

A Chinese language innovative teaching model for a civil engineering major

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ABSTRACT: As China's high-speed rail technology increasingly becomes mature, it is inevitable that China's high-speed rail expertise will expand throughout the world. However, there is still a large gap between supply and demand for talent in civil engineering (CE). Few universities offer a CE major for international students. The railway universities of China have a short history in dealing with international students and, hence, lack experience and also use outdated educational methods. Chinese language education at present cannot meet the requirements of the CE employment market. In this article, the current situation in Chinese language education is showcased, with an analysis of the existing problems. Then, a framework for an innovative teaching model of Chinese language teaching for CE international students is proposed based on this analysis.

INTRODUCTION

In the past few decades, China's high-speed rail technology has become increasingly mature, with the successful completion of a large number of high-speed railway construction projects in China and abroad. China's increased international influence is attracting more foreign students to study in China. Consider Shijiazhuang Tiedao University (STDU); the proportion of students doing engineering majors had been steady at 87 percent for the past five years, until 2014 when there was a sharp increase to 96 percent driven by an increase in international civil engineering (CE) students. The breakdown is shown in Figure 1, which shows that CE students accounted for 48 percent in 2014, an increase of 12 percentage points from 2013. The rapid increase in international CE students provides an opportunity to reform how Chinese is taught to CE students and, indeed, makes the reform of the Chinese teaching model inevitable.

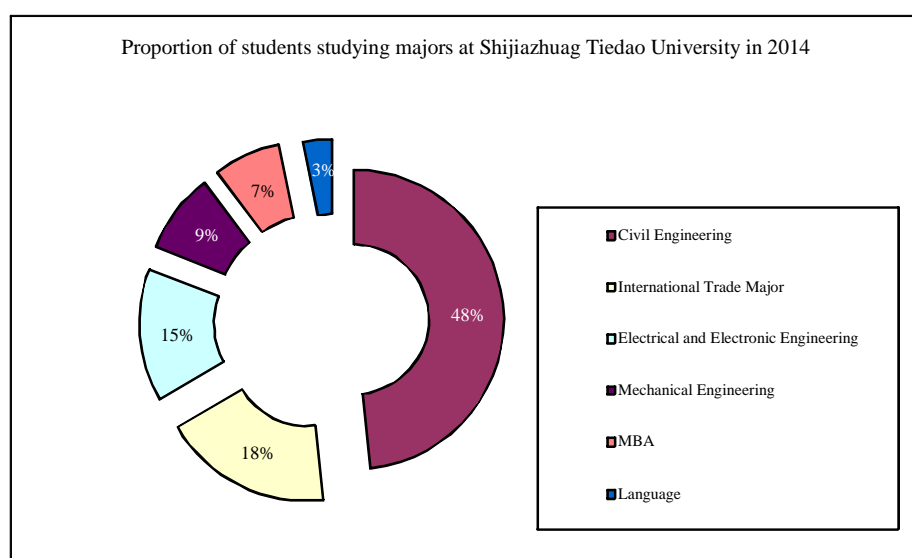


Figure 1: Proportion of students studying majors at Shijiazhuang Tiedao University in 2014.

As a communication tool, language plays a vital role for CE students in their professional learning. At present, there are two obvious problems with the use of language by CE students in studying. One is the weak Chinese language abilities of international students and the other is the poor level of English of the teachers. As a result, communication

difficulties between teachers and students are inevitable. After one year of Chinese language study, students' Chinese language abilities are not sufficient to understand CE professional courses while, at the same time, teachers cannot offer a fluent explanation to the students in English. It is a regrettable fact that these problems exist at all engineering universities throughout Hebei province of China, according to an investigation in 2014 [1]. Therefore, the problem of bridging between the English and Chinese languages for CE students needs to be solved urgently.

Graduates of a university often are regarded as being like products approved by the employing companies to the extent to which they are qualified for the work offered. In recent years, many Chinese enterprises have expanded into overseas markets, but many projects are abandoned because of a lack of cultural understanding or poor communication with the local government. Such a lack of cultural awareness or bias can make employing companies lose confidence in graduates of engineering universities and should force universities to rethink the current mode of education.

ANALYSIS OF THE PROBLEMS IN LANGUAGE TEACHING OF CE INTERNATIONAL STUDENTS

Chinese Language Proficiency of CE International Students is too Low

One of the reasons for this problem of low proficiency is that there is minimal requirement or no requirements at all regarding students' Chinese language proficiency in the university admissions process. This, then, results in more students being enrolled, but in the process, it incurs a series of other problems, such as that of placing heavy pressure on language teaching, and is a big obstacle to professional learning.

The CE International Students' Bridging between Basic Chinese and Professional Chinese

Bridging between basic Chinese and professional Chinese for CE international students has been a problem for teachers in China. Professional Chinese language teaching is quite different from basic Chinese language teaching. The basic Chinese teaching can be regarded as propaedeutic or introductory. The goal of basic Chinese teaching is to improve students' ability in listening, speaking, reading and writing, so as to meet the requirements of life and study in China. The goal of professional Chinese teaching is to help CE students grasp more professional expressions, so that they can be successful in the civil engineering programme and meet the language requirements of international engineering projects. It may take one or two years to learn basic Chinese, but longer or even a lifetime to improve professional Chinese communication competence.

Civil engineering is a discipline that is not easy to learn in Chinese, even for a native Chinese speaker. So, the bridging between basic Chinese and professional Chinese is important. Students of CE will feel puzzled, losing interest and initiative, if the teacher does not realise the importance of bridging between basic Chinese and the professional Chinese particular to the discipline.

Cultural Factors that Impact CE International Students' Employability

Culture plays an important role in the employment of graduates. According to data from Shijiazhuang Tiedao University, factors - among others - that affect employment include Chinese language proficiency, the academic transcript and cross-cultural communications ability. A prospective employer will examine a CE international student using interviews and simulations of the workplace. The weightings in the employment decision are Chinese language proficiency 30%, the transcript 20%, cross-cultural communication ability 35% and other areas 15%, as shown in Figure 2.

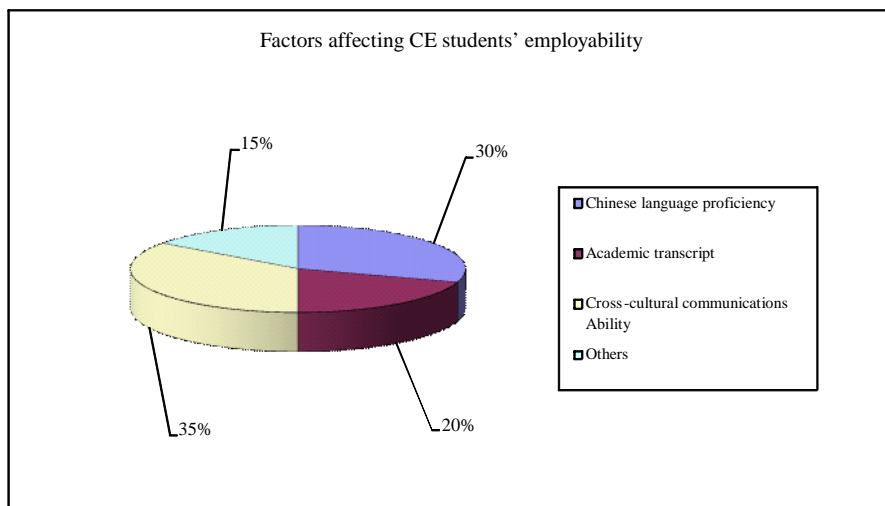


Figure 2: Proportion of factors impacting CE students' employment.

It can be seen in Figure 2 that employers pay a good deal of attention to cross-cultural communications ability. The employer believes that success or failure of a project depends largely on the communication between the parties to a contract and that only a person with good cross-cultural awareness is capable of being successful. Hence, a lack of multicultural awareness by CE international students is viewed as likely to cause a loss for the company or enterprise.

INNOVATIVE MODEL OF LANGUAGE TEACHING FOR CE INTERNATIONAL STUDENTS

Language Teaching Model based on the Target Language Environment

The key factors contributing to engineering students' learning efficiency are learning resources, teaching quality and the learning environment [2]. In recent years, it has become widely accepted that the rich and vivid language resources from the social environment in the target language help learners realise a transformation and leap, from knowledge to ability, from accuracy to appropriateness, from shallow to deep. Construction of a good extracurricular language environment needs to be of great concern for both teachers and administrators. A feasible plan includes targeted guidance and teaching methods requiring learners to actively interact and co-operate with each other.

A good extracurricular language environment should be included with the normal teaching. This should attach importance to the relationship between classroom teaching and the extracurricular language environment. This is a change from the old teaching model of emphasising the classroom teaching, but ignoring the extracurricular language. Associated with the traditional model is the great importance attached to teaching language and skills, but the actual use and practice of language is ignored. A clear and specific plan should be drawn up for varied and rich practical language activities. The learners' language communication and interpersonal skills need to be strengthened by appropriate training and guidance.

Some learners, lacking communication and interpersonal skills, attach too much importance to language rules and forms during learning, while ignoring the opportunity to communicate with others in the environment. As a result, such learners' language skills suffer through lack of practice. Attention should be paid to the different backgrounds of the language learners, to improve their adaptability to the culture and environment.

According to the cultural adaptation hypothesis, a second-language learner's adaptation to the target language culture determines the degree of mastery of the target language. Hence, the learner's social and psychological distance from the target language culture is the main factor influencing second-language acquisition. In order to help learners in the target language environment eliminate or reduce, as soon as possible, the social and psychological distance due to language barriers, administrators and teachers have a responsibility to provide appropriate psychological counselling and warm, nurturing atmosphere. The teacher should pay attention to, and guide, learners' extracurricular listening and reading.

Multiple Methods Used in Language Teaching

A variety of teaching methods are available for teaching Chinese as a foreign language. The teaching methods involve no basic language instruction, but rather they aim to provide opportunities for students to experience the target language and offer chances to use it [3]. In the past few years, a variety of different methods were offered to international students, as follows:

- Bilingual transitional teaching method: second language learning must associate the existing first language with the new second language through the assimilation of the two languages. The learner transforms thinking in one language to the other. Chinese characters are difficult to recognise and hard to write and remember. The transitional teaching method overcomes the psychological barriers to help students eliminate the pressure caused by language transformation.

Practice has shown that in teaching Chinese as a foreign language, the English-Chinese bilingual *transitional type* teaching method can realise a breakthrough. It can rapidly increase the student's abilities in listening, speaking, reading, writing and thinking. The students improve their Chinese language proficiency imperceptibly and improve their ability to communicate gradually. In turn, this speeds up their understanding of the culture. By this method, it is possible for CE international students to understand teaching in Chinese within one semester.

- Pinyin-based method using typing instead of writing for the CE language beginner: voice and text are the symbol systems for expressing thought; the former phonetic, the latter visual. Pinyin is not only the foundation of Chinese learning, but also a bridge between English and Chinese. Pinyin can give CE students a good linguistic preparation for understanding Chinese characters and should be given more attention in the preliminary stage of teaching Chinese as a foreign language.

For students, writing Chinese characters is attractive at the beginning, but the novelty soon disappears. Typing pinyin is a compromise; students type in pinyin, and Chinese characters are output. It is quick and convenient for students in the preliminary stage and can even help advanced students to complete written communication in Chinese.

- Experience and practice method: teaching Chinese as a foreign language is itself a discipline. As Zhao Xianzhou said: *...the purpose of learning it is to learn how to [do] it, take it as a means of communication, or a medium to communicate thoughts and feelings on both sides* [4]. The purpose of teaching Chinese as a foreign language is to develop the learners' ability to use Chinese for communication.

Teaching Modes Used for CE International Students at Shijiazhuang Tiedao University

These are summarised as follows:

- International students are directed to form paired work groups with native speaking classmates, so as to help with the international students' understanding of basic Chinese language, daily communication and recreational activities. This reduces the psychological barriers toward communication experienced by international students, and improves their level of linguistic performance.
- A series of activities is organised for the international student by which to experience traditional Chinese culture and to help the student learn about Chinese philosophy and thought patterns.
- The students are taken to an engineering construction site. This promotes an intuitive understanding of the civil engineering professional work environment and the construction industry. This, in turn, promotes mastery of the professional vocabulary associated with CE.

Language Teaching Based on the Combination of Basic and Professional Chinese

Intensive training is the only way for the Chinese language beginner to master Chinese listening, speaking, reading and writing skills in as little as one year. The common way to strengthen language teaching is to design schemes aimed at language points or milestones for both written and verbal training. These schemes are carried out repeatedly until the students can understand and grasp the material completely. Shijiazhuang Tiedao University staff's experience shows that it is good to introduce professional CE vocabulary into language training.

Most CE students find it helpful to be exposed to some professional CE vocabulary at an early stage, because it is connected to their studies and, hence, they easily and naturally accept it. The teaching of basic and professional Chinese reinforces both of them. It is good not only for the improvement of students' Chinese language proficiency, but also for their ability to read and write the content related to their profession.

Language Teaching Sensitive to the Concept of *Communication as Culture*

Culture might be described as a *blueprint* for instructing an individual's behaviour in a group of people, and it can also be defined as the opinions, conventions, abilities, and so on that characterise a group in a certain period of time [5]. Communications embody the culture, which can lead to misunderstanding if certain words or sentences are used in communication between people of different cultural backgrounds, where each lacks knowledge of the other's cultural background.

Communication as culture emphasises the cultural factors hidden in verbal communication. Learners must be guided so as to avoid cultural misunderstandings in learning Chinese as a foreign language. The cultural factors that could affect communications include: national values and orientation, food and clothing; customs, aesthetic taste; moral norms, way of life and way of thinking, with specific cultural connotations. Culture is not only reflected in language, but also in nonverbal communication. The culture of civil engineering students will affect their mode of thinking, style and attitude. Therefore, culture plays an important role in every aspect of international engineering projects.

Teachers should inform the learners both of the similarity and differences between different cultures by giving historical, cultural and traditional reasons for those similarities and differences [6]. By comparing different cultures, students will gain a deeper understanding of these cultures. This will provide guidance on problems encountered in the construction process of international projects, and help ensure smooth running of the project.

Summary of the Model for Teaching Chinese to International CE Students

According to the above, the model for CE students learning Chinese as a foreign language can be represented by Figure 3. It is clear that the factors concerning the language environment and the multiple methods of teaching play a key role in the improvement, for the beginner, of Chinese language ability. In the process, a proper introduction to civil engineering vocabulary and terms is very important.

The combination of basic and professional Chinese not only enhances students' language proficiency, but also assists students psychologically in their language studies. *Communication as culture* requires the students to learn step-by-step and improve themselves by experience and exploration little by little; a process that requires much time and patience.

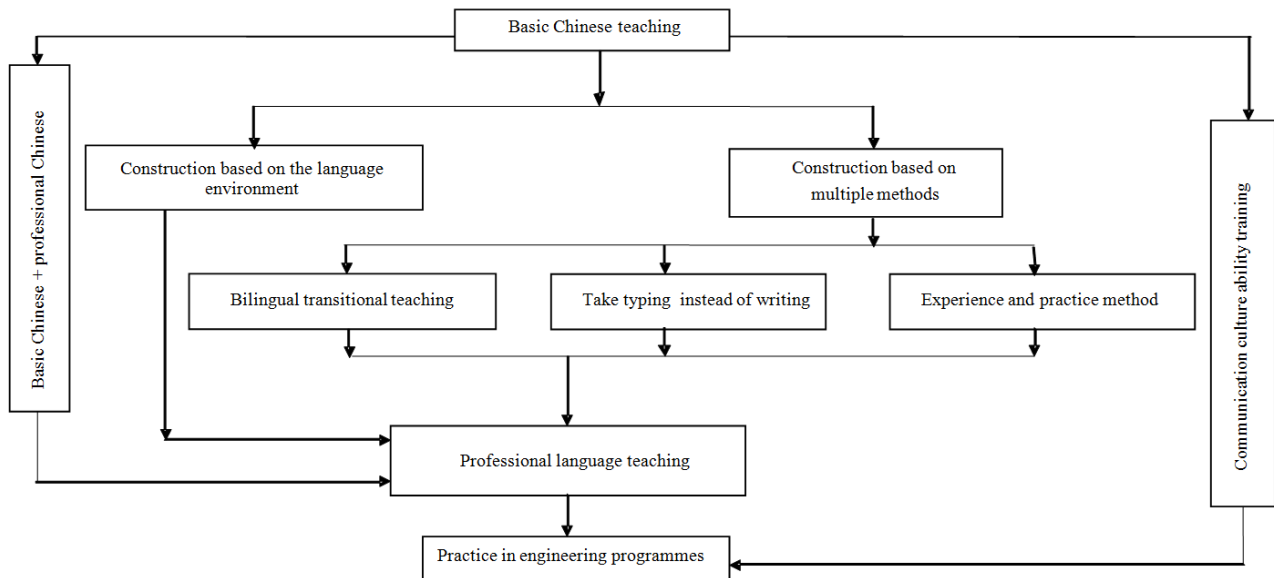


Figure 3: Construction of a Chinese language innovative teaching model for CE majors.

CONCLUSIONS

Compared with other disciplines for international students, China's civil engineering courses still are in their formative stage. This is especially so for language education research. In this article, some aspects of an innovative mode for teaching Chinese as a foreign language are discussed. The authors of this article are of the opinion that this mode can solve the problems with Chinese language teaching of CE international students.

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