teaching. Bilingual teachers shoulder dual tasks in that they should master both majors and proficient linguistic competencies so that they can manipulate the bilingual classes. Therefore, it is necessary that bilingual teachers have the major background and sufficient oral and audio proficiency in English. We do it as follows: The team members are trained by invited foreign teachers, or sent to foreign universities, or get trained in oral and audio abilities in foreign language training organizations home and abroad. In sum, team of teachers are cultivated or introduced who have profound foundation in majors and can fluently apply English in teaching major subjects.

**B. Curriculum.** It is not practical to directly give bilingual teaching courses in non-211 regional colleges or universities after the students take college English. Even if the qualities of bilingual teachers can be ensured, the different English levels among the students, especially the oral and audio inadequacies will limit their comprehension, which will bring about problems to bilingual teaching. Therefore, to suit students of regional universities or colleges, the course of English for Special Purpose should be give as a transitional course so as to lay a solid foundation for later bilingual teaching. The bilingual course setting and curriculum system are shown in Figure1. In the figure, bilingual basic major courses are those as Packaging Fundamentals while the bilingual major courses are core major courses such as Packaging Materials, Packaging Structure, and Transport Packaging.

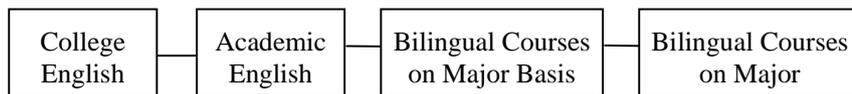


Figure1 Bilingual course setting and curriculum system

**C. Textbooks.** They are the carriers of knowledge and appropriate textbooks are significant to improving bilingual teaching qualities. In bilingual teaching, textbooks published in foreign countries are usually selected to be geared international standards. Textbooks on packaging published abroad are prominent in that they are linguistically standard, practical, and full of cases. By analyzing the cases, the students' ability to analyze and solve problems will be enhanced. But the original foreign textbooks cost great deal. Besides, different professional knowledge structure, different educational targets, and different ways of thinking will pose problems to students. From the basic educational ideology, it is not advisable to copy the ready-made textbooks for a different group because the textbooks will lack pertinence to Chinese students so as to negatively affect teaching effects. Therefore, it is necessary to select and adapt the original textbooks to compile packaging textbooks for bilingual teaching to suit Chinese situation. Besides, Chinese translation for key and difficult points or the knowledge points should be offered and the terminologies should be added in the complementary textbooks. These textbooks will become the mainstream textbooks for English for Special Purpose and bilingual teaching.

**D. Teaching models.** The conventional teaching method is to read and translate each sentence in English textbooks and the grading is also simple so that the bilingual teaching becomes English for Special Purpose. In this way, the students' ability to acquire major knowledge is not improved so that the target of bilingual teaching is not attained. Therefore, to give bilingual teaching for Packaging Engineering major in universities and colleges is not simply to give major courses in English other than Chinese. Rather, teaching modes and methods should be actively adjusted and the bilingual teaching modes for cultivating professional talents with international competitiveness should be explored. At present, there are many popular bilingual teaching modes at home and abroad, such as Immersion[4], Maintenance[5], Transitional[6], etc.. In accordance to the particularities of undergraduates of packaging majors, it is advisable to flexibly adopt the above-mentioned teaching modes for basic major course *Packaging Technology*. The bilingual teaching methods should transfer from the preaching approach to student-centered inquiry approach with the cooperative/inquiry learning as principal line. Besides, the students' learning attitude should be changed from passive learning to active learning. The students will experience on their own the state of development in packaging professionals in the

international background. They can realize how they can obtain a great deal of information resources by applying foreign languages, which will stimulate their great interest in major exploration with the help of foreign language and cultivate their ability for self studying and innovation. We have explored suitable bilingual teaching methods for major courses. In core major courses as Packaging Machinery, Packaging Structure, and Transport Packaging, Chinese is adopted for lecturing. On the basis of comprehension in Chinese, English will be complemented or some chapters of English Textbooks are selected and offered with full preparation. Therefore, new major knowledge, important terms and key words will be permeated in regular major course teaching. This *Alternate Bilingual Teaching* method will lead students to apply English to explore major frontier and stimulate the students to study actively so as to improve teaching quality.

## Conclusion

Bilingual teaching is the key point to the internationalization of engineering education for China universities and colleges. To obtain advanced international major knowledge in the first time will enhance the students' ability to apply English in acquiring majors and will broaden their international horizon.

Teaching in packaging is the education of engineering technology and it is necessary to carry on bilingual teaching for the development and characteristics of packaging engineering. However, the reform of bilingual teaching should be stressed and the quality of bilingual teachers should be put in the first place to improve internationalization of teaching in packaging.

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