Toward a Critical Epistemology for Learning Languages and Cultures in Twenty-First Century Asia

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Abstract The adoption of English as the working language of Asia and the ASEAN region, together with an increase in the mobility of people and information, are creating new and significant pressures on language and culture education in English, as well as other languages, in the region. It is also bringing about an enormously expanded use of English between speakers for whom English is not a first language, and this expansion includes communication in English between people of different cultural backgrounds. The surge in the use of English highlights a number of current challenges. English language proficiency levels vary widely across Asia. ***Communicative competence*** in English as a second language is at least equally problematic. The matter is further complicated by the growth of the Internet and other technological progress, which has resulted in the creation of a self-managing, often Do-it-Yourself society engaged in "just-in-time" rather than "just-in-case" activity, as in the past. These considerations call for new learning/teaching approaches which go beyond the conventional classroom and curriculum. The present chapter proposes a generic framework for implementing (language-)learning/teaching structures, with a special focus on challenging learners' "operational histories" – their habitual patterns of understanding stimuli from their experience of the world. The framework is explicitly learner-centred, individual, personalized and adaptive, and is designed to help learners develop mindsets and strategies to tackle learning issues on their own initiative and in their own way. An example is presented of a successful implementation of the framework for the learning of English pronunciation by Chinese university English Majors. This kind of approach, building specifically on challenging learners' "operational histories", has significant potential for developing language and culture teaching and learning, and the acquisition of intercultural communication competence, in Asian contexts.

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A. CURTIS, R. SUSSEX (eds.), *Intercultural Communication in Asia: Education, Language and Values*, Multilingual Education 24,
https://doi.org/10.1007/978-3-319-69995-0_3

1 Introduction

The development of Asia in the twenty-first century is marked by the rise of the region socially, economically and politically (Australia in the Asian Century Task Force 2011, p. 4). In particular, the establishment of the AEC (ASEAN Economic Community) will enhance not only the economy in general and help to reduce poverty, but it will also enable controlled yet growing mobility (Koty 2016), leading to overall growth in the region. These changes, so far unprecedented in this part of the world, represent a major step forward in cooperation between countries. They should enrich local labour forces through increased diversity, create opportunities for study across borders, and enable significant cooperation in many hitherto unexplored areas of joint action. However, mobility will also place considerable stress on institutions, facilities and society in general through a de facto reorientation of the composition and practices of groups. And this may well undermine traditional patterns of teaching and learning. We can also expect that diversification of the labour force and any concomitant changes may generate negative reactions in receiving societies and communities of practice. These, in turn, need to find ways of adjusting to new and, so far, unaccustomed challenges to local professional and personal life. And there will be pressure on how citizens of the region construct their identities, deal with diversity, and move together into the future.

Complicating this remodelling of life in the region is the adoption of English, both officially and unofficially, as the common ***working*** language of South-East Asia and Asia in general (mandatory for ASEAN citizens (Association of Southeast Asian Nations 2008, p. 29) and de facto for the others). The far-reaching policy decision to impose English for all, though designed to set in place a new form of "communicative" unity and to facilitate human contact between the diverse peoples of the region, runs the risk of further undermining linguistic and cultural integrity by introducing new tensions. From now on, instead of learning each other's languages and cultures, people will be importing, from the English-speaking world, new linguistic and, inevitably, new cultural elements that will modify the natural linguistic and cultural landscapes of the region. Even if English were to be used primarily in professional contexts for ostensibly straightforward and relatively unsubtle purposes (which is what experience tells us that people are currently trying to do), in the end experience also tells us that, unless learned to a reasonably high level of proficiency, English will often remain an inadequate, "quick-and-dirty", solution. This will hold even for professional and straightforward contexts where subtle linguistic and cultural interaction is often required for best results and may be of significant benefit. To be sure, using English as a "lingua franca" is much better than nothing. But this is not without a price: the illusion that we are understanding each other "well enough" when in fact this may not be so. This realization will come to users over time and will almost certainly have a potentially far-reaching effect on the ways that they engage in these "professional and straightforward contexts" that are not supposed to require a high level of English proficiency. Thus, the decision to adopt English for the region will have a considerable impact on language and

culture learning and teaching, and on communication. High mobility, sometimes at short notice, and the need for speedy response to the pressures of living together in a complex, dynamic and highly diverse community, will challenge the language-learning capacities of traditional providers such as schools and universities, and the kinds of courses which they offer – even when enhanced by contemporary communicative approaches. Further, the conditions of language use, where language-learning needs emerge rapidly and revolve around often unpredicted and unpredictable requirements, may make traditional classroom-based learning systems outdated or, at very least, in need of radical change / improvement. These requirements will involve large numbers of people, all with special requirements and individual learning needs. This will form a mass market of learners with individual communication and personal learning needs requiring rapid solutions, of a size which has never been encountered before. It is no longer a question of catering to the learning elite of a country's population, but also to millions of everyday "average" workers and citizens. And this situation is not limited to English. The demands of mobility will, inevitably, also place greater stress on learning and teaching systems for local languages and cultures. This is partly because there will be a need to valorize non-English languages in an effort to preserve local languages and cultures, and partly because of the real needs of persons travelling to and living in a new country: even English language competence of itself will simply not be enough to meet everyday needs. In short, the internationalization motivated by a drive for English will create new and less controllable language/culture learning/teaching demands that must be met efficiently and effectively, for both short term and longer term needs, for a highly diverse market of people all going about their daily lives in twenty-first century Asia.

To complicate matters further, the levels of English proficiency in Asia vary widely, with Singapore ranked 6/72 in the world (Very High Proficiency Country) in 2016, and Laos ranked 70/72 (Very Low Proficiency Country), according to the EF Proficiency Index. The table below covers a number of Asian nations. The standings reported here are from the EF Proficiency Indexes for 2015 and 2016 (reporting respectively on tests performed in 2014 and 2015) (EF English Proficiency Index 2015 2015; EF English Proficiency Index 2016 2016).

English proficiency standings of selected Asian countries (EF Proficiency Index 2015 and 2016)

2016 Rank (/72)	2015 Rank (/70)	Country	Change in Rank	2016 Score	2015 Score	Change in Score	Proficiency Level
6	12	Singapore	−6	63.52	61.08	+2.44	Very high
12	14	Malaysia	−2	60.70	60.30	+0.40	High
13	N/A	Philippines	N/A	60.33	N/A	N/A	High
22	20	India	+2	57.3	58.21	−0.91	Moderate
27	27	South Korea	–	54.87	54.52	+0.35	Moderate
30	33	Hong Kong	−3	54.29	52.70	+1.59	Moderate
31	29	Viet Nam	+2	54.06	53.81	+0.25	Moderate
32	32	Indonesia	–	52.94	52.91	+0.03	Moderate
33	31	Taiwan	+2	52.82	53.18	−0.36	Moderate

(continued)

2016 Rank (/72)	2015 Rank (/70)	Country	Change in Rank	2016 Score	2015 Score	Change in Score	Proficiency Level
35	30	Japan	+5	51.69	53.57	−1.88	Low
37	N/A	Macau	N/A	51.36	N/A	N/A	Low
39	47	China	−8	50.94	49.41	+1.53	Low
48	N/A	Pakistan	N/A	48.78	N/A	N/A	Low
56	62	Thailand	−6	47.21	43.53	+3.68	Very low
58	N/A	Sri Lanka	N/A	46.58	N/A	N/A	Very low
69	69	Cambodia	–	39.48	39.15	+0.33	Very low
70	N/A	Laos	N/A	38.45	N/A	N/A	Very low

N/A Not available

The EF Index is a well-established test which has systematically collected and reported English proficiency information from around the world since 2011. In 2014 it tested more than 910,000 persons from 70 countries (EF English Proficiency Index 2015 2015, p. 5), and in 2015 it tested more than 950,000 persons from 72 countries (EF English Proficiency Index 2016 2016, p. 3).

The above table is informative in several ways. First, it points to the wide disparity in proficiency levels, especially in the ASEAN countries, which, because they form a close community with high mobility, will have to find ways of dealing with that disparity.

Second, while many countries improved their ranking or their scores, the improvements were usually quite small, e.g. often less than +1.00. There are exceptions, such as Thailand, which increased its score by +3.68, but its score was already very low. At the high end of the spectrum Singapore increased its score by +2.44 to become the first Asian country ever to be classified as Very High Proficiency (comparable to European countries like Finland and Luxembourg). In contrast, Japan and India slipped back. It remains to be seen why this happened and how it could be rectified. "Doing more of the same" in the current educational systems has not brought about the substantial improvements that are needed. Clearly new educational solutions will be necessary to effect some equalization between the different countries.

These critically important linguistic and cultural developments find themselves embedded in a world which is becoming increasingly self-managing, do-it-yourself (DIY) (A.-P. Lian 2011; A. B. Lian 2014), and subject to information overload, largely as a result of the extraordinary growth of technology (A.-P. Lian 2017). In turn, this leads to a general shift away from "just-in-case" learning toward "just-in-time" learning (A.-P. Lian and Pineda 2014; A. B. Lian 2014) in a move which is also de-stabilizing traditional learning and teaching structures in all disciplines, not just languages.

In order to respond to these changes, the needs of twenty-first century Asia specified above require new approaches to learning and teaching. Such an approach, based on theoretical considerations, has been undertaken in detail by A.-P. Lian in previous works (A.-P. Lian 2004, 2011, 2017; A.-P. Lian and Pineda 2014) and is summarized below. While it acknowledges and revolves around the new globalized

and globalizing environment, it is based on a general theory of learning (A.-P. Lian 2000), in order to construct a high-level abstract framework capable of application to any learning/teaching context.

2 Conceptual Framework

The conceptual framework for such an extended approach to learning is built on five general Principles:

2.1 Principle 1

> We are physiological beings, so that our minds are effectively trapped inside our bodies. Therefore interaction between our minds and the physical world, including the phenomenon that we call "communication", is always indirect, mediated by our perceptual systems: our nervous system and symbolic (i.e. semiotic) systems for making sense of the signals that the nervous system picks up. They also decide which signals are relevant and are selected for further processing. The mechanism for determining which signals should be processed and what meanings they are given is based on each person's past experience, their "operational history", which can be thought of as a meaning-making device or filter which both decides whether a signal is to be processed and, if yes, will help to give meaning to that signal.

But as we have seen, learners' "operational histories" are demonstrably inadequate to support effective learning of English, even based on the needs of contemporary society. And they are very much an outcome of the educational methodologies under which the students have studied. Given the changing social, economic and communicative needs of Asia, the question arises of the capacity of "operational histories" to cope.

The other four Principles are derived from the first Principle:

2.2 Principle 2

> Everything that we do is based on acts of meaning-making. Without such meaning-making we would be literally incapable of acting.

2.3 Principle 3

> We are not telepaths: the meanings that we create and live by are internal, individual and unknowable by others; all attempts at communication (or what is commonly called "sharing meanings") are themselves mediated by semiotic or symbolic systems that are constructed on the basis of each person's internal logical and representational systems. In this task language is central. We can *talk* about the meanings that reside within us, but the meanings themselves are never visible to the outside world.

2.4 Principle 4

> Our internal logical and representational systems are constructed through our interactions with our environment, by our attempts to understand the world in multiple ways through a kind of triangulation process which helps us to verify the validity of our understandings and enables us to have some consistency in making sense of the world around us. In turn, this process enables us to act consistently and with the other people around us in a way which leads to the belief/illusion that we "share" understandings. In fact, we share nothing (in the sense that we might, for instance, share a physical object) but we act as though we do, since our understandings appear to resemble each other at an operational level: in society, we act and react together in similar and consistent ways (a kind of "near enough is good enough" way of working together).

2.5 Principle 5

> Our internal logical and representational systems, i.e. the systems that enable us to organize knowledge and the world for ourselves, and to represent knowledge and the world to ourselves, both assist us to make sense of the world and pre-determine how we understand. Any act of learning necessarily implies altering those representations and logical relationships.

There is also growing evidence from psychological studies that signals are not simply accepted "as is". This evidence comes from different sources, e.g. our misperception of sounds, but also in the basic organization of language processing where, in order to understand at all, the stream of spoken language needs to be processed (i.e. understood and organized into higher level units such as "chunks"), as the unprocessed stream would quickly overload our brain's capacity to cope with the sheer volume of incoming signals (Cornish et al. 2017, p. 2). For this to happen, an act of understanding needs to occur. And this, in turn, leads to a gate-keeping function where understood signals are retained and others are rejected (Giedd 2015) in a kind of "use it or lose it" principle. In turn this creates a problem: for new meanings to be accepted, old meanings need to be challenged and refined, possibly replaced, and new neural connections created to replace or modify those that are entrenched. We need to adopt physicist Max Planck's view that "When you change the way you look at things, the things you look at change" (Planck n.d.), and find ways to challenge our operational histories.

So how we understand the world is fundamentally personal. Our understandings are driven by our operational histories, which make each of us different from one another. It is also the distinctive nature of each person's operational history that shows that a one-size-fits-all approach to learning is likely to be counter-productive. This is consistent with the concept of learner-centredness advocated by current language-learning/teaching approaches (as described e.g. in Kumaravadivelu 2012, p. 114), but does not necessarily endorse the detailed application of these approaches.

This, in turn, leads to an argument in favour of autonomy in language-learning defined as the ability to take charge of one's own learning (e.g. Benson 2007; Holec 1981): the myriad needs of learners are unlikely to be fully met by a traditional language-teaching scenario of fixed syllabus, fixed texts and fixed exercises, especially in the current rapidly developing world with its "just-in-time", do-it-yourself (DIY), mass-market language and culture requirements of twenty-first century Asia.

So, learning involves at least a two-step approach. The first is to make the external signals perceptible, i.e. to make them sufficiently meaningful, which entails presenting them as sufficiently different from those that we normally deal with to be noticed, essentially by bypassing existing operational histories. The second is to refine the understandings of these newly-perceived signals so as to enable the construction of new patterns of meaning. Note that the signals referred to here are not necessarily physical, e.g. a sound or a colour, but might include an idea or a way of thinking. Signal-manipulation can take many forms, ranging from discursive approaches like telling the listener to notice something, to actual physical transformation of the signal like digital filtering. This process is a form of awareness-raising (Lian 1987; Mason 1998; Schmidt 2012) and, in this chapter's perspective, it is a central component of the act of learning and, therefore, teaching. Mechanisms for raising awareness include using novel ways of channelling input to defeat the processing habits of our brain. The framework just described is abstract and multidimensional, i.e. it draws simultaneously on a number of different concepts and therefore approaches/techniques. It provides a set of guidelines for thinking about the problems of learning and teaching.

In this light, the framework can be thought of as providing a blueprint for developing (language-) learning/teaching systems which, in turn, will be used as testbeds for the principles contained therein. Furthermore, given the multimodal nature of the framework, the testbeds will also necessarily be multimodal. In summary, the blueprint can be summarized as follows:

Respect the learners' meaning-making mechanisms.
Find ways of making the learners aware of the characteristics of the new signals.
Find ways of refining newly-perceived signals so as to make them usable.

A critically important consequence of this model is the realization of the significance of the meaning-making mechanisms of individuals, the importance of giving these mechanisms the respect that they deserve, and to give them a chance to do their job with few restrictions from the outset and, to the extent possible, avoid imposing other people's ways of understanding. However, the learning of language necessarily requires the learning of the constraints of the linguistic system which need to be understood by the learner. Comprehension and production cannot be random or at the mercy of the learners' meaning-making mechanisms in their current state – that is why the learners' meaning-making mechanisms need to be changed.

3 Learning Framework: Implementation and Testing

The learning framework is based on helping the individual with awareness raising in response to incoming stimuli, to become aware of and to confront their operational histories, to challenge them critically, and to build new representations. It helps them to unpack complex learning tasks, to attend critically to the component parts, and then to reintegrate them.

Since 2013, two doctoral research projects based on the above principles at Suranaree University of Technology in Thailand have confirmed the framework outlined above. Four others are still ongoing but with preliminary indications of similar outcomes. Replication and extended studies will need to be conducted to investigate the framework further.

All projects share the same characteristics:

1. Recognition of and respect for learners' individual meaning-making mechanisms.
2. Awareness-raising activities acting in synchrony with one another.
3. Support for individualization in learning to the extent possible. Students are encouraged to develop their Personal Learning Environments (PLEs)(A.-P. Lian and Pineda 2014; Pineda 2013), with "opportunities to confront, contrast and contest their understandings against observed language phenomena through the feedback provided" (A.-P. Lian 2004, p. 7).

While the framework's conceptual elements are shared, each project implements the framework differently.

The implementation of the framework presented below focuses on the pronunciation of English. It presents ways of challenging learners' operational histories in a context which is individualized, learner-driven and personalized, available on demand and suitable for individual exploration. It is therefore also potentially adaptive, in that the framework could equally be applied to learning other domains of language, as well as culture, communication and intercultural communication. The project described here can therefore be seen as a testbed and a proof of concept, and a prototype of one kind of approach directly aimed at the issues of English language and communication described in the Introduction.

What follows is a summary of one of the completed projects (for details see He and Sangarun 2015; He et al. 2015) conducted in 2013 by Associate Professor He Bi[1]. The methodology was quasi-experimental, comparing the performances of a control group and an experimental group of EFL majors enrolled in two intact classes drawn from a compulsory pronunciation improvement course routinely taught in Xingyi Normal University for Nationalities, PRC. The control group followed the normal program: a typical, commonly-adopted, approach to pronunciation (phoneme-description and production, intonation-description and production,

[1] I am grateful to Associate Professor Dr. He Bi for giving me permission to describe and quote the results of her study.

articulatory exercises, minimal pairs and repetition exercises). The experimental group followed a program consistent with the framework outlined above, which combined perception-enhancement synchronized with gesture/body movements, a self-directed autonomous learning system, and minor computer-based assistance. As opposed to the traditional program, the project involved no theoretical descriptions of phonemes or intonation, nor any study of individual phonemes, including minimal pairs. The focus was entirely on the perception and production of the prosodic components (intonation, stress, rhythm, loudness) of English. The program lasted for a total of 14 weeks.

Using a pre-test and post-test and collecting qualitative data too, the experiment compared the pronunciation performances of participants on a number of measures: phoneme-production, word-reading, sentence-reading and free conversation. These were assessed according to a strict set of criteria by a group of expert Chinese university professors not associated with the research project. Additionally, sentence-reading and face-to-face conversation were also assessed by a group of native speakers for pronunciation, comprehensibility and fluency according to a set of rubrics drawn up for that purpose. All testing done by the native speaker raters was blind (i.e. raters did not know who the students were nor if they were listening to a pre-test or a post-test). Importantly, in the pre-test, the control group was significantly ahead of the experimental group in all but one of the measures (free conversation, where there was no significant difference between them). Finally, the teacher for both groups, who was not the researcher, was strongly committed to the traditional approach and did not believe in the experimental system: if there were any teacher bias it would therefore have been in favour of the control group. Both groups underwent substantially identical training in their non-phonetic study of English, and time-on-task for the course was closely monitored to ensure that both groups spent the same amount of time on the study of pronunciation every week.

4 Awareness-Raising Components

4.1 Enhanced Auditory Input – Verbotonalism

Students received awareness-raising input (see below) from a variety of sources, the most important of which were developed on the basis of verbotonalism, a perception-based theory which seeks to rehabilitate the deaf and improve the pronunciation of foreign language learners by helping them to reorganize their perceptual mechanisms (Asp et al. 2012b; Guberina 1972; A.-P. Lian 1980). It considers hearing essentially as an act of meaning-making, and emphasizes the fundamental value of stress, rhythm and intonation in learning pronunciation. The approach uses low-pass filtering, a technique where an audio recording is put through an audio filter which only lets through sounds below a specific "cut-off" frequency, in our case 320 Hz. This preserves the fundamental frequency of the sentences, together with the stress, rhythm, loudness and intonation (the prosody) of the sentences, while

removing the higher frequencies which help to define words. The result is a stream of sound like a hummed sentence, where the prosody became salient and available in a way which was both unusual and stimulating.

The procedure raises awareness in two significant ways, essentially by bypassing the operational histories: (a) it is novel and unfamiliar; and (b) it lightens the processing load because the learner does not have to process words and their meanings, which frees up attentional resources for increased processing of the prosodic patterns. The procedure consisted of specific activities.

4.2 Humming and Various Forms of Repetition

Intensive listening to filtered sentences was followed by various forms of repetition linked with body movements (see below). These forms of repetition are sequenced in such a way that they gradually change the perception of the sentences and move from listening toward full articulation of the sentences. They were also designed to reduce the perceptual and articulatory loads in the early stages of the sequencing while moving toward full articulation. The following sequence was used:

- *Humming*: after listening intensively and silently to each filtered sentence, i.e. after becoming accustomed to the intonation of the model sentence, students were asked to hum the intonations. This effectively isolates the articulation of intonation patterns, providing greater focus on them, while relieving students of the load of articulating words and intonations together. At various moments students were asked to state what they believed to be the function of the intonation; e.g. was it a statement, a question, an exclamation or something else.
- *Silent repetition (mouthing of the sentences)*: Following intensive practice of intonation, the students were asked to mouth each sentence, i.e. to repeat each sentence silently, while synchronising with their whole-body movements. This phase acts basically as a prelude to full articulation but without the load of actually producing both intonation and words.
- *Repetition*: Students were asked to repeat the model sentences in the normal way, synchronizing words and intonation with one another. They were helped to achieve this by using the whole-body movements of their choice.

4.3 Whole-Body Exercises and Relaxation – Synchrony

Accompanying the above clearly linguistic aspects of the process, a second major form of awareness-raising was provided by whole-body movement exercises. These are a feature of verbotonal intervention (Asp et al. 2012b), but are also particularly relevant in the context of studies in self-synchrony (Asp et al. 2012a; Condon and Ogston 1971; Condon and Sander 1974). Self-synchrony is a phenomenon whereby the body movements of a person synchronize with or accompany the language that

they are producing, e.g. rhythm and stress patterns: "a precise isomorphism (including rhythm features) has been observed across many levels between the speaker's speech and various forms of his own body motion" (Condon and Sander 1974, p. 457). People's body movements are closely coordinated with the production of language. If body movement and language articulation are not antagonistic to one another, then pronunciation will be more satisfactory (Asp et al. 2012a).

In order to enable the new self-synchrony between body and pronunciation, students were encouraged to engage in mind-calming and relaxation exercises in order to break, or at least reduce, the influence of their learnt language-specific Chinese gesture system. They were then invited to listen intensively and to hum, clap, move or dance to the melody and rhythm of the filtered and unfiltered intonation patterns. Students were encouraged to improvise their own patterns so as to generate and display spontaneous ***personal understandings*** of the studied patterns rather than seeking to conform to an imposed, normative model, while developing an internal representation of the intonation and rhythm patterns of English which need to be internalized for later reuse. This corresponds to the notion that people make sense of things in personally relevant ways. Students were also encouraged to volunteer their interpretations of melodic and rhythmic patterns so as to contrast, confront and contest (Lian 2000 p. 53) their personal understandings with those of others (essentially an exercise in meaning-construction and refinement of meanings). These activities are important awareness-raisers. They connect optimized and non-optimized language signals with articulation and with body movements in order to create new, previously-absent, self-synchrony in learners.

4.4 Manipulation of Spoken Language

Another way of raising awareness is to enable learners to manipulate their own or others' speech for themselves, examine the outcomes, and compare them with other examples. They are thus able to construct more perspicuous internal representations of the language that they are studying. Students worked with their own speech and with every-day, non-classroom, language. Students were provided with a simple free computer-based audio editor, *Audacity* (Ash et al. 2015). They could investigate any spoken text of interest, including their own voice, which they could filter, accelerate or slow down (enabling them to identify features not always discernible in natural language). They could effectively create their own lessons according to their own preferences.

4.5 In-Class Activities

In-class activities involved intensive awareness-raising exercises using both auditory input and whole-body movement: relaxation exercises; sensitization consisting of intensive listening to filtered and unfiltered sentences; followed by structured

repetition practice (listening intensively to filtered sentences a minimum of 15 times, humming the sentences, mouthing the sentences and finally repeating the sentences).

4.6 Out-of-Class Activities

Out-of-class activities consisted in listening intensively to any of the materials provided during the course of a class, listening to additional materials of interest discovered by the students themselves, engaging in whole-body exercises individually or in groups, and manipulating audio materials, including making recordings of their own voices. They also had access to a simple, unsophisticated, Computer-Assisted Language Learning system to support practising pronunciation which gave students the ability to listen to any of the filtered and unfiltered recordings used in class, the ability to record their voices, and to compare their voices with the filtered and unfiltered native-speaker models. In addition, they also had the opportunity to choose what, where, when and how they would study and with whom.

4.7 Autonomy

Even though the experiment was conducted in the context of a normal class, students were able to exercise a significant amount of partial autonomy and self-direction. They could decide which activities to engage in after the initial sensitisation period. Out of class, students could choose when, where, how and with whom to engage in learning activities. For instance, they chose to hum, repeat and "dance" their language study "by the fish pond, in the sports ground, and in the garden. One participant even practiced her pronunciation in the gym between work-outs" (He and Sangarun 2015, p. 7). Finally, they did not ignore the teacher, but made better use of her when she was needed (He and Sangarun 2015).

5 Summary Results of the Research Study

The following table summarises the overall results of pre-test and post-test scores (i.e. the sum of the scores for phoneme-production, word-reading, sentence-reading and oral interview).

Group	Test	Mean	Number	Std. Deviation
Experimental group	Pretest	70.89	48	8.38
	Posttest	84.93	48	6.48
Control group	Pretest	75.20	47	8.38
	Posttest	80.94	47	9.45

Statistical analysis showed that while both groups progressed significantly from pre-test to post-test ($p < 0.01$ for both), the experimental group improved significantly more than the control group ($p < 0.01$). In the pre-test, the control group was significantly ahead of the experimental group (exp. = 70.89; ctrl = 75.20), but in the post-test, the experimental group overtook the control group (exp. = 84.93; ctrl = 80.94). In order to reduce within-group error variance and to eliminate confounds caused by any unmeasured variables, an Analysis of Covariance (ANCOVA) was conducted to remove the bias of the variables (after first checking with Levene's test of equality of error variances (Levene 1960)). The same result was true for the analysis of all measures used (whether rated by Chinese raters or by native speakers), with the exception of the pre-test oral interview, where there was no significant difference between control and experimental groups. However, post-test results for the oral interview resembled other results, with the experimental group outperforming the control group significantly ($p < 0.01$).

Thus, the experimental approach for teaching English pronunciation was demonstrated to be more effective than the conventional approach commonly used throughout China and in many other parts of the world.

Interesting points to be noted are:

1. **Phoneme production.** Each student was tested for the production of the 44 phonemes of English. Phonemic scores of the experimental group were significantly higher than those of the control group. This is despite the fact that the control group had a head start and had also received extensive focused instruction and practice on phoneme-production, while the experimental group received no instruction or practice on the pronunciation of phonemes. This means that specific training in individual phoneme production may not be needed, or may be greatly reduced, following the prosodic training described here. While verbotonalism claims that the study of prosody will also adjust pronunciation of individual phonemes (if not all, at least many), this is the first published data-driven study to confirm this phenomenon in the Chinese EFL context. A search of the bibliographic literature shows that it also seems to be the only data-driven study of this question currently available.
2. **Comprehensibility and fluency.** The findings indicate that the experimental group performed significantly better than the control group in both rehearsed settings and, especially, natural unrehearsed settings. The results for comprehensibility and fluency ratings (not reported here in detail) indicate that the experimental group performed significantly better than the control group. The experimental group encoded thought into correct forms rapidly, and therefore was fast in retrieving linguistic items and injecting them into the speech flow, and they did so with greater syntactic accuracy and lexical richness than the control group, resulting in enhanced comprehensibility, fluency and communicative effectiveness. Exactly how a learning activity designed to improve pronunciation could have brought about enhancements in domains outside pronunciation remains to be investigated.

3. The fact that the teacher in charge of the experimental group did not believe in the experimental approach used is relevant. With the experimental group, the nature of the resources and the role occupied by the teacher (which is not that of teaching content but, rather, managing the activities of students engaged primarily in processing signals and self-expression), the implementation of the framework is, at least to some extent, protected from teacher influence. In a sense, it is teacher-neutral. This is worth noting, since there are many teachers in China (primarily in schools, especially rural schools) who are less than optimally qualified and who would not need to develop any special expertise in order for their students to benefit from the framework described above. In that sense, the program can help improve the quality of course offerings without adding significantly to costs. It provides a cheap high-quality solution at no human cost and very little financial cost, while ensuring significant enrichment for the teaching of a critically important part of the English language curriculum in Chinese universities and schools.

Some of the principles or techniques used in this study resemble the "humanistic" approaches like Community Language Learning (Curran 1972, 1976) and The Silent Way (Gattegno 1963), but they are largely based on the principles of the earlier model of verbotonalism (Guberina 1955, 1956). The relaxation techniques adopted here derive from an adaptation of suggestopedic techniques (e.g. Bancroft 1975) supported by research findings from verbotonalism on the relationship between speech and movement (Asp et al. 2012a) as well as on research findings from studies in self-synchrony (see above). The emphasis on learner-centredness and autonomy follows from the internal logic of the five Principles and the framework outlined above. The work described here is therefore largely independent of traditional language teaching approaches. And while verbotonalism provided the trigger for the Structuro-Global Audio-Visual (SGAV) approach to language learning, the latter bears little resemblance to the techniques developed here.

6 The Framework in Asian Contexts

The framework described here is personalised and adaptive: it deals with both formal and non-formal learners with unpredicted and unpredictable needs in unpredicted and unpredictable contexts on unpredicted and unpredictable subjects/topics. It consequently presents as either an alternative or as an extension to fixed, detailed, curricular content or syllabi, or both. It uses a rich, adaptive, student-driven problem-solving pedagogic approach with no pre-determined sequencing. We have shown that this framework is more effective than conventional methods, in a single controlled experiment, for the learning of English pronunciation.

Educational authorities may have difficulty in accepting this approach, because it is open-ended and unstructured. This is at variance with many institutional models' educational policy, which tend to prescribe matters relating to education,

ranging from grouping students (usually according to age), to course descriptions to curriculum to syllabus to pedagogy, even down to which books and other resources are permitted (e.g. in the above course, the officially approved textbook was Wang 2005, *English pronunciation & intonation for communication*). Thus, there may be a tension between the above framework, which seeks to mirror and enable the optimal learning processes of individuals who, ideally, study what they need, when they need it, in their own way and according to their own rhythm; and the highly structured, time-controlled curricula and pedagogies of many governing and top-down educational bodies. Therefore, as in the case of other innovative systems, the success of the approach presented here will depend, in part, on the ability of controlling bodies to embrace, accommodate and implement significant change in policy and practices. Until that happens one may be able to implement the framework only as a form of optional enrichment, at least in the short term. Even given the learners' cultural habits relating to education, which are strongly teacher-based in Asia and where students are acculturated to a strong teacher focus, Internet penetration is already high, growing, and changing the way people live and think (Japan 91.1% (0.1% growth p.a.), China 52.2% (+2.2% p.a.), Vietnam 52% (+3.3%o.a.), Philippines 43.5% (+4.4%p.a.), Thailand 42.7% (+6.2% p.a.): see "Internet Users by Country (2016)" 2017). In the long term, the natural pressures of ordinary life, where people's working and leisure habits are changing and where mobility, diversity and transparency grow more rapidly than ever before, are likely to oblige educational authorities to revise their policies so as to allow the development of more flexible, learner-centred structures as more and more citizens embrace Internet activity as well as life-long learning. In the meantime, systems like this one can still be useful in the context of any administrative/educational system, especially the non-formal areas of learning, where they could play a valuable, though more restricted, role. In other words, it is not an all-or-nothing framework, in the sense that it can be used in a limited way within specific sections of a course where students might benefit from greater personalization and autonomy without undermining administrative policies or directives.

7 Conclusion

Overall, and with some exceptions like Singapore, contemporary Asian populations show relatively low levels of English proficiency. But this population is becoming far more mobile than at any time in human history, creating a massive market of people who will need enhanced capacity in intercultural communication. They will need to speak both English as a Lingua Franca (ELF), and local languages, and will need to acquire a functional competence in understanding both English culture and local-language cultures, and how to communicate in different codes and value-systems with people from different language and cultural backgrounds. These needs are being largely driven by real life concerns which substantially exceed the reach of conventional formal classes and pedagogies. In the face of these developments

and the growing "do-it-yourself" attitude to learning and communication in societies throughout the world in general, educational organizations are likely to struggle when confronted by these needs of language- and culture-learners, who will experience unpredicted and unpredictable needs requiring resolution in real time. On the evidence of surveys of English competence, their "operational histories" are not handling the demands of contemporary English in Asia. An alternative model is proposed in this chapter, built on the needs of a learning framework. Its goal is to support the individual learner to achieve heightened critical awareness to incoming stimuli, so challenging their operational histories, and to help them construct new understandings and representations. While the framework has had only restricted testing on learning tasks in the sound pattern of English, it potentially has explanatory value in terms of learning, and organizational value in terms of the generation of learning environments. The emerging educational needs for English are so dynamic and open-ended that they challenge educators to test new points of view.

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