Engaging in Creative Information-Reconstruction: an Exploration into the Framework of Multimedia Design for Teaching Chinese-English Translation to Native English and Native Japanese Speakers in an English Speaking Country

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Abstracts

As a lecturer at an Australian university teaching Chinese and Chinese-English translation, the majority of my students are quite often English and Japanese native speakers. How to teach these two kinds of students in the same classroom more effectively, has long been my consideration and it is also where the topic comes from in educational media studies. In teaching the subjects to such students, while a lot of attention has been paid to 'what to be delivered', this paper obviously will discuss 'how it is to be delivered'. With other kind of second language acquisition, the first challenge the educators encounter is how to overcome the learners' first language influence, and then to establish the new linguistic competence. The current development of modern technology, especially in the field of multimedia, has made it possible to facilitate this process more efficiently.

Engager une information – reconstruction créative : une exploration dans le cadre d'un projet pour enseigner le Chinois à des personnes nées en Angleterre ou en Japon dans un pays où l'on parle l'Anglais.

Je suis un enseignant dans une université australienne enseignant le chinois et la traduction Chinois-Anglais, la majorité de mes étudiants étant souvent Anglais et Japonais. Comment enseigner ensemble ces 2 catégories d'étudiants le plus efficacement dans la même salle de classe a été longtemps mon problème et c'est aussi le sujet de cet article. En enseignant le Chinois à de tels étudiants, alors qu'un maximum d'attention doit être porté à ce que je dis, cet article discute évidemment comment se fera cette transmission. Avec une autre sorte d'acquisition de seconde langue, le premier challenge que rencontrent les éducateurs est de dépasser l'influence de la langue maternelle des apprenants et d'établir une nouvelle compétence linguistique. Les développements courants des technologies modernes, spécialement dans le champs des multimédia ont rendu possible de faciliter cette procédure de facon plus efficace.

Kreative Programm-Bearbeitung: Eine Forschungsreise in das Gefüge von Multimedia Anwendungen, um das Lehren von Chinesisch für englische und japanische Nativespeaker in einem englischsprachigen Land zu unterstützen.

Ich bin Dozent für Chinesisch und Chinesisch-Englische Übersetzungen an einer australischen Universität . Meine Studenten sind in ihrer Mehrheit sehr oft Engländer und Japaner. Wie man diese beiden Gruppen von Studenten effektiver im gleichen Raum unterrichten könnte, hat mich lange grübeln lassen und hat auch zu diesem Bericht geführt.

Beim Lehren von Chinesisch an diese Studenten stand oft die Frage "Was kann gelehrt werden?" im Mittelpunkt, dieser Bericht wird sich aber hauptsächlich darauf konzentrieren, "wie" das erreicht werden kann. Wie bei jedem anderen Erwerb einer zweiten Sprache ist die erste Herausforderung an den Lehrer, wie man den Einfluß der Muttersprache des Lernenden überwinden kann, um dann die neue Sprachkompetenz zu festigen. Der gegenwärtige Entwicklungsstand der modernen Technologie, insbesondere auf dem Gebiet von Multimedia macht es möglich, diesen Prozess nachhaltig zu unterstützen.

Redefining multimedia in language teaching

For most people, multimedia is normally understood to be a computer-delivered amalgamation of a digital video, sound, graphics, pictures, photographs and animation, and all should be available in a single computer unit.

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Thus multimedia applications often refer to software pieces designed for creation or handling of multi-purpose products. In fact, this may not necessarily be the case in teaching Chinese and Chinese–English translation outside China (particularly in Australia). Rather, it usually means a combination of different components in multimedia, and each element has its own particular advantages in transmitting messages, carrying out specific functions and evoking particular kinds of learner responses. In this way, multimedia does not have to be in an area for expert technicians who are deemed to be the only people to set up the technology for language teaching; every language teacher could be a multimedia designer and operator. Therefore, multimedia in this paper mainly refers to not only software designing but also to a set of teaching technologies, which make use of different media assisting Chinese teaching to native English and Japanese students.

The main aim and essential principles

In the field of second language acquisition, a lot of research has been done on how to overcome the negative influence of learners' first language in order to achieve the positive cross-linguistic outcome (cf. Odlin, 1989). From my teaching experience, I have come to realize that the efficient way is to allow the learners to be actively engaged in the language learning process by adopting a suitable multimedia approach. This process I term 'creative information reconstruction'. Similar views have been expressed by others, based on the evidence that people learn most effectively when they are engaged in creating personally meaningful objects (cf. Resnick, 1996). I believe any kind of linguistic information in language acquisition will remain essentially ineffective, no matter how many times it has been transmitted, until the learners reconstruct it. It is at this level that something can be done to turn information assimilation into knowledge and skill-based acquisition.

In achieving the main aim, the following essential principles need to be carefully considered.

- *Providing students with more choices.* In this aspect, a limited single teacher's ability can be expanded to almost unlimited extent. Having more choices means more dimensions are involved in a more comprehensive context.
- *Conveying messages through multiple channels.* Teachers should always be aware of the scientifically proven fact that messages are more easily memorized when they are conveyed by more than one channel.
- *Maximizing the interactivities.* Instead of passively receiving instructions, students should always be put in a situation where they can: actively respond to a series of language challenges, clarify unclearness, and pursue the right results as many times as they can.
- *Having correcting mechanism.* Instant feedback is a good stimulus for learners to achieve a better outcome, and multimedia has unique functions in complementing the role of language teachers.
- *Creating a coherent multimedia environment.* Any single component in a multimedia approach can hardly function well unless it fits coherently with other components in the support system as a whole. The key issue is to appropriately integrate the graphics, sound, text and so on.

At the phonological level

Some linguists have suggested that pronunciation is the primary difficult aspect of acquiring a second language since the influence of native language phonetics and morphology is surely more pervasive than the influence of language sub-system of the other language (Kellerman, 1986). However, appropriate multimedia methodologies can play an efficient role in the following areas.

Diagnosing difficult areas

Through computational analysis (partly through an Artificial Intelligence System), the difficult areas have been identified on a scale from the easiest to the hardiest. For example, the English find difficult in pronouncing the third tone, the fourth tone, *shi*, *zhi*, *chi*, *ci*, *si*, *zi* and so on. Japanese speakers, apart from the confusion concerning the pronunciation of Kanji, find arduous in reading *rong*, *long*, *leng*, *chang*, *cheng*, third tone, wen, weng, and so on. Surprisingly, the articulation of nasal consonants is not so difficult. For the former learners, the hardship chiefly has to do with the tones and vowels, and for the latter, the consonants cause the most problems.

Visualizing the errors

It is almost impossible for a teacher to correct every student's individual pronunciation, it is also hard for students to see the distance between their pronunciation and the correct one. We have developed a program which offers a visual comparison between the two sound waves – the model's and the learners' repetition. The graphic representation of a waveform has a special relation with its acoustic basis, which is particularly effective in showing the intonation, such as the Chinese third tone, and in demonstrating the distance of the curve-patterns between the learners' and the standard one. For Japanese learners, it is particularly effective to show the distinction between /*ri*/ and /*li*/, since /*r*/ and /*l*/ are interchangeable in Japanese. Besides, there is a computer-readable multimedia learners' pronunciation dictionary integrated into the program, which allows pronunciation-orientated system searches through the *Pinyin* system.

Contrasting reading

I have used the *Table of the Speech Sounds of Mandarin* (*Pinyin* System). Australian students often confuse it with English alphabetic pronunciations. Japanese students often mix it with *Romaji* as well as with English alphabetic system. In correcting this, we developed a program juxtaposing the *Pinyin* system and the English alphabetic system on one screen, with added *Romaji* chart for the Japanese students. There is a flashing light on one side. Unless the learner reads the letter in correct *Pinyin* pronunciation, the light does not flash. Another program was then developed which allows students to read the *Pinyin* letters randomly and the corresponding letters appear on the screen alphabetically. It has proven extremely effective to increase emphasis on error detection and error correction based on a digital self-testing system. After a period of intensive training, students have mastered the pronunciation system perfectly. This is very encouraging at this initial stage.

Combining the two approaches

In teaching Chinese pronunciation to non-Chinese students in Australia, two main approaches have been developed. One is the 'articulatory phonetic approach', which emphasizes the articulatory mechanics of proper pronunciation by using a series of traditional teaching techniques and activities (Richards and Rogers, 1986). The other is the 'communicative approach' which proposes teaching pronunciation in a communicative way where the goal is to reach intelligibility in speech rather than accuracy, claiming to thereby demolish the traditional articulatory phonetic approach (Savignon, 1987). The two methods are not contradictory but can be combined in the context of multimedia. Accuracy of sound, rhythm, intonation and structural forms, which are the fundamentals in acquiring Chinese, can be learnt in one section of the computer program. Yet the visual communicative component is simultaneously available, providing an environment where learners' pronunciation practice can take place beyond the individual sound and word level.

At the semantic level

This mainly deals with vocabulary learning that is a daunting task for any second language learner. A thorough understanding of the meanings of around 3000 characters is normally regarded as necessary for proficiency in Chinese. Multimedia design may significantly condense the acquisition process, offering a flexibility and 'intelligence' in presentation and interaction, which is not available in other media.

Developing the iconic language

A character is a synthesis of sound and meaning, therefore the starting point should also be the conventional mapping between its forms and meanings. The question then is how that mapping should be represented? The pictographic nature of the Chinese language may turn out to be an advantage in the process of its acquisition by an iconic language design. The task is first to 'segment' the characters, wherever a radical is to be explained according to its prototype form. Second, by 'clicking' on a compound icon which may stand for several elements, the user is able to read its meanings through diagramming its evolution from its source imagery, such as *tian* (), *ri* (), *hau* (), *wo* () etc. Alternatively, a simple animation of the 'actor' in the base icons could explain the meaning of the compound icon by diagramming its construction. For the Japanese students, the characters can be combined at several levels according to the relevant classified Kanji. Take, for example, the same Chinese character with similar pronunciations in Japanese, e.g. *xin li* ( – shinri), *jian dan* ( – kantan), *fuza* ( – fukuzatsu), *xiu li* (– shuu ri), *yao qiu* (– yo kyou), *xian zai* (– gen zai), *shi wu* (– ji mu) etc.; same characters with different meanings and pronunciations in Japanese, e.g. *shou zhi* (– tegami), *mian qiang*

(勉強 – benkyu), *niang* (娘 – musume) *diao zi* (調子 – chou shi), *tui qu* (退屈 – tai kutsu), *da bian* (大変 – tai hen) etc. we have the same Kanji characters but they make no sense in Chinese, e.g. 用事 (yooji), 返事 (henji), 手先 (tesaki) 我慢 (ga man), 屋根 (ya ne), 人形 (nin gyou), 切手 (ki tte), etc. In this way, the students have gained a sense of differentiation and are able to reorganize the correct characters by simply clicking on the icons.

Reconstructing the bilingual lexical matrix

Furthermore, the phonological and semantic aspects of the characters can be mapped into a particular form – the bilingual lexical matrix. This is based on the assumption that equivalent words in two languages are connected in a learner's lexicon via one underlying non-linguistic concept (Smith, 1989). Thus the relations of the Chinese characters to the concept it expresses are assumed to be the same as the relation of the corresponding word in the native language to the same concept; the two kinds of form are simply regarded as synonyms. Therefore, the following diagram has been developed in a program. On the computer screen, there are two boxes with arrows between them, one is labelled 'Characters' and the other 'Meanings'. The arrows indicate that the learner might start with a character and retrieve the appropriate meanings; or vice versa, start with a meaning and look for appropriate characters to express it. The mapping can be done in many ways – some characters have several different meanings, and several different characters can express the same meaning.

Learning the characters with the online semantic network

There are several English WordNets on the Internet, organized as a lexical matrix where the word forms are represented by English words written in standard orthography, the same method can be applied to learning Chinese characters. Several websites using Chinese characters and Chinese–English translation, such as 'zhongwen', 'microsoft-nanjixing' have been introduced to students, and they found the semantic and lexical relations coded in the Internet, somewhat superior to the information in a conventional dictionary. For Japanese students, there are several Chinese-learning sites in Japanese on the 'net.'

At the syntactic level

Generally speaking, any form of syntactic learning involves the formation and restructuring of grammatical and sentence frames. The purpose of using multimedia at this level is to assist the students establishing the correct Chinese syntactic pattern in comparison with their native syntactic patterns.

Using partial synthesis

Unlike English – in which grammar, particularly verbs and tenses, plays a vital role in determining the meanings of sentences, also unlike Japanese which is often counted as a 'free word order' languages – Chinese is a root-isolated language which has no inflection of words (especially verbs) according to the position in the sentences. The meanings of a sentence in Chinese are largely discerned by the word order and different functional particles. To accommodate this feature, a special program has been developed for carrying out an interactive processing of the Chinese language, based on partial synthesis of determining the grammatical and structural accuracy of the sentences produced as a guide in composing each sentence. The program enables the system to offer the possibility of modifying and generating sentences on a comparative basis using English and Japanese sentences having the same meaning. The users then have to produce the correct or acceptable ones in Chinese.

Giving adequate instructions

During practice, the system allows students to be exposed to a great variety of language samples relevant to the targeted ones. This is also a closed monitor system that includes teaching the grammatical form through patterns, with supporting sufficient explanations, repetition of the sentences at appropriate intervals and a supply of a serial patterns ranging from the easiest to the most complex.

At the discourse level

Comprehension of connected discourse has been regarded as an advanced stage in acquiring a second language, and the corresponding strategies and components should also be comprised in the multimedia system.

Integrating the socio-cultural components

At the previous levels, a pronunciation, a character, or a sentence may be correct in that context, but may not be acceptable at the discourse level. One of the greatest difficulties in mastering Chinese is to apply the linguistic knowledge to the right socio-cultural context. Apart from the functions that a digital camera can capture, the vivid and adequately dubbed scenes (which can never be duplicated to that extent in the classroom textbook or by a tape recording), the substantial 'cultural notice' explaining the entire relevance of details, both verbally and visually, are also unique features in the multimedia design.

Developing transferable skills

By participating in this course, students have acquired not only pure 'linguistic competence' but also useful information technology skills that transferable in other similar communicative situations. The students develop skills, such as word-processing, choosing appropriate targets in a comparative context, searching for information using search engines and refining search terms in the acquisition of the language. They also acquire translation skills at all levels. Most important to mention here is the ability that has been acquired in creatively reconstructing the information in a multidimensional environment.

Due to the limited length of this paper, the whole designed framework can be only briefly outlined here. It can be noted that a more comprehensive program is being developed. It is to be hoped that it will be even better than the current one.

One final thing worth mentioning is that, with the development of multimedia technology applied in teaching Chinese, the teachers' role may have been altered but never be completely replaced. The dimensions of students' control, pacing, choosing and 'learning freedom' combined with the wealth of materials, allow them to proceed at their own pace and in their own manner. The teacher's expertise and time can therefore be made more available for satisfying particular individual needs. All of this only makes the teaching more efficient and the teachers more approachable and human.

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Biographical note

Dr Lin Wei graduated from Beijing Normal University, he taught at two universities in Beijing and worked as a translator and editor at Beijing Foreign Language Press for eight years in the 1980s. In the early 1990s, he went to Australia and Japan, undertaking his MA And PhD research, meanwhile teaching Chinese, Japanese, English, translation studies, second language acquisition, comparative linguistics and cross-cultural studies at several institutes. Currently, he teaches in the translation department at the Chinese University of Hong Kong. Dr Lin has so far published two academic books and over a hundred articles in several languages.

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