EVALUATING THE SOMATICALLY ENHANCED APPROACH OF TEACHING MANDARIN CHINESE

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ABSTRACT

A tonal language such as Mandarin Chinese (MC) is considered a hard language to learn for English speaking learners. This paper reports on an experiment using the Somatically-Enhanced Approach (SEA) to teach MC in an Australian university. Innovations include: the use of relaxation, humming, clapping and gestures to emphasize the rhythm of MC.

KEYWORDS

foreign language learning- the body - movement - pronunciation

INTRODUCTION

This paper describes a set of methodological and procedural measures in L2 language learning that promotes the life-long learning of L2 languages. Somatically-Enhanced Approach (SEA) is an active, student-centred approach to teach and learn a foreign language (L2). With the aid of strategies in SEA, people can plan and assess their own learning, become actively engaged in their own learning; and transfer what they have learned in the classroom context to real world contexts of L2 language use. SEA helps people learn to employ different strategies for different situations and integrate knowledge from different subject areas when required (Knapper & Cropley, 2000).

In a SEA classroom, L2 learners master all the same elements of phonology, syntax, lexis and pragmatics that traditional linguistics describes. However, instead of sitting in front of books trying to remember the instructional materials through reading, students physically experience, through perceptions akin to proprioception, the language they are learning. Proprioception is the sense of the relative position of neighbouring parts of the body. Unlike the six exteroceptive senses (sight, taste, smell, touch, hearing, and balance) by which we perceive the outside world, and interoceptive senses, by which we perceive the pain and the stretching of internal organs, proprioception is a third distinct sensory modality that provides feedback solely on the status of the body internally (http://en.wikipedia.org/wiki/Proprioception). L2

learners also learn strategies for learning a L2 that they can use in future. Furthermore, instead of trying to 'learn' the materials by themselves alone, students carry out their learning in a community of practice which is bound together through practices of SEA. The next part of this paper consists of the following two sections: (1) a discussion of the theoretical underpinning that informs Somatically-Enhanced Approach (SEA); and (2) results of a study using SEA involving two groups of beginning Mandarin students at an Australian University.

THEORETICAL UNDERPINNING OF SEA

Selectivity is almost certainly a survival trait. What we select to use (tools) and to retain (knowledge or linguistic input) depends on our histories and personalities. In practice, when it comes to learning foreign languages, selectivity comes into play in ways that can be helpful or unhelpful. In learning Mandarin Chinese (MC), for example, some researchers suggest that English learners of a tonal language will probably choose to concentrate on consonants and vowels rather than tones and prosody of MC. That is when learning MC, English learners' ears seem to make a 'choice' as to what to hear in practice depending on the training they received through a lifetime of hearing and using English (Zhang, 2006). In other words, L2 students tend to make such choices in the target language using what Trubetzkoy (1939) refers to as the 'mother tongue sieve': those sounds they are familiar with in their mother tongue. Consequently, from the teaching point of view, at this stage, it is important to choose the learning material carefully so that the salient features of the target language are made more prominent to L2 learners. This way, L2 learners learn to select what is deemed relevant by native speakers in the target language communities.

According to the renowned Chinese linguist Chao Yuan Ren (Chao, 1930), MC has five tones; a level (1st tone), a rising (2nd tone), a falling-rising(3rd tone), and a falling tone(4th tone), plus a neutral tone. All of these tones are loosely tied to five relative pitch levels. Lexical tones on each word are essential as they are used to differentiate meaning. For instance, a 1st tone on the syllable 'ma' means 'mother'; a 2nd tone on 'ma' means 'hemp', 3rd tone on 'ma' means 'horse' and 4th tone on 'ma' means to 'scold'.

The activities in the classroom through the face to face (FTF) sequence in SEA are concerned with focusing on the rhythm and intonation of the language and not on consonants or vowels or lexical tones. The smallest unit of the language being presented is a sentence rather than individual words or compound words. All linguistic items were presented in their situational contexts (such as 'talking about my family', 'shopping' and so on) so that students are engaged in meaningful and useful language practice.

The procedures in SEA benefited from the work of the late Petar Guberina (1913-2005), a Croatian psycholinguistic and post-modern scholar who conducted research in the 1950s into speech perception. From his research, Dr. Guberina created the Verbo-tonal method (VTM) (Renard, 1975) of rehabilitation for people who had severe communication difficulties. Underlying the method is the conviction that all language use has evolved from spoken language and that speech is a social event. Furthermore, the 'meaning' of speech is transmitted not only by linguistic elements but also by the auditory and visual information present in the rhythm, intonation, loudness, tempo, pauses, the tension, and gestures of the speaker.

In addition, the design of the SEA method has also benefited from research findings on (i) how very young infants use prosodic packaging of clausal units to facilitate their memory for speech information (Mandel, Jusczyk, & Nelson, 1994; Mandel, Kemler-Nelson, & Jusczyk, 1996). Hirsh-Pasek et al (Hirsh-Pasek, Kemler Nelson, Jusczyk, Cassidy, Druss, & Kennedy, 1987) found that infants as young as 7 months old respond to prosodic markers in the input. (ii) a speaker's natural synchronization of speech and movements (Condon, 1985); (iii) therapeutic uses of movements for speech and hearing impaired children (Brüll, 2003; Dijohnson & Craig, 1971); (iv) Learning through multi-modalities is more effective for pronunciation training than a single modality (Derwing, Munro, & Wiebe, 1998).

In SEA, the selection of teaching/learning materials and the pedagogical measures are informed by the research findings cited above. For instance, the learning materials used in SEA are based on sentences with all aspects of intonation preserved. If we take heed from evidence obtained through L1 research that infants use prosodic packaging of clausal units to facilitate their memory for speech information and to learn the syntactical organization of the language, then it is possible that adult L2 students of MC would also use clausal information to achieve the same purposes. Similarly, adult L2 students would probably also find that such sentences are easier to remember.

Brain research shows that an almond-shaped group of neurons located deep within the medial temporal lobes of the brain in complex vertebrates including humans, called the amygdalae, have been shown in research to perform a primary role in the processing memory of emotional reactions. Evidence from work with humans indicates that amygdala activity at the time of encoding information correlates with retention for that information. However, this correlation depends on the relative 'emotionalness' of the information. More emotionally-arousing information increases amygdalar activity, and that activity correlates with retention

(http://en.wikipedia.org/wiki/Amygdala). The learning sequence in SEA in teaching MC contains steps that allow students to learn kinaesthetically (thus activating the amygdalae, visually, physically, and in an auditory manner thus encompassing a variety of learning modalities. Learning through these modalities is likely to stimulate amygdale activity at the time of encoding language information thus enabling what is learned to become deeply embedded.

A NEW METHOD OF TEACHING MANDARIN PRONUNCIATION TO BEGINNERS

The face to face sequence

Step 1: The first step in the learning process is a relaxation procedure adapted from the success of relaxation techniques used in language learning approaches such as the Lozanov approach in the 1980s. This relaxation step is also designed to reduce the language shock experienced by many learners especially when they are required to speak in the target language (TL). Furthermore, relaxation techniques appear to be an effective way of reducing first language conditioning so that it can be replaced with another set of muscular tensions and movements, in this case, the muscular conditioning of MC.

In step 1, students are asked to lie on their backs on the floor in a darkened room, to carry out mind-calming exercises for some five to ten minutes. This allows them to be more relaxed and therefore making their senses and muscles more receptive to the L2 language input. (for more details, see Zhang, 2006) Step 2: Students and the teacher walk around in circles and hum along to the rhythm of the sentences without vowels and consonants (5 times). This activity is used to highlight the intonation and rhythm of MC. In this step, it is imperative that the teacher does not start by modelling or reciting the target sentence as such modelling would include vowels and consonants of the TL thus causing students to focus on what is familiar. The delayed exposure to consonants and vowels shifts students' attention to other often neglected aspects of the language such as rhythm, intonation, loudness, duration and pauses.

Step 3: The teacher claps to the rhythm and the beat of the language and then asks students to follow. This allows students to experience the rhythm of the sentence and observe different groupings of the words in a sentence. It also allows them to observe how stress, realized by length and loudness in a TL is tied to meaning. This step also enables the students to observe the key words in a sentence and realize that not all words are of equal value, and that to make oneself understood, it is only necessary to get the key words right. Such training is essential for learning to understand, appreciate and put into practice the strategy of prediction and advanced planning in listening comprehension.

Step 4: The teacher continues to walk in a circle and now introduces corrective gestures for particular parts of the sentence. These gestures are not codified gestures which are part of a communication system. They are artificial gestures that are important because they help to set up the overall body tensions needed for production of the required speech. For instance, in proposing a pedagogic measure to train learners' awareness of tone registers in MC, Zhao (1988) determined that in mastering the four tones, mastery of the 1st and 4th sets the boundary of the voice range needed for producing intelligible MC. Therefore, in teaching MC one very meaningful pedagogic measure for teaching the 4th tone is to get students to hum the sentence and then stamp the floor heavily when it comes to producing a fourth tone in a sentence. Stamping the floor has the effect of tensing up the muscles in the body to produce a very low frequency sound.

In teaching the 1st tone in MC, the teacher instructs her/his students, to have their palms facing up and to then raise or stretch both hands upwards as though attempting to touch an area of the ceiling. This gesture allows students to experience the tenseness of the body upwards in producing the first high level tone (the first tone). Gestures are only introduced at the appropriate syllable in a sentence (See step 5, below).

Students are also instructed to adopt a forward slumping of the shoulders, then with palms up, to act as if pushing a heavy object uphill for the 2^{nd} tones. For the 3^{rd} tone in MC, as the production of the 3^{rd} tones needs a relaxed posture, no special gesture is employed except to advise learners to relax.

It is very common to find that during the humming and clapping steps some learners still fail to perceive the rhythm and melody of the sentences correctly. However, experience testifies that when gesture is added, learners are able to produce the correct prosody of the sentence while developing 'self synchrony' with the target language. In other words, gesturing provides students further ways of manipulating the body tension to achieve certain rhythmic structures.

Step 5: Mouthing the words: In this step, the teacher instructs students by saying 'Continuing with the movements, now mouth the sentences while I say them out loud' (Step 5). For the first time in the learning sequence, so far, students are hearing a sentence which includes the consonants and vowels. They are asked not to say anything but merely to mouth the words. Mouthing the words gives students the opportunity to practice the articulation of the sounds of the words without, in fact, placing them on an intonational background actually produced themselves. This technique should lead to a reduction in the number of articulation errors.

Step 6-7: Adding words to the intonation patterns: The teacher then says 'Now repeat after me, and then add words to the intonation.' This again is done for five times (Step 6). The teacher then instructs each individual to repeat the sentence in chorus and check that each student is reproducing the sentence correctly (Step 7).

Steps 2-5 isolate each element of articulation e.g. humming, clapping and mouthing before restoring them to a normal context (steps 6-7). Consequently, by the time students are actually asked to repeat a full sentence, they will have practiced each of its constituent elements many times. They will look forward to achieving success in the next step of the process which will follow naturally and which should present little additional difficulty.

The rest of the FTF sequence involved activities that further highlighted the melody of the

sentences involved. Throughout the learning sequence, translation and writing down the sentences are not needed until the last moment. By the time students come to write down the meaning, they will have already internalized and memorized the melody of the sentences. The activities in The FTF sequence offer students a range of physical ways for remembering MC sentences learned beyond the set contact hours each week. These measures also set up a series of learning steps that could be used for self-access learning at home thus promoting lifelong learning.

Course materials

The course materials used in the present study using SEA to teach MC consisted of a printed textbook, a course data CD-ROM, an Audio CD-ROM. On the data CD-ROM, each new vocabulary item, new sentence or phrase in the teaching materials is linked to a sound file. An audio CD-ROM of the sound files was also provided with the course materials.

THE STUDY

Research design

The objective of the FTF teaching procedure used in this course was to produce students who can speak intelligible MC in limited conversational contexts. Since the materials used were based on conversations containing sentences with all the prosodic characteristics of the language intact, the data collected in the research also consisted of spoken dialogues produced by beginning students in the Control Group (CG) (N=10) and the Experimental Group (EG) (N=12) using language covered in the first 6 weeks (after 30 hours of face to face contact) of their MC study. Students in the CG were not taught with SEA but they used the same learning materials as the EG group of students. Students in the EG, on the other hand, were taught by SEA. All of the students speak English as their first language, had no prior exposure to or learning of other tonal languages, and were total beginners of MC. Students were not allowed to read a script either in English translation or in characters. Therefore, the oral performances were undertaken totally from memory and students' pronunciation would not have been affected by the need to recognise characters or influenced by pinyin (the Chinese romanization).

The spoken performance data collected from both groups were marked by 9 native speakers of MC. All native speakers came from Beijing, China and are considered to be native speakers of MC. None of them were language specialist. They did not receive any practice in the rating task prior to the assessment session. Assessors were asked to listen to conversations made by the 22 subjects and rate the naturalness of each individual's speech on a scale of 1 to 9 with 1 being totally unnatural and 9 being of a native speaker level. The markers did not know which group each student belonged to at the time of marking. The conversations were presented to the markers in random order. A T-test was used to find out whether there were significant differences in the *ratings* of the nine native speaker ratings of the students' oral performance was also calculated using the Cronbach Alpha reliability test in SPSS.

In addition, end of semester questionnaires and one to one interviews with the researcher about the learning process were used to elicit information on learning strategies that learners used in their MC learning. The researcher was also the classroom teacher of these students.

RESULTS

Result of the perceptual rating by native speakers

Subjective perceptual results of the nine native speaker markers confirmed that the students taught by SEA from the EG performed better than those in CG who were not taught by SEA. Students in the EG achieved an average rating of 5.33 out of 9 (a native speaker) with a standard deviation of 0.82 compared to the CG's average rating of 4.51 with a standard deviation of 0.73. The difference in the means of the perceptual rating scores given by the markers was significant at p<0.05 level (p=0.02). Furthermore, the level of agreement reached by the nine native speakers was very high as indicated by an inter-rater reliability score of 0.92.

Quality of speech produced by students in the CG and EG

The quality of the conversations produced by both groups differed a great deal. The 10 students in CG produced sentences with a mean length of utterances (MLU) ranging from 2.6 to 8 with an average MLU of 5.7 syllable per utterance. In contrast, 12 students in EG produced sentences with a mean length of utterances (MLU) ranging from 5.8 to 11.85 with an average MLU of 7.77 for the entire group. Sentences longer than 10 syllables were defined as longer sentences. EG produced, on average, 6.36 long utterances per student compared to the CG. The interaction pattern in the students' conversations in the CG was mainly in the form of question and answer. In contrast, students in the EG provided rich contexts in their conversations.

Results of the qualitative data collected from CG and EG

The face-to-face interviews were conducted using a number of guiding questions asked by the researcher. From five students in EG, the interview data showed that students in EG were much more active in their learning than the CG. The categorization of strategies used to analyse this data is based on those of Oxford (1989) However, these strategies were not provided to students in either group at the beginning of the semester in the learning process. One stand out performance strategy used by students in the EG group was the amount of practice they used in their learning. In the five students' interviews, the strategy of 'practicing' was mentioned an average of 7.4 times compared with the 2.2 times by the students in CG. Furthermore, students in EG used a wider range of strategies in their learning.

The use of physical movements and gestures in the learning MC using SEA clearly made students less inhibited and more motivated to speak. Furthermore, they gained a number of new ways, such as how to employ action, to enhance their learning. The enthusiasm for SEA was further reflected in the results of the end of semester questionnaire which showed that when comparing the amount of time on task by both groups of students, EG students spent 3 times longer (10 hours per week versus 3 hours per week) than the CG students in their self-study even though 50% of the students in EG were mature age students who worked full-time.

DISCUSSION AND CONCLUSION

Research findings of this study suggest that SEA can effectively develop more proficient speakers of MC. The learning sequence in SEA and the data and audio CD-ROMs make the process of learning MC much more motivating for students. So far, SEA has only been successful in teaching of MC and Thai (Zhang & Buranapatana, 2008). Theoretically, it can be applied to the learning of any languages as the principle of making what the students select coincide with the needs of the target language communities still holds in the teaching of other languages. SEA can also be applied to alphabetic languages such as English, for example, to cope with the lack of stress in L2 learners' spoken speech (Benrabah, 1997; Hahn, 2004). In a recent small-scale application of SEA to L2 English learners, in some students' speech there was sufficient proof to show improved word stress, better phrasing and pauses after using SEA for a total of 4 hours. Their spoken form was perceived by IELTS' examiners to be clearer and more fluent (Johnson, 2006). Ideally, teachers should possess some understanding of acoustics phonetics, psycholinguistics, applied

linguistics and cognitive psychology when applying SEA. However, an enthusiastic, openminded teacher can achieve similar results if the procedure in SEA is followed closely.

CONCLUSION

The learning of foreign languages using SEA is different from an episode of learning in traditional foreign language courses in which learning stops outside the door of the language classroom. Through procedures that enable students to stimulate the senses of the body to learn, not only do we achieve the objective of a foreign language class (i.e. teaching them the target language), we also build into their bodies a set of tools which they can activate beyond the classroom door. This clearly contributes to a learner's lifelong learning. That is to say, it is not sufficient to merely provide students with, say, Oxford's list of learning strategies (Oxford, 1989) at the beginning of a semester and tell students to use them because they are good for language learning. For instance, the strategy of 'Applying images and sounds' is hard for students to apply because they do not know what they need to do. In SEA, the procedures also clearly utilize image making and visual representations a great deal but the difference is that in SEA, these visualizations or images of language are created through the students' bodies by students thus making them the originators of such visual images rather than receivers of images or visualizations provided by teachers. The findings of this research demonstrate that allowing students to be in charge of their learning both mentally and physically is clearly motivating for students and enables them to achieve a higher level of intelligible speech in the early phase of their foreign language learning.

REFERENCES

Benrabah, M. (1997). Word-stress - a source of unintelligibility in English. *International Review* of Applied Linguistics in Language Teaching, 35(3), 157-166.

Brüll, A. (2003). The Acquisition of Speech Through Speech-Movement Therapy: An Exploratory Study. *The British Journal of Developmental Disabilities*, 49, Part 1(96), 59-65.

Chao, Y. R. (1930). A system of Tone Letters. *La maitre phonetique*, 45, 24-27.

Condon, W. S. (1985). Sound-film microanalysis: a means for correlating brain and behaviour. In F. Duffy & N. Geschwind (Eds.), *Dyslexia: neuroscientific approach to clinical evaluation*. Boston: Little, Brown & Co. Derwing, T. M., Munro, M. J., & Wiebe, G. E. (1998). Evidence in Favor of a Broad Framework for Pronunciation Instruction. *Language Learning*, *48*(3).

DiJohnson, A., & Craig, W. N. (1971). An Investigation of the Verbotonal Method With Preschool Deaf Children: A Preliminary Interim Report: Pensylvania Department of Education.

Hahn, L. D. (2004). Primary stress and intelligibility:research to motivate the teaching of suprasegmentals. *TESOL Quarterly*, *38*(2), 201-223.

Hirsh-Pasek, K., Kemler Nelson, D. G., Jusczyk, P. W., Cassidy, K. W., Druss, B., & Kennedy, L. (1987). Clauses are perceptual units for young infants. *Cognition*, *26*, 269-286.

Johnson, M. (2006). Can the Somatically-Enhanced Approach be used to teach suprasegmental aspects of pronunciation effectively to students learning English as a second language? (Project Report): University of Canberra, Australia.

Knapper, C., & Cropley, A. J. (2000). *Lifelon g learning in higher education*. London: Kogan Page.

Mandel, D. R., Jusczyk, P. W., & Nelson, D. G. K. (1994). Does sentential prosody help infants to organize and remember speech information? *Cognition*, *53*, 155-180.

Mandel, D. R., Kemler-Nelson, D. G., & Jusczyk, P. W. (1996). Infants remember the order of words in a spoken sentence. *Cognitive Development*.

Oxford, R. L. (1989). *Language Learning Strategies: What Every Teacher Should Know.* New York: Newbury House/Harper & Row.

Oxford, R. L., Lavine, Z. R., & Crookall, D. (1989). Language Learning Strategies: the Communicative Approach, and their Classroom Implications. *Foreign Language Annals*, 22(1), 1989.

Renard, R. (1975). *Introduction to the verbotonal method of phonetic correction* (B. Morris, Trans.): Didier.

Trubetzkoy, N. S. (1939). *Principles of Phonology (Grundzuge de Phonologie, Travaux du cercle linguistique de Prague.)* (C. Baltaxe, Trans. 1969 ed.): University of California Press.

Zhang, F. (2006). *The Teaching of Mandarin Prosody: A Somatically-Enhanced Approach For Second Language Learners*. Unpublished PhD, University of Canberra, Canberra:Australia. Zhao, J.-M. (1988). cong2 yi4xie1 sheng1diao4 yu3yan2 de0 sheng1diao4 shuo1 dao4 han4yu3 sheng1diao4. *Paper presented at the 2nd International Conference on Teaching Chinese.*, 171-186.