Teaching Thai as a foreign language using the Somatically-Enhanced Approach

Felicia Zhang, Univesity of Canberra, felicia.zhang@canberra.edu.au
Maliwan Buranapatana, Khonkaen University, toysuda@hotmail.com

Abstract

This paper reports on the effectiveness of a language teaching approach called the Somatically-Enhanced Approach (SEA, Zhang, 2006) in the teaching of the Thai language for a group of Vietnamese learners in Vietnam. Teaching innovations include: the use of relaxation techniques to relax students; the use of humming, clapping and physical gestures to emphasise the rhythm of the Thai language; the use of a Speech comparison tool (Sptool) for self-study; and the provision of all learning materials on CDs. An experimental study involving the teaching of Thai to Vietnamese students in Vietnam was carried out using SEA. The results of this study are encouraging. After twelve face-to-face contact hours, ten Vietnamese students who undertook a course in SEA spoke Thai, in the limited contexts covered in the course, as fluently as fourteen of their fellow students who had been studying Thai for more than one year using the traditional approach. In this paper, the results of the study, both quantitative and qualitative, will be reported. An evaluation of the Speech comparison tool will also be included.

Introduction

Somatically-Enhanced Approach (SEA) is an active approach to teach and learn a foreign language. SEA contests the force of tradition imposed by the scientific study of language which developed out of diverse fields such as linguistics, psychology and neuropsychology. Such scientific study of language has given rise to foreign language teaching approaches which assume that languages are learned by mastering grammar, lexis, phonology, semantics, pragmatics and so on first separately and then later together to create a person who is proficient in that language. Such approach to learning is derived from descriptions of language and is essentially statistical. SEA considers the learning process and environment to be non-linear and rhizomatic (Deleuze & Guattari, 1987) within which L2 students' successful connection to the target language (TL) they are learning is essential. Thus it begs the question, in terms of learning a foreign language, what and which connections are deemed to be successful and how such connections can be enabled?

As human beings, we invariably need to select in order to survive. What we select to use (tools), to retain (knowledge or linguistic input) depends on the learners'

histories and personalities. At the beginning level of learning a L2, it is unwise to hand over power to the learners completely without some form of pedagogical scaffolding because learners from a first language background which is distant (e.g., English speakers learning Mandarin or Thai) from the target language will inevitably select with what they are familiar. In the case of English learners of a tonal language, they would choose to concentrate on consonants and vowels rather than tones. 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 language are made more prominent for L2 learners. This way, L2 learners will select what is deemed relevant by native speakers in the target language communities. Therefore, making connections that are deemed relevant by the target language communities constitute making successful connections.

In a rhizomatic environment such as SEA, connections are made through metaphorical 'machines' which include linguistic elements such as words, vocabulary, grammar, phonemes, sounds as well as other non-linguistic elements such as movement, gestures, computer programs and relaxation activities; and other means which might be unique to individual learners. In a SEA classroom, L2 learners still need to master all the elements of phonology, syntax, lexis and pragmatics that traditional linguistics describes; however, how the mastery of these elements is attained has changed. First, instead of sitting in front of books trying to remember the instructional materials through reading, students physically experience, through every cell in their body, the language they are learning. L2 learners also learn strategies for learning that they can use in future to engender confidence. Second, 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 sections: (1) a discussion of the theoretical underpinning that informs Somatically-Enhanced Approach (SEA); (2) a description of a speech tool used in the study discussed in this paper; and (3) results of a small study using SEA involving two groups of beginning Thai students at the Faculty of Oriental Studies, University of Social Sciences and Humanities, Ho Chi Minh City, Vietnam.

Theoretical underpinning of SEA

Acoustic phonetics is the branch of phonetics, also known as acoustics, which studies the physical properties of speech sound, as transmitted between mouth and ear (Crystal, 1997). According to acoustic phonetics, a sound in any language carries all frequencies from about 50 Hz to about 16,000 Hz (albeit at various intensities, Lian, 1980). Theoretically, the same sound can be heard in many different ways. The ear seems to make a "choice" as to what to hear in practice depending on the way the ear has been trained. 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. In other words, it is claimed, each sound has a particular "optimal" frequency which is the frequency band, or combination of frequency bands, at which a native-speaker best recognises and perceives the sound. Students who experience difficulty with a particular foreign language sound are considered as not being able to recognise its optimum frequency bands and, consequently, they are unable to reproduce the sound correctly (Lian, 1980).

Building upon this understanding of the nature of sound and its part in spoken language, the late Petar Guberina (1913–2005), a Croatian psycholinguistic and post-modern scholar, 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. We speak when we want to express something or when we react to an 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. Most importantly, the auditory and visual information in his/her production is a reflection of how he/she perceives speech. In other words, changing a speaker's perception of speech will also change his/her production of speech. If we correct his/her production of speech, we will also have corrected his/her perception of speech.

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). Hirsh-Pasek, Nelson, Jusczyk, Cassidy, and Kennedy (1987) found that infants as young as 7 months old respond to prosodic markers in the input; (ii) a speaker's natural synchronisation 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 the aspects of intonation preserved. If we take heed from the 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 organisation of the language, then it is possible that adult L2 students of Thai would also use clausal information to segment language stream in L2 which may also result in their acquisition of Thai grammar. Similarly, adult L2 students would probably also find that such sentences are easier to remember.

Furthermore, L1 acquisition research in babbling and acquisition of the language during the first year of life suggest that production and perception may be intrinsically coordinated and more integrated in development than is usually considered. Gathercole and Baddeley (1993) proposed the concept of *phonological loop* in the working memory to describe this relationship. In their view, the phonological loop is a system that is specialised for the storage of verbal material. It has two subcomponents: (1) the phonological store that represents material in a phonological code that decays over time; and (2) an articulatory rehearsal process which refreshes and maintains the decaying items in the phonological store. Spoken information gains direct access to the phonological store without articulatory rehearsal but the articulatory rehearsal process maintains the spoken information in the memory. Gathercole and Baddeley (1993) indicated that although the phonological loop is present and functioning from the preschool years onwards, there is little evidence that the articulatory rehearsal process is fully operative at this stage.

In adults who are learning Thai as an L2, both the phonological store and the articulatory rehearsal are already fully functioning in their L1. Therefore perception and production are likely to be integrated and developed in L1. Since L1 transfer is likely to occur in the acquisition of L2 pronunciation, culture and the way learners organise the world, it is reasonable to assume that the functioning and coordinated system between perception and production is also likely to be used by L2 learners in their learning.

The findings of Gathercole and Baddeley (1993) speak directly to the effectiveness of many teaching practices within SEA, going some way to explain why these practices are more effective than teacherly behaviours such as explaining and modelling. Whether or not the "phonological store" has any "concrete existence", the model presented by Gathercole and Baddeley (1993) serves us heuristically.

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 and 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. (See definition at http://en.wikipedia.org/wiki/Amygdala.) The learning sequence in SEA in teaching Thai contains steps which allow students to learn kinaesthetically, visually, physically, and in an auditory manner, and thus encompasses 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 becomes deeply embedded.

Other neurobiological research suggests that movement such as running has immediate and long term beneficial effects on cognition by activating levels of chemicals that have been found to enhance the retention of novel vocabulary (Winter, et al., 2007). This provides support for walking in circle to carry out the steps in the face-to-face sequence in SEA.

Given the complexity of the various processes involved in perception and phonation, it recognises that learning processes must therefore operate at the unconscious level. Therefore, an intellectualisation of these processes, such as comparing the phonetic systems of Thai and Vietnamese, is likely to be highly detrimental as it activates the "mother-tongue sieve" in the task of learning Thai and thus interferes with learners' perception of Thai sounds and prosody. In SEA, the traditional cognitive load lightening measures, such as translating Thai into Vietnamese or English, or writing down Thai pronunciation using the Royal Thai General system of Transcription were deliberately and intentionally not used at all in teaching Thai in this study.

A new method of teaching Thai pronunciation to beginners

There are five (5) distinctive tones (pitches) in Standard Thai: (1)a mid level tone (in Figure 1 indicated as 1st tone), for example: khaa1 (to be lodged in); (2) a low level tone (in Figure 1 indicated as 2nd tone), for example: khaa2 (Galanga, an aromatic root);(3) a falling tone (in Figure 1 indicated as 3rd tone), for example: khaa3 (I, slave, servant);(4) a high level tone (in Figure 1 indicated as 4th tone), for

example: khaa4 (to sell); (5) a rising tone (in Figure 1 indicated as 5th tone), for example: khaa5 (leg). Figure 1 shows the contour pattern of the five (5) tones.

Figure 1: Contour pattern of the five (5) Thai tones
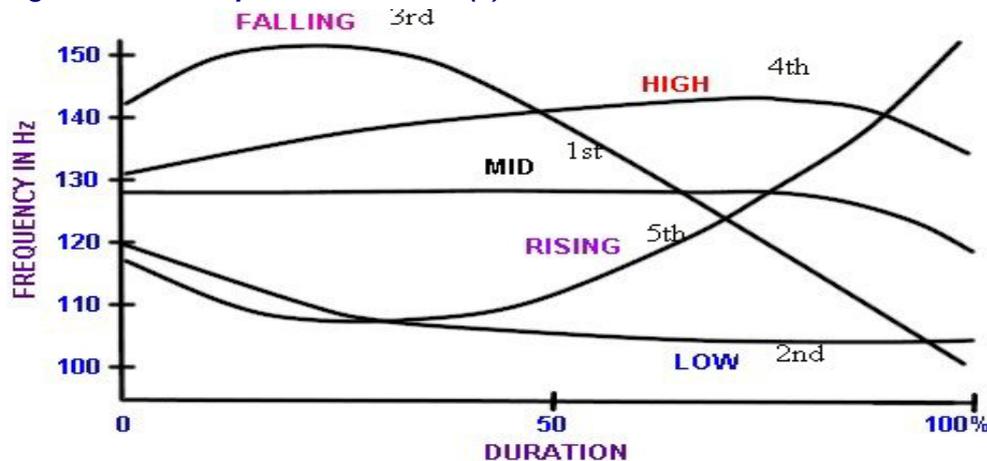
The activities in the in class, face-to-face (FTF) sequence were concerned with focusing on the rhythm and intonation of the language, not on consonants or vowels or lexical tones. The smallest unit of the language being presented is a sentence rather than individual words or compound words as previous work in first language acquisition reviewed suggests that prosodic segments of a language such as phrases or sentences are better retained by children and formulaic expressions in an L2 are useful for achieving communicative goals at the very first stage of language acquisition. All linguistic items were presented in their situational contexts (such as "talking about my family", "shopping" and so on) so that students were engaged in meaningful and useful language practice.

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 in the 1980s. In the early seventies, the Lozanov method of language-learning (Suggestopaedia) first became known in Western countries. It was originally developed by a Bulgarian physician and psychotherapist, Georgi Lozanov. It has been used successfully in the U.S.A., Canada, France and other European countries. It was claimed that it could speed up learning by some fifty times. In America, however, it was reported that the rate of learning was only 2.5 times better than under ordinary teaching conditions (Bancroft, 1978). As the classroom is also a social site of learning, lowering the learners' level of inhibition can also make the learners' egos more permeable (Guiora, Beit-Hallahmi, B. Brannon, & Dull, 1972). This relaxation step also is designed to reduce the language shock experienced by many learners especially when they are required to speak in the target language.

The first step in the sensitisation session is to ask students to lie on their backs on the floor and if possible, with the classroom darkened, then carry out mind-calming exercises for some five to ten minutes. This allows them to be more relaxed and therefore more receptive to the language input. During this period, the following audio file is played:

> Imagine that you are lying on your back on the grass on a warm summer day and that you are watching the clear blue sky without a single cloud in it (pause). You are lying very comfortably, you are

very relaxed and happy (pause). You are simply enjoying the experience of watching the clear, beautiful blue sky (pause). As you are lying there, completely relaxed, enjoying yourself (pause), far off on the horizon you notice a tiny white cloud (pause). You are fascinated by the simple beauty of the small white cloud against the clear blue sky (pause). The little white cloud starts to move slowly toward you (pause). You are lying there, completely relaxed, very much at peace with yourself, watching the little white cloud drift slowly toward you (pause). The little white cloud drifts slowly toward you (pause). You are enjoying the beauty of the clear blue sky and the little white cloud (pause). Finally the little white cloud comes to a stop overhead (pause). Completely relaxed, you are enjoying this beautiful scene (pause). You are very relaxed, very much at peace with yourself, and simply enjoying the beauty of the little white cloud in the blue sky (pause). Now become the little white cloud. Project yourself into it (pause). You are the little white cloud, completely diffused, puffy, relaxed, very much at peace with yourself (pause). Now you are completely relaxed, your mind is completely calm (pause), you are pleasantly relaxed, ready to proceed with the lesson (pause). (Bancroft, 1978, p. 174)

This constitutes the relaxation phase of the classroom procedure. As Lian noted (Lian, 1980)

> Relaxation of the body will bring about a lowering of conscious and unconscious resistance to the learning of a FL [sic. foreign language]. Speech and the production of sounds appear to be the result of the muscular behaviour of the body as a whole which, with appropriate reinforcement, has given rise to a number of set patterns of muscular contractions. If these still operate when one attempts to learn the articulatory patterns of a FL, then the resulting articulatory sequences will be deformed, sometimes beyond recognition. (p. 16)

Relaxation techniques appear to be an effective way of reducing, if not eliminating, such conditioning so that it can be replaced with another set of muscular tensions and movements: those of Thai. For this reason, the relaxation phase of the method is extremely important.

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 is used to highlight the intonation and rhythm of Thai. The idea behind this step is to focus on the melody of the sentence without the interference of consonants and vowels. It is imperative that in this step, the teacher does not start by modelling or reciting the target sentence which includes the consonants and vowels as any such modelling inevitably activates their L2 phonological sieve. The delayed exposure to consonants and vowels is designed to shift students' attention to other often neglected aspects of the language such as rhythm and intonation.

Step 3: The teacher claps to the rhythm and beat of the language and then ask students to follow. This allows students to experience the rhythm of the sentence and observe different groupings of the words in a sentence. This also enables them to observe the key words in a sentence and realise that not all words are of equal value and that in making oneself understood, one only needs to get the key words right to be understood.

Step 4: The teacher walks about with feet coming down on every syllable. This is to get the body used to producing a tone such as the downward tone that is also loud (the falling tone, 3rd tone in Thai).

The teacher also raises or stretches his/her arms upwards as though attempting to touch the ceiling. This allows students to experience the tenseness of the body (upwards) when producing the high tone (such as the 4th tone in Thai). Students are then instructed to follow the teacher to perform the same gestures. Students are also instructed to adopt a forward lumping of the shoulders for 1st and 2nd tones in Thai as the production of these tones need a relaxed posture.

Gestures are particularly important when the teacher detects that after the humming and clapping students still fail to perceive the rhythm and melody of the sentences correctly. 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; checking 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 would look forward to achieving success in the next step of the process which would 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 would have already internalised and memorised the melody of the sentences. The activities in The FTF sequence offer students a range of physical ways for remembering the Thai sentences learned beyond the set contact each week. These measures also set up a series of learning steps that could be used for self-access learning at home.

Course materials

The course materials used in the Thai course described in this paper using SEA consisted of a printed textbook, a course data CD-ROM, an Audio CD-ROM and a speech processing tool (Sptool). Each new vocabulary item, new sentence or phrase in the teaching materials was linked to a sound file. An audio CD-ROM of the sound files was also provided with the course materials.

The role of the speech processing tool

Ideally, feedback provided for L2 learners should be positively motivating, accurate, easily interpreted by learners and capable of being easily incorporated by learners. In the process of language learning, especially in a formal foreign language environment such as a university Thai class in Vietnam; however, two difficulties exist in obtaining adequate feedback for L2 learners. One is that usually the only feedback a student gets is from their L2 language teachers whom he/she sees for only a few hours a week. The second difficulty is the episodic nature of such feedback.

In recent years, computer technology has been used to provide feedback for L2 language learners. It has been argued that the advantages of feedback offered by a computer are that the feedback is constant and can be repeated over and over again and feedback tools such as audio-visual feedback allow students to control the speed of their learning. Many L2 language learning CD-ROMs such as *Tell-me-more Chinese* (Auralog, 2004*)* have adopted automatic Speech Recognition (ASR) system for feedback provision; however, when ASR was evaluated in terms of feedback provision, many problems were reported. The most pressing concern has to do with the software's inability to accurately evaluate learners' production of speech by providing an accurate scoring system. Such systems were also poor at error detection, diagnosis and finally feedback presentation.

Commenting on the language learning computer program called *Tell-Me-More Chinese,* Zheng (2002) claims that while the graphic representation of a native speaker's model Mandarin is useful, it is very difficult for students to modify their pronunciation so that it matches the model waveform of the native speaker model when using such programs. This is not surprising as the simultaneous display of the two waveforms in this system may very well be taken as an invitation to produce utterances whose waveform closely corresponds to that of the models; however, the real purpose of pronunciation training is not just to enable accurate imitation. The real purpose of pronunciation training is enable transfer of skills practiced with a set of limited sentences and/or phrases to the accurate production of this set or a different set of sentences and/or phrases in real life situations. The employment of ASR does not necessarily promote the transfer of skills. Many researchers have expressed doubts on the pedagogical value of these types of displays for this reason.

On the issue of interpreting information contained in such graphic displays, even a trained phonetician would find it difficult to extract information to correct one's pronunciation from these displays. This is because what constitutes best measures of L2 students' oral performance is still not clear. Without a clearer understanding of what these best measures are, it is difficult for ASR systems to provide a meaningful score of student performance. In speech science, the best measures of pronunciation are defined as those specific pronunciation aspects on which the student can work and, at the same time, they should result in a score that is similar to that provided by human listeners. Temporal measures such as speaking rate, phonation/time ratio, mean length of run and average length of pause are established objective measurements of the output of the productions which are aligned with language processing and in second language acquisition (Towell, 2002). These measurements show what developments in fluency have taken place. Such temporal measurements, for instance, have shown to be also strongly correlated with human ratings of pronunciation and fluency (Towell, 2002). This means that they are able to provide reliable scores for both native and non-native pronunciation assessment but not necessarily for pronunciation training.

In a tonal language such as Thai, good pronunciation, apart from temporal measures, depends on strong correlates of loudness and intensity with tones. So to create a good and accurate scoring system for Thai, the system must base its scoring system on more than just the temporal measures. In Thai, error detection is rather problematic. In alphabetic languages such as English segmental features are more important than suprasegmental features. Segmental errors can be detected with reasonable accuracy by using the right combination of scores. In contrast, an error detection system for Thai must be able to detect suprasegmental errors as these errors are the first and primary indicator of a learner's non-nativeness in Thai. However, studies in the field of speech technology indicate that the detection of tonal or intonation errors in any language is underdeveloped at the moment.

Another condition that should be met in order to provide meaningful, human-like or better feedback concerns error diagnosis: ideally, a system should be able to provide a detailed diagnosis of a pronunciation problem and suggest the appropriate remedial steps just like a human tutor. However, recent research on ASR-based Computer Assisted Pronunciation Technology (CAPT) has nevertheless shown that this technology is not yet mature to provide reliable detailed diagnosis of pronunciation errors.

In SEA, an audiovisual feedback tool (Sptool) (Zhang & Newman, 2003) allows the incorporation of a visual representation of student's production that can be compared to the speech of a native speaker. It was designed to give learners the opportunity to listen and perceive differently, thus increasing the probability of changing the ways they both hear and produce. The speech analysis tool Sptool (Zhang & Newman, 2003) was designed to offer feedback that is non-judgmental, i.e., without a scoring system, and allowed students to explore and reflect during the process of learning, and not just at the end of the learning process. Even without a scoring system, students should be motivated to use this tool as they can listen to the language and reflect on it by observing visually the differences between their production and the native speaker (NS) model.

In addition, Sptool is capable of showing the pitch curves as well as length and loudness (correlates of Thai) of utterances in Thai speech through the display of the height and the length of the words within utterances. The height and length of the curves also correspond to the articulatory gestures needed to produce rhythmic structure of sentences used in the FTF sequence. In this way, students can act upon their perception and change the process of production in their private study.

All the written teaching materials on the data CD-ROM were linked to sound files and passed through the Sptool. Once passed through the Sptool, the learner can listen to the teacher's model pronunciation by clicking on the 'teacher' icon. With one click, he/she can hear the model sentence and see the pitch curve of the model sentence displayed on the screen. If the learner wants to hear a smaller chunk of the sentence, then he/she can select the portion of the curve by dragging the cursor over the portion he/she wants to hear. After listening to the sentence numerous times, the learner can decide whether he/she want to record his/her own production.

Some of the activities in The FTF sequence can be duplicated in different forms through the use of the Sptool. While the classroom sequence is more or less teacher driven and physical, the Sptool allows The FTF sequence to be experienced differently.

In the following sample sentence, "di1chan4 chUU3…" (I am …..)

Figure 2: Picture of the Sptool showing the sample sentence: I am …. (di1 chan4 chuu3…?)

Key: 1=first tone; 4=fourth tone; 3= third tone.

"di1 chan4 chuu3…?" is a key string of words and the curve clearly shows that the "chUU3" is clearly longer than the rest. This information is extremely important when training students to accept that the ultimate aim of producing an utterance which is acceptable by native speakers is NOT to produce an utterance whose acoustic representation is an exact match or even closely corresponds to that of the model. It is vital to impress upon the students that the importance in producing a comprehensible sentence in Thai is to be able to produce the *key* parts of the utterance correctly. The use of the Sptool encourages students to reflect on and explore in the process of learning. Furthermore, being able to experience each sentence repeatedly through the Sptool creates an environment in which students can totally immerse themselves consciously and unconsciously in the language by choosing to listen to either a particular portion of the utterance or by listening to the whole utterance repeatedly in order to get the feel of the language.

The study

Subjects

Fourteen Students from 2005 who studied in the mainstream year long Thai course at the Faculty of Oriental Studies, University of Social Sciences and Humanities, Ho Chi Minh City, Vietnam, constituted the Control Group (CG). Students in CG were students in the Second year course at the same university. When they were tested with the students in EG, there was no interruption or gap in their Thai language study. Fourteen students from the same institution, who were recruited for an intensive Thai course conducted in September, 2006 over a three-week period for twelve face-to-face contact hours, constituted the Experimental Group (EG). There were thirteen female students and one male student. Only ten students from EG sat for the end of course speaking test. The other four students did not sit for the speaking test due to workload issues. Students from both groups speak a reasonable amount of English and all are native speakers of Vietnamese. Both groups were evaluated with respect to their performance in producing intelligible spoken Thai in October 2006. All of the students speak Vietnamese as their first language and were total beginners of the Thai language.

Procedure

Students in the CG were not taught with SEA and did not have the computer support but they had been studying Thai for one year in the mainstream course which covered the four macro-skills of speaking, listening, reading and writing. Students in the EG, on the other hand, was taught by SEA covering only speaking

and listening skills. They were also provided with data and audio CD-ROMs which include a speech processing tool which they could use at their own leisure to listen to course materials spoken by native speakers of Thai. The materials taught to the CG and EG can be found in the five most commonly used textbooks for teaching Thai to foreigners. (Deepadung, Burusphat, & Khamhiran, 1992; Hirunpradith, 2002; Juntanamalaka & Diller, 1993; Smyth, 1995; Wiittayasakpan, 2002)

By the end of the experiment, students in EG had completed 12 face-to-face contact hours over three weeks. The data from EG was compared with data from CG using the subject materials covering the same conversational topics through the same oral testing mechanisms. In the speaking test, students formed pairs and completed a number of conversations covering the same topics (see Appendix A). The instructions were provided in English. A set up using Sony microphone plugged into a Dell laptop computer using Cooledit 2000 (Syntrillium, 2002) to make the recording. In the next section, the results of the project will be reported.

Results

In this section, the results of a perceptual test and an open-ended questionnaire are reported. The perceptual test involved native 11 Thai native speaker markers (4 are language teachers) from the Faculty of Humanities and Social Sciences, KhonKaen University, Thailand. The researcher was not one of the native speaking markers. All markers participated in the perceptual test on a voluntary basis. Materials to be marked were spoken conversations in Thai from both CG and EG of Vietnamese speaking students. The markers did not know which group each student belonged to at the time of marking. The number of samples marked was 24.

Markers were given the following instructions:
1. Please listen to the recordings and then assess each of the speaker's performance on a scale from 1 to 9.

1: being totally non-understandable; 9 being completely understandable and resembling a near NS level. If a speaker sounds somewhere between highly natural and highly unnatural, circle the appropriate number on the scale. Do not hesitate to use the ends of the scale (1 or 9) when appropriate.

Make sure your rating is based on how close to NS level and how natural the language is to you.

2. Each utterance or conversation can be listened to as many times as required to reach an accurate assessment.

The statistical analyses of Thai native speaker markers' ratings of students' conversations were performed using the Analysis Toolpak in the Excel package and SPSS statistical package. The critical significance level was set at $p < 0.05$ throughout the study. All oral production data from the 24 subjects (both CG and EG) were analysed. A 2 tail T-Test for two samples of equal variance were used to analyse the various characteristics of the conversations spoken by all the subjects involved in this study.

Results of the perceptual test marked by native speakers of Thai

Students in the EG achieved an average rating of 10.01 out of 15 with a standard deviation of 0.76 compared to the CG's average rating of 9.76 out of 15 with a standard deviation of 0.76. The two-sample equal variance T-test was used to determine the difference in the means of the perceptual rating scores given by the markers. The result was not statistically significant at $p<0.05$ level (t=-1.33, df (22), with p=0.184). This means EG students performed equally well as the students in CG despite learning the language in a period of twelve face-to-face contact hours over three weeks.

Table 1: T-test analysis of mean perceptual rating scores rated by Thai native speaker judges

Groups	N	Means	SD
CG(n=14)	14	9.76	0.76
EG (n=10)	10	10.014	0.76

In order to ascertain the reliability of independent Thai native speakers' ratings, an inter-rater reliability was calculated. The level of agreement in the ratings reached by the 11 native speakers was reasonably high as indicated by an inter-rater reliability score of 0.782.

Results of questionnaire data from students in the EG

At the end of the intensive course using SEA, fourteen students in EG completed an end of course questionnaire. The questionnaire consisted of ten open-ended questions on specific aspects of the course (see Appendix B). The questionnaire data claimed that SEA makes it:

- easy to understand and remember and it is embedded in my head and
- that humming is good for getting acquainted with new vocabulary
- easy to remember new vocabulary
- that with this method of teaching I can remember the language easily and I can remember all the vocabularies for a long time.

Learners in EG further described how they have used Sptool to complement their learning:

- I installed the program in my computer and practice speaking Thai by listen to the native speaker's voice in all conversations.
- I chose some words and listened to the native speaker's voices then pronounce all the words by my self. I paid attention to each word which is difficult to pronounce.
- Learning Thai language by this way is the way to learn pronunciation efficiently, and with this way we can learn faster.
- First of all I installed the Sptool in my computer then clicking on each word and listen to it. Although I do not understand written Thai language when I click and listen to each written word [in Thai] I can understand what these characters mean.
- It is very good material because I can practice Thai language in the way native speakers speak.

Discussion

The findings of the study are very encouraging. First of all, despite learning covering a large number of topics in twelve hours over three weeks, students taught by SEA performed equally well in speaking tests, covering the limited contexts covered in the course, as students in CG as rated by native speakers of Thai. Second, students in EG seem to be very positive about the use of SEA for language learning as demonstrated by their questionnaire responses on the face-to-face sequence in SEA and on the use of Sptool.

The results flowing from this project should be treated with some caution. First of all, students in EG were not randomly chosen; they were self-selected based on their interest in learning Thai. Second, students in CG did not represent a true control group as their length of study, thus exposure to Thai, is much longer than students in the EG. Third, students in CG were taught the four macro-skills whereas students in EG only covered the speaking and listening skills in Thai. Fourth, since this was not the comparison type of empirical study, it was difficult to attribute the achievement made by students in EG to either SEA or Sptool or the CD-ROMs. It is possible that a combination of all three contributed to the achievement of the students in EG. The conditions under which the students were recruited to the project were not under our control as the researchers were only in Vietnam for five weeks in total. A larger-scale study, ideally using random assignment to conditions would be the only way to evaluate the efficacy of SEA.

Implications beyond this study

So far, SEA has only been applied to the teaching of Mandarin Chinese and Thai. Theoretically, it can be applied to the learning of any languages. It follows that in the teaching of other languages, the principle of making what the students select coincide with the needs of the target language communities still holds. SEA can also be applied to alphabetic languages such as English. For example, one of the most noticeable problems in L2 learners' English is 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. Their spoken form was perceived by IELTS' examiners to be clearer and more fluent (Johnson, 2006).

Conclusion

The intention of this paper is to describe how a theoretically grounded language learning approach such as SEA can be operationalised in the real world context. While this research was affected by factors outside the researchers' control, thus making the quantitative data of the experiment less reliable, the qualitative data collected in the process of conducting this research is still useful. For instance, the face-to-face sequence in SEA was perceived as very enjoyable by L2 learners. This reinforces Green's research finding which makes a direct correlation between the enjoyment of an activity and its effectiveness in learning (Green, 1993). The sound files collected during the experiment have also led to another research project which will examine how native speakers' notion of fluency in Thai might correlate with the characteristics of L2 spoken speech in Thai by Vietnamese speakers of Thai.

SEA can be used to teach any language in any sector, be it tertiary, TAFE, secondary or primary school systems**.** It would be ideal if the teacher possesses some understanding of a range of fields such as acoustics, phonetics, psycholinguistics, applied linguistics and cognitive psychology when applying SEA. However, an enthusiastic, open minded teacher can achieve similar results if the procedure in SEA is followed closely. This research is the result of such collaboration. In this project, a native speaker Thai language teacher worked and taught alongside an experienced foreign language teacher (who also applied SEA to the teaching of Mandarin Chinese). It was only through thorough preparation and discussion of principles of SEA before the experiment was the native Thai language teacher able to correctly implement the procedures in SEA in the classroom. It is foreseeable that a group of language teachers can be trained in implementing SEA through intensive workshops. Because SEA is based on sound theoretical principles of learning, teachers trained in this method will not only be able to teach pronunciation competently, they would also improve in other areas of language teaching in general.

Finally, because SEA is grounded upon what we understand as learning rather than on what we understand as linguistics only, the multi-sensory, multimodal approach can theoretically be applied to other disciplines such as the teaching and learning of scientific knowledge. This is an area of SEA's application that is currently being investigated.

Acknowledgement

References

Auralog. (2004). *Tell me more* (Chinese) (Version PC or compatible, windows XP): Auralog S.A.

Bancroft, W. J. (1978). The Lozanov method and its American adaptation. *Modern Language Journal*, *LX11*(4), 167–175.

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.

Condon, W. S. (1985). Sound-film micro-analysis: a means for correlating brain and behaviour. In F. Duffy & N. Geschwind (Eds.), *Dyslexia: neuroscientific approach to clinical evaluation*. Boston: Little, Brown & Co.

Crystal, D. (1997). *Dictionary of linguistics and phonetics*. Oxford: Blackwell Publishers.

Deepadung, S., Burusphat, S., & Khamhiran, S. (1992). *Elementary Thai for foreigners: Drill workbook*. Thailand: Mahidol University.

Deleuze, G., & Guattari, F. (1987). A thousand plateaus: Capitalism and schizophrenia (B. Massumi, Trans.). Minneapolis, London: University of Minneapolis Press.

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.

Gathercole, S. E., & Baddeley, A. D. (1993). *Working memory and language*. Hove, U.K.: Lawrence Erlbaum Associates, Ltd.

Green, J. M. (1993). Student attitudes toward communicative and non-communicative activities: do enjoyment and effectiveness go together. *The Modern Language Journal*, *11*(i), 1–10.

Guiora, A., Beit-Hallahmi, B., Brannon, R., & Dull, C. S. T. (1972). The effects of experimentally induced changes in ego states on pronunciation ability in a second language: an exploratory study. *Comprehensive Psychiatry,* 13, 421–428.

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

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

Hirunpradith, P. (2002). Status of learning and teaching the Thai language for foreigners in Thailand. Bangkok. Thailand: SukhothaiThammathirat Open University.

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). Canberra, Australia: University of Canberra.

Juntanamalaka, P., & Diller, A. (1993). *Beginning Tha*i. Canberra, Australia: The Australian National University.

Lian, A. (1980). *Intonation patterns of French (Teacher's Book).* Melbourne: River Seine Publications.

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.

Renard, R. (1975). Introduction to the verbo-tonal method of phonetic correction (B. Morris, Trans.): Didier.

Smyth, D. (1995). *Thai a complete course for beginners*. London, UK: Hodder Headline Plc.

Syntrillium. (2002). Cooledit 2000: Syntrillium software.

Towell, R. (2002). Relative degrees of fluency: A comparative case study of advanced learners of French. *International Review of Applied Linguistics*, 40, 117–150.

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.

Winter, B., Breitenstein, C., Mooren, F. C., Voelker, K., Fobker, M., Lechtermann, A., et al. (2007). High impact running improves learning. *Neurobiology of Learning and Memory*, *87*(4), 597–609.

Wiittayasakpan, S. (2002). Beginning Thai textbook in the context of Thai studies for foreigners: The promotion of the cooperation in teaching and learning of Thai language in the context of Thai studies. Bangkok,Thailand: The Ministry of University Affairs.

Zhang, F. (2006). The teaching of Mandarin prosody: A somatically-enhanced approach for second language learners. Unpublished PhD, University of Canberra, Canberra: Australia.

Zhang, F., & Newman, D. (2003). *Speech tool* [Software]. Canberra, Australia: University of Canberra, Australia.

Zheng, T. (2002). *Review: Tell me more Chinese*. CALICO Software Review, November.

Appendix A

Speaking items:

Talk to your pair about these 5 topics. The conversation will take around 12-15 minutes.

1. Greeting and introducing yourself

2. Giving and asking personal information:
Where are you from?
Age
Nationality
Occupation
Address
Telephone number
Language speak

3. Talking about your family:
How many people in your family?
Who are they?
How old are they?
What is their marital status?
What is their occupation?

4. Buying things and bargaining:
Asking about price of things
Bargaining

5. Asking and answering about directions, for example:
Explain how to go from the guest house to the University of Social Sciences and Humanities
Explain how to go from the guest house to Diamond plaza

Appendix B

Gender ☐ Female ☐ Male

Age …………………………………

Major ………………………………………………..…………………………

University …………………………………………………………………...

Research project:

"Somatically-enhanced Approach in the Teaching of Thai to Speakers of Vietnamese"

Open-ended questionnaire

Instructions:

The questionnaire consists of ten items. Please write your answer (in English or Vietnamese) in the space provided for each item

Please **do not** write your name and surname on the questionnaire

Information in this questionnaire will be analysed only in this study and it will be kept in the strictest confidence.

Please return this questionnaire to the researcher by October 9, 2006.

1. Which part of the procedure is the most useful part for your learning of listening and speaking Thai? Why?
………………………………………………………………………………….
………………………………………………………………………………….

2. How does this way of teaching differ from other teaching approach?
………………………………………………………………………………….
………………………………………………………………………………….

3. What is the most important feature in this teaching approach?
………………………………………………………………………………….
………………………………………………………………………………….

4. How much do you think the CD on "Beginning Thai" is useful for your learning of listening and speaking Thai?
………………………………………………………………………………….
………………………………………………………………………………….

5. During the time you are studying Thai with this approach; do you practice speaking Thai at home or in your private study? If yes, please give more details on **how** do you practice. If not, please explain why.

Yes, …………………………….…………………………………………………
……………………………………………………………………………………
No, ..…………………………………………………………………………….
…………………………………….………………………………………………

6. Do you like to learn listening and speaking of other language by this way? Why?
………………………………………………………………………………….
………………………………………………………………………………….
………………………………………………………………………………….
………………………………………………………………………………….

7. What do you think you have learnt most from this class?
………………………………………………………………………………….
………………………………………………………………………………….

8. Do you think all activities in the class are appropriate? Which activity do you think should be modified or changed? Why?
………………………………………………………………………………….
………………………………………………………………………………….

9. Do you think this way of teaching will help you to learn how to speak and listen in Thai? Why?
………………………………………………………………………………….
………………………………………………………………………………….

10. What do you think you have learnt most from this class?
………………………………………………………………………………….

Thank you for your cooperation