Journal of Academic Language & Learning
Vol. 9, No. 1, 2015, A18-A30. ISSN 1835-5196

AALL
Association for Academic Language and Learning

An L1 point of reference approach to pronunciation modification: Learner-centred alternatives to 'listen and repeat'

Michael D. Carey

School of Education, University of the Sunshine Coast, Maroochydore DC 4558, QLD, Australia

Email: mcarey@usc.edu.au

Arizio Sweeting

School of Education, University of the Sunshine Coast, Maroochydore DC 4558, QLD, Australia

Email: Arizio.Sweeting@research.usc.edu.au

Robert H. Mannell

Department of Linguistics, Macquarie University, North Ryde, 2109, NSW, Australia

Email: robert.mannell@mq.edu.au

(Received 28 July, 2014; Published online 6 March, 2015)

This theoretical paper aims to encourage teacher creativity, flexibility, and a non-nativist approach to teaching pronunciation. It proposes a *first language (L1) point of reference approach (L1POR)* for the instruction of pronunciation (Carey, 2004). We argue that speech production needs to precede perception training within the sequence of instruction through motor-sensory awareness (Copeman, 2012; Messum, 2010; Underhill, 2005) and L1-specific approaches (Carey, 2004). We present key theories and models of speech perception and production to justify the departure from native English modelling, listening exercises and imitation, towards raising awareness of individual learner needs and aspirations. The approach initially develops the learner's awareness of their L1 phonology as a scaffold towards developing an acceptable productive approximation of the target speech sounds. We emphasize the importance of learners becoming metalinguistic about their pronunciation needs, and the realisation that they are their own best teachers, when supported by teachers with knowledge of the student's L1 phonology. Current constructivist, learner-centred methods of learning and teaching pronunciation are presented as examples of approaches that align with the L1POR and offer practical alternatives to 'listen and repeat' pronunciation teaching techniques. Pronunciation priorities are discussed in relation to the specific first language and idiosyncratic needs of students.

Key Words: learner-centred pronunciation instruction, L1POR.

1. English as an international language and Australian English

In the past few decades, English pronunciation instruction has been influenced ideologically by English as an international language (EIL). EIL is a concept created from within sociolinguistics which postulates that "mother-tongue varieties of English are not necessarily considered

appropriate targets either for learning or for communicating in countries where English is used for cross-cultural or cross-linguistic communication" (Richards & Schmidt, 2010, p. 196). Due to their estimated 75 to 80 percent majority as users of English (Crystal, 2008), NNS are increasingly acknowledged as legitimate shareholders in the English language and thereby are deserving contributors to the conversation of what English is, and how it should be taught. Acknowledgement of EIL predominates in English as foreign language (EFL) contexts where English is used as a Lingua Franca (ELF) in non-native speaker (NNS) to NNS interactions, such as between speakers of the language groups of Europe, or Asia, who use English as a convenient language of communication. Yet, in Anglophone countries such as Australia, where English is the dominant language of communication, EIL is yet to extensively inform language teaching policy and practice, particularly in university settings.

In a time in Australia's history when diversity is acknowledged and accommodated in civil society in other ways (e.g. disabilities, socio-economic status and indigenous heritage), it is curious that tolerance and accommodation of English language diversity is not reflected in institutional policies, and the traditional nativist view is still held by many Australian ELT practitioners. This view within ELT that places native speakers in the inner circle of Kashru's concentric circles (Kachru, 1985) and categorises all others as deficient, or developing speakers, has been pejoratively termed *native speakerism* (Holliday, 2005).

Native speakerism underpins most past and current approaches to pronunciation instruction. The most extreme reflections of native speakerism in pronunciation teaching is present in methods that go by the title of 'accent reduction', which infers that an accent is something that needs to be *reduced*, a term suggesting NNS are deficient. Practitioners of accent reduction use the term 'enunciation' to suggest that speech sounds can be correct, or incorrect, based on a spurious notion that speech remains stable over time and has a gold standard version that should be taught to those who wish to be on the inner circle of a prestige sociolect such as received pronunciation (RP).

Jennifer Jenkins, a well-known advocate for teaching pronunciation within EIL, faced considerable criticism when she released her manifesto on 'The phonology of English as an international language' (Jenkins, 2000, 2002). While Jenkins' view that NNS pronunciation should focus on NNS to NNS English use in lingua franca contexts has been influential, it has also been widely criticised (e.g. Trudgill, 2005). Many pronunciation practitioners have been challenged ideologically by Jenkins' view that varieties of native speech should *not* be the normative models prescribed for pronunciation instruction. Her general call for tolerance of English interlanguage diversity, constructed mainly from secondary sociolinguistics literature, had a relevance that has become increasingly defendable over time as advocacy for World Englishes has increased (Clyne & Sharifian, 2008; Holliday, 2005; Kirkpatrick, 2007; Levis, 2005; Seidlhofer, 2004; Sharifian, 2009).

A fundamental consideration for teachers of pronunciation is the practical consideration of what to prioritise when time and resources are scarce commodities. Jenkins' (2000, 2002) Lingua Franca Core (LFC), a hierarchy of importance for teaching features of pronunciation, is one system for prioritising features for pronunciation that has received a lot of attention. The LFC precludes certain features of pronunciation based on what she argues to be their lack of relevance for the purposes of international communication amongst NNS of English. She proposed that universally difficult features for NNS, that vary greatly amongst native speaker (NS) varieties of English, such as vowel quality (spectral cues) for example /æ/ versus /e/, do not need to be the focus of instruction. Vowel quantity (temporal cues), on the other hand, such as /iː/ versus /ɪ/, is observed by Jenkins to be of core importance. Consonant pairs such as /θ/ versus /ð/ are classified as too infrequent to be of any concern, despite being featured in most classroom texts on pronunciation. Suprasegmental aspects such as intonation are viewed as largely non-essential for NNS-NNS interaction, especially given the difficulty in teaching intonation for what amounts to minimal gains in productive control of this feature.

We acknowledge the ELF situation in which NNS to NNS interaction is the most common context for most NNS users of English, but there is still a need, and indeed a desire by NNS to interact in NS contexts such as Australia, the United States, and the United Kingdom. In these

NS contexts, NNS interactions with NS tend not to operate with the same degree of accommodation as NSS to NNS interactions (Kirkpatrick, 2007). Taking both sides of the debate into consideration, an alternative approach for pronunciation instruction is suggested in this paper. The approach can be used by NS or NNS teachers of English. In addition, it is one that does not prioritise the features to be taught based on the LFC, or other ranking systems (discussed in the following section). Alternative pronunciation priorities are established; these are personal priorities, or learning goals, expressed by the learners themselves, based on L1-specific and idiosyncratic needs. We propose a learner-centred, needs-based set of priorities that are conceived of by the learner in collaboration with a creative pronunciation instructor who is willing to learn about the phonology of the student's L1 and use the L1 phonology as a reference point and a scaffold for developing the target speech sounds.

This model recognises that, in the Australian university context, international students need orientation towards understanding the English that surrounds them in the learning and speech community they have joined as international students. They are likely to encounter a variety of NS and NNS English dialects, but they are also likely to want to develop confidence in their speech to interact in lectures and tutorials, study groups and socially with peers, the majority of whom will be Australian English speakers with relatively homogenous Australian English dialects.

2. Should we prioritise on the basis of phonological features or individual needs?

There have been several attempts, besides the LFC, to determine a hierarchy of priorities for pronunciation teaching. The belief that some features of pronunciation interfere with communication more than others do has generated many papers on the topic (Brown, 1988; Brown, 2000; Carey & Mannell, 2009; Derwing & Munro, 1997; Gimson & Cruttenden, 1994). Teachers have sought to prioritize the features of pronunciation they teach, and language test developers have had difficulty deciding which pronunciation features should be assessed. Teachers and test developers have also questioned whether the priority should be based on a ranking of discrete phonological features – "intelligibility", or on a global impression of "comprehensibility" (Munro & Derwing, 1999).

Brown (2000) published a survey of the attitudes of 33 ESL teachers, which included NS and NNS, to develop a rank order of 29 pronunciation features. The respondents placed vowel quantity at 13th position ahead of vowel quality at 21st position and suprasegmental features were placed as a higher priority. In contrast, the first author of this paper conducted a survey of 99 (n = 75 NS; n = 24 NNS) International English Language Testing System (IELTS) examiners' priorities for the assessment of pronunciation as an unpublished component of an IELTS research report (Carey & Mannell, 2009). The finding was that the examiners considered individual sounds (vowel quality and quantity as well as consonants) to be of the highest priority, followed in order by word stress, stress timing, linking, focus stress, and finally, intonation.

The priorities above, in combination with earlier priorities recommended by Gimson and Cruttenden (1994), and others that consider the functional load, or frequency, of pronunciation features in naturally occurring discourse, for instance Brown (1988), conclude that pronunciation priorities are contextually and ideologically dependant and therefore subject to considerable variation. Further ideological arguments have centred on whether segmentals or suprasegmentals (Gilbert & Rogerson, 1993), or both in unison (Taylor, 1996; Zielinski, 2008) should be the focus of instruction. But this argument is a false dichotomy when viewed from the pragmatic perspective of L1-specific individual learner needs, rather than from the perspective of EIL and nativist paradigms. This is because each L1 and each individual is likely to vary in the type of segmental and suprasegmental instruction required, depending on the phonological inventory of the learner's L1 and idiosyncratic speech patterns.

Differences in pronunciation teaching priorities are also likely to arise in relation to the amount of exposure to, and familiarity teachers have with, the phonology of various interlanguages.

According to theories of speech perception, listeners store phonetic "prototypes" (Kuhl, 1991) of speech sounds that they refer to when perceptually decoding the speech signal. Through a process of exposure to a language, or interlanguages, adults become language-specific perceivers who are perceptually oriented to best instances of phonetic categories, so this is a source of perceptual variation which has been identified as a validity issue for human rating of pronunciation in high-stakes tests (Carey & Mannell, 2009; Carey, Mannell, & Dunn, 2011; Huang, 2013; Winke & Gass, 2012; Winke, Gass, & Myford, 2012; Yates, Zielinski, & Pryor, 2011). In simple terms, the more social interaction a person has with speakers of a particular dialect, the more capable they are of perceiving it, and inversely, any dialect, regardless of whether it is of the NS or NNS speaker variety, will cause difficulty if it is of a non-familiar variety. Because the ability to perceive second language speech is shaped over time on the basis of exposure and social interaction, it is neither feasible nor useful to propose a common core of pronunciation priorities due to the fluidity and diversity of perceptual experience, and the various phonetic prototypes developed by listeners and speakers. The preceding arguments lead us to the conclusion that pronunciation teachers should base priorities for instruction on the individual needs of learners, instead of basing priorities on the aforementioned prioritisation based on a rank order, or a core of phonological features. This prioritisation of learners' needs, backgrounds and first languages is also supported by recent meta-analyses on pronunciation instruction research (Saito, 2012; Lee, Jang, & Plonsky, 2014).

3. Perception or production first?

A final question regarding pronunciation priorities focuses on whether pronunciation instruction should commence with perception, or if production exercises should come first. The answer to this question resides in the process of L1 speech acquisition. The development of L1 speech stems from a linkage between sensory and motor experience: sensory experience with a specific language establishes auditory patterns stored in memory that are unique to that language; these representations guide infants' successive motor approximations until a match is achieved (Howard & Messum, 2011; Howard & Messum, 2014; Kuhl & Meltzoff, 1996). In addition, when parents show understanding of their child's developing utterances, correct motor production is reinforced and haptic and auditory feedback experienced by the child is also reinforced in their establishment of phonetic prototypes (or exemplars) held in long-term memory. This process is continually reinforced through social interaction until the child becomes fully intelligible to other members of their speech community. Studies showing the enabling role that production practice and haptic awareness plays in the development of perception (Linebaugh & Roche, 2013, 2015; Messum, 2010) suggest that the design of many of our pronunciation course books have been guided by an incorrect assumption, so perhaps production awareness activities and practice should precede perception exercises.

The conventional view of pronunciation training operationalised in popular pronunciation materials, such as the *New Headway Pronunciation* series, is that accurate perceptual discrimination of sounds should be introduced and mastered before commencing articulatory exercises on production. While there is experimental evidence that perception of English phonemes can be improved with intensive listening practice under laboratory conditions (Zhang et al., 2009) there is no empirical evidence to suggest that initiating the learning process with listening practice leads to improved production which can be sustained, and the theory of first language acquisition suggests the opposite is true for language acquisition – phonetic imitation commences with reference to gestural articulatory processes.

For a long time, applied linguists and pronunciation instructors, and many course books, have assumed, based on the writing of some influential commentators (Krashen, 1996; Nation & Newton, 2009; Ridgway, 2000; Scrivener, 2005; Ur, 2008) that phonetic prototypes are initially established through perception and direct imitation of the incoming acoustic signal. However, psycholinguistics and neuroscience studies applying brain imaging technology (Casserly & Pisoni, 2010; Kuhl & Meltzoff, 1996; Kuhl, 2010) – as well as anecdotal accounts by pronunciation practitioners – provide evidence that the articulatory motor system has a role to play in the development of L2 perception through a kind of feedback mechanism involving

referencing of the incoming acoustic stimuli against articulatory gestures. That is, the observation by pronunciation instructors who see little sustained benefit in minimal pair, listen and repeat perception exercises (Jones, 1997; Young & Messum, 2011) can be explained in part by the finding that in infants, perception is also informed with reference to the perceiver's own motor system of physical articulatory gestures, in combination with visual input such as the speaker's lip movement and the proprioception of the infant's babbling (Yeung & Werker, 2013). Moreover, in adult L2 learners, there is evidence to suggest that cognitive awareness training and proprioception exercises in production of phonemes can enhance accuracy in identifying phonetic segments perceptually (Linebaugh & Roche, 2013, 2015).

In response to the question of whether pronunciation instruction should commence with perception, or if production exercises should come first, there is strong evidence that production awareness raising and training is a necessary component and should precede perception training in sequence, and as a priority. Neuroscience research on infant L1 speech development suggests that acquisition of L1 speech involves linking sensory and motor experience (Kuhl, 2010) and it could be that adult L2 learning needs to involve the same processes in order for pronunciation instruction to be effective and to provide outcomes that are sustained over time.

4. The L1 point of reference approach

It is curious that traditional pronunciation instruction involves a nativist approach in which the teacher either knows very little about the L1 phonology of the learner, or does not consider this dimension in any depth in their method of instruction. The phonology of the learner's L1 is often overlooked, or treated superficially, with reference to typical L1 problems, because the focus is exclusively on English phonology, pronunciation modelling and imitation. It is also generally positioned in the outdated pedagogical model of behaviourism (listen and repeat). This paper puts forward a proposal for a new approach to pronunciation instruction in consideration of what has been outlined above and some well-regarded education practices. The approach is called the *L1 point of reference approach* (L1POR). The L1POR acknowledges EIL by making native speaker dialects optional as models. It takes the non-standard view that pronunciation training needs to begin with production practice. We believe that the motor system is actively referenced by the listener in the process of perception "possibly through extension of experiential mapping between the perceiver's own gestures and their acoustic consequences" (Casserly & Pissoni, 2010, p. 11). Therefore, if it can be assumed that articulatory mapping (including proprioceptive and visual input) works in tandem with the acoustic signal, awareness building of articulatory processes needs to be involved in pronunciation instruction from the outset if learning is to be optimised. This view is also held by other pronunciation teachers influenced by Gattegno (1972), such as Underhill (2005) and Young and Messum (2011), who believe that modelling should be limited, and instead learners should be guided to discover sounds through awareness building and experimentation.

The approach involves initially developing the learner's awareness of their own L1 phonology as a scaffold towards developing an acceptable approximation of the target speech sounds. This requires the teacher to have, or develop (at least) rudimentary knowledge of the learner's L1 phonology. This is perhaps a simpler task for teachers who share the learners' L1, that is, NNS teachers in the EFL context. This is good news for EFL teachers who consider themselves an inferior model under the traditional approach. The teacher uses this knowledge to initiate learner metacognition on what needs to be done in terms of articulatory gestures to modify speech production, from that L1 point of reference, towards a modified version of production, which could be a NS dialect if that is what is desired, or towards generalised comprehensibility (Derwing & Munro, 1997). This process involves production practice including a combination of multiple sensory input: articulatory explanation, visual cues such as pictures and videos modelling articulation, real-time acoustic visual feedback for vowels (see Figure 2) and learners reflecting on stored sound memory of L2 prototypes (Carey, 2004). These prototypes could be within working memory (just demonstrated) or long-term memory (by referencing sounds of a familiar, comprehensible and proficient speaker).

We will refer to the first author's earlier study (Carey, 2004) with Korean learners of English to exemplify what we have discussed so far. The study criticises the traditional methodology of teaching segmental distinctions through the contrast of two or more target language minimal pairs. Telling learners that /æ/ has a lower tongue/jaw position than /e/ and that this is the difference between "had/head" is often unhelpful, because the L1 inventory does not contain one or both of these vowels in quality. Learners need a point of reference. One way to provide a point of reference would be to use a universally occurring phoneme from the cardinal vowel quadrilateral. All languages have a close front vowel, a close back vowel, and an open vowel (Lindblom, 1986). These targets could serve as an L1 point of reference for some of the English monophthongs to be acquired, but this is not satisfactory. Australian English (AustE) contains the vowels /e/ and /æ/, /ɔ/ and /oː/ that are positioned midway between these peripheral vowels and are often perceived and produced by Koreans with quality similar to the vowels in their L1 ([ɛ] and [o] respectively). In addition, the central AustE vowel /ɜ/ cannot be usefully described with these peripheral vowels as a reference point.

When students studying phonetics learn the IPA, a most useful (and unavoidable) technique is to think of a new target sound in relation to the phonemic inventory of ones' first language. Similarly, language learners can use the same point of reference and effectively "start from where they are standing" and orient acquisition of a new L2 phoneme from their nearest L1 phoneme. This approach can be successful because learners have tacit (haptic) awareness of their articulatory processes and physical control of their L1 phones (Carey, 2004) and can learn theoretical knowledge to become cognisant of how to produce the target vowel phones, given assistance from a knowledgeable instructor.

For vowels, this theoretical knowledge consists of the position within the cardinal/acoustic vowel space and the degree of tongue height/fronting, lip rounding, spreading, and opening of the target vowels in relation to the nearest L1 vowel. Therefore, using the nearest L1 vowel as a point of reference to orient production towards the new L2 sound, learners can successfully and possibly permanently, add the new sound to their phonetic inventory. This was achieved through Carey's (2004) study for the vowel /æ/ using real-time visual feedback of acoustic spectra in isolated word production in a laboratory setting (see Figure 1) but would require further self-monitoring of speech with authentic exposure to the target speech community to achieve automaticity within continuous speech.

The first task for the instructor and the learner is to identify the relationship that exists between the distinctive features of the L1 inventory in contrast to the target language inventory of features. This can be done for specific first languages through a comparison of features identified by phoneticians in reference works such the *Handbook of the IPA* (1999), practitioner-oriented English pronunciation teaching books such as Underhill (2005) and Rogerson-Revell (2011), or online resources such as the Speech Accent Archive (George Mason University, 2014). Instructors would require fundamental phonetics knowledge to assist students in this process.

The L1POR was developed from an acoustic analysis of (N = 40) Korean vowels and (N = 40) AustE vowels by Carey (2002) to determine the most likely L1 vowel candidates that influenced the neighbouring AustE vowels, and were thereby predicted to influence production of the target vowel (see Figure 2).

This acoustic information was used to select L1 Korean vowels to use as a point of reference and develop an understanding of how these contrast with the closest related AustE target vowel in acoustic space. Then, in the following intervention experiment (Carey, 2004) the Kay Sona-Match program was used to train learners to orient their real time production of vowels towards an AustE produced vowel prototype. Unique vowel prototypes were generated for each Korean participant by matching an Australian speaker with the same gender, height and similar fundamental frequency (i.e. voice pitch) (see Figure 1).

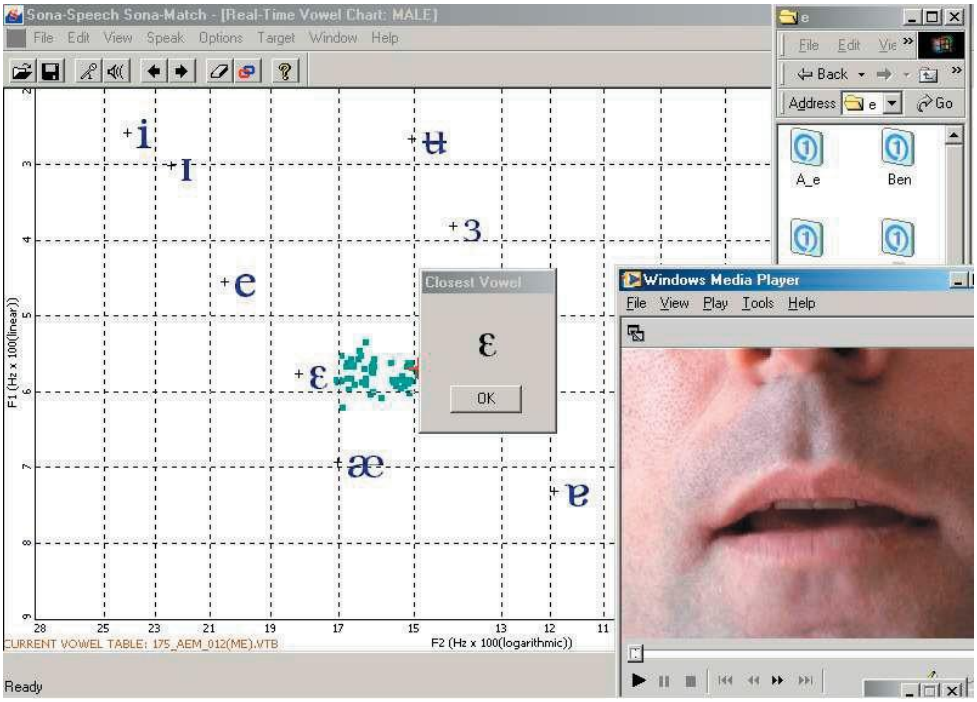

Figure 1. Multisensory visual feedback displaying the learners' acoustic production when attempting to say the vowel /æ/ in 'had' (the dots). The learner was also provided with other audio and visual sensory input via a video of the first author saying 'had' and the /æ/ token vocalised continuously. The learner could choose to turn off the model sound after listening once, and just use the visual lip cue to reinforce emulation, rather than imitation. The real-time display shows that the participant is producing something closer to their Korean production of the vowel /ɛ/ in contrast to the AustE template vowel. Lowering their tongue position towards the target vowel would later produce a real-time plot on the acoustic F1/F2 plane of /æ/.

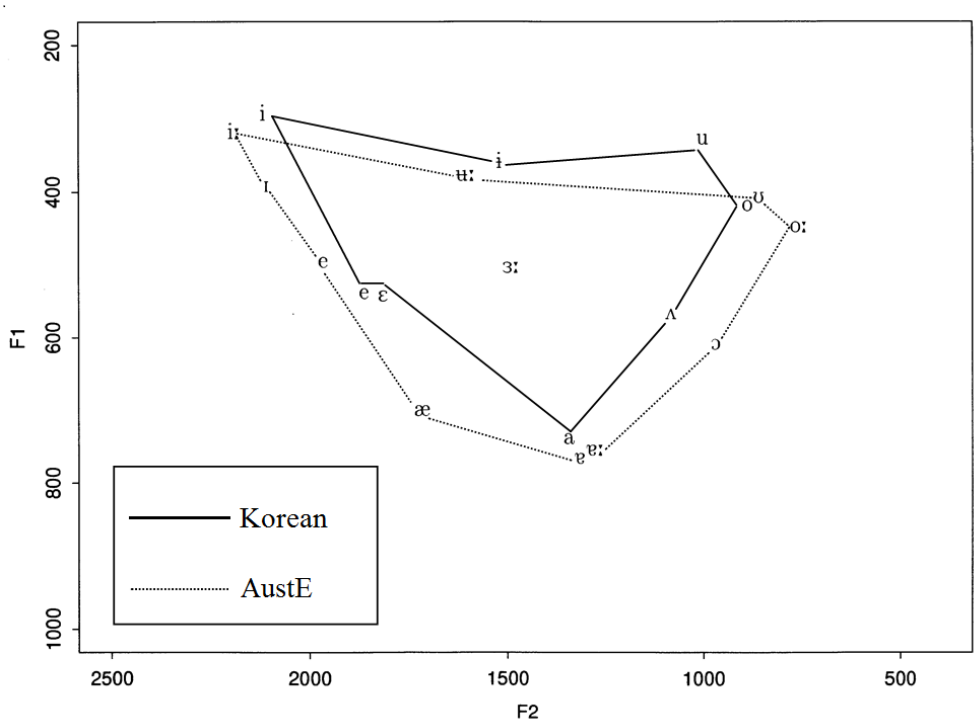

Figure 2. Acoustic analysis of mean Korean male vowels and AustE male vowels.

5. Metacognitive strategies participants used to modify their vowels

Some of the Koreans in Carey's (2004) study found it useful to locate their production of a vowel close to the AustE template vowel by producing the vowel in isolation from the word context before attempting the word. For example, if the word was "world" they would first produce short bursts of the sound [ɜ]. When learners were satisfied that their production had approximated the target, instead of going back towards Korean [o], they would attempt the sound in context. When they attempted the word at a later stage, perhaps after attempting another word, they would just say "world" without first orienting themselves to the target by saying the isolated sound. In doing so, the participants were testing their "sound memory" with reference to the visual feedback of their production in Sona-Match.

One female Korean, who was married to a native AustE speaker, reported that she found it useful to think of the way her husband said a word as she said it. This participant was relying on stored sound memory recorded from the production of another speaker to orient herself to the target. This type of imitation by recall was effective for high frequency words such as "back" for /æ/ production, but she often did not have the same resource for lower frequency words.

Many participants mentioned an articulatory difference they noticed in the model video of the AustE sound /æ/ and their closest Korean vowel /ɛ/ when they used a mirror to compare their tongue position to that of the AVI model. They reported that the tongue (blade and body) in the AustE model appeared to rest at the bottom of the mouth, while they could feel their tongue was in a high position that did not change when they attempted to approximate /æ/ by lowering their jaw. This type of reflection was made possible only because they could see the acoustic result of their attempt was higher than the AustE /æ/, in the Sona-Match program which led them to form a hypothesis regarding their tongue position. Once the participants realised this difference, they could then move on to attempting a lower tongue position while maintaining the same amount of jaw opening. All of the participants in the test group managed to do this for isolated words.

Telling the participants to imitate the AustE lip rounding cue for /ɜ/ resulted in them producing a spectral position near Korean /o/. The participants were classifying /ɜ/ as equivalent to their nearest rounded L1 vowel. This was prompted by the physical lip rounding cue in the AustE video model of /ɜ/. To rectify this, it was suggested that /ɜ/ be produced like the similar American English /ɚ/ with slightly spread lips. The procedure to add the new category was a combination of first asking participants to produce schwa /ə/ and an analogy. The participants were told to "imagine your tongue is a dead fish in your mouth" and then to vocalise. First, the participants were asked to produce a central schwa-like vowel. When they could produce the /ɜ/ sound in isolation they could then go on to produce it in citation form in words such as 'bird' and carrier sentences such as 'say bird again' in contrast with 'say bored again'.

These were just some of the metacognitive strategies employed by participants in association with the L1POR approach that evolved through the study. For more detail on the learner, and also instructor strategies, developed through the Sona-Match intervention study, see Carey (2004).

6. Some techniques that align with the L1 point of reference approach

Some current techniques that act as alternatives to intuitive imitative (listen and repeat) methods of instruction and utilise sensory-motor input and metalinguistic reflection (learner centred metacognition) aligning with the L1 point of reference approach are discussed next. It is hoped, much as what has happened with the communicative approach to language teaching, that the L1POR becomes a general approach upon which aligned techniques and methods can be creatively developed by teachers and learners. Other than computer assisted visual feedback of acoustic displays (Carey, 2004) and low-tech versions of this using small mirrors, some other techniques that align with the L1POR are the following: reflective journals (Lear, 2013); socially constructed metalanguage (Couper, 2013); kinaesthetic reconceptualisation through drama voice training techniques (Copeman, 2012); Gattegno's Silent Way for pronunciation instruction (Gattegno, 1972; Young & Messum, 2011); and other production focused activities (Underhill, 2005).

Reflective journals (Lear, 2013) can be used by learners as a tool for reflection and realistic goal setting that systematises the formation and testing of hypotheses about their pronunciation needs. Journals can be used to actively reflect on learning and strategize new actions to meet pronunciation goals, with the guidance of a knowledgeable teacher who can also benefit from the insights provided by their learners' journal entries. This tool could work well to assist the L1POR approach by giving both learners and teachers a continuous record of cognitive processes, learning strategies and goals.

Socially constructed metalanguage (Couper, 2013) is an aligned strategy that involves students' verbalising their metacognitive insights within the classroom. Used in combination with reflective journals, these two techniques would assist the learner and the teacher to have a more transparent and open dialogue about the reflective process, and both techniques place the learning more centrally in the learner's cognitive domain, involve social interaction between the teacher and the learner(s), and between the learner(s). They also decrease anxiety and increase motivation.

Copeman (2012) uses voice training techniques and kinaesthetic feedback to assist learners to improve their segmental intelligibility. Copeman has experimented with several voice training techniques commonly used by actors to focus students' attention on posture, the "resetting" of articulatory settings through kinaesthetic speech and breathing exercises, and techniques involving paralinguistic features such as gestures, social distance and body language. Copeman's techniques help learners to reconceptualise their production of individual vowel and consonant sounds by encouraging them to focus on particular *interim sounds* on the way to facilitating the production of target sounds. For instance:

> Learners who pronounce 'were' as 'war' (/wɔː/) can be guided to an interim step using 'wear' (/weə/) instead of 'were': work = wear/k. The important effect for learners is to hear and make, for the first time, a different approximation from the habituated one (p. 24).

Copeman's techniques could be framed within the L1POR with a more explicit focus on the first language phonology to enhance the effectiveness of what he does with the introduction of interim sounds from English. These interim sounds could also be L1 sounds.

Young and Messum (2011) build upon Gattegno's Silent Way (1972) to suggest that teachers should approach pronunciation teaching silently. Messum and Young's (2012) view is that students' speech will develop as a result of the practice that they do outside the class, so pronunciation work that learners do in the classroom should be something that they can take to the outside community. The departure of the Silent Way from traditional approaches to pronunciation may cause some uncertainty on the part of teachers and learners. Learners are encouraged to emulate (rather than imitate) sounds through experimentation with the aid of coloured rectangles – or in a more recent modification for teachers who are resistant to changing their mode of operation – through IPA symbols. The teacher's role is not to model speech, but instead, as much as possible, to remain silent and to give the students feedback on their production. Learners are given the opportunity to become acquainted with their own articulators without being distracted by the teacher's model. This approach compliments the L1POR in that it emphasises the importance of the learner focusing on their articulators and experimenting with their production without direct reference to a native speaker model.

Other approaches, such as those offered by Underhill (2005) in his book *Sound Foundations*, share some of the assumptions underlying pronunciation teaching that are proposed by the Silent Way, as well as the L1POR. Underhill (2005) believes that pronunciation is a motor skill, and that learners need to become familiar with the muscles that make a difference for their pronunciation. Although Underhill does not seem to share the same criticism towards 'listen and repeat' as Messum (2010), he shares the view of the L1POR that production should precede perception practice.

The abovementioned techniques are just some of the creative techniques that might align with the L1POR. Good teaching is creative and flexible in design to cater for the needs of diverse learners, so we recommend the L1POR be used as the basis for many more techniques that

could evolve creatively in support of the needs of diverse learners. This paper has focused mainly on pronunciation of vowel sounds, which are notoriously difficult to modify in contrast to consonant sounds. However, the L1POR is also effective when applied to consonant contrasts with minimally distinctive features. Two recent quasi-experimental studies (Linebaugh & Roche, 2013, 2015) showed that production awareness techniques based on a contrast of the L1 phonology with the target, significantly improved Arabic speaker perception of various phonetic contrasts due to the initial production training, compared to a control group which did not receive the production training. Linebaugh and Roche provide evidence of the importance of using production activities to enhance perception activities and also suggest that perceptual discrimination activities on their own are not as effective as activities which first develop awareness of the differences between the L1 and the target features.

In conclusion, the L1POR is an approach that aims to give rise to many new techniques that adopt it as an underlying philosophy. It aims to encourage teacher creativity, flexibility, and a non-nativist approach to pronunciation instruction by offering practical learner-centred alternatives to 'listen and repeat' to pronunciation practitioners. We have argued that speech production needs to precede perception training within the sequence of instruction through motor-sensory awareness and models of speech perception and production to justify the departure from native English modelling, listening exercises and imitation, towards raising awareness of individual learner needs with a focus on production. The approach initially develops the learner's physical awareness of their L1 phonology as a scaffold towards developing an acceptable approximation of the target speech sounds. We emphasise the importance of learners becoming metalinguistic about their pronunciation needs, and the realisation that they are their own best teachers, given a little guidance from an instructor who is familiar with the learner's L1 phonology.

References

Brown, A. (1988). Functional load and the teaching of pronunciation. *TESOL Quarterly, 22*(4), 593-606.

Brown, A. (2000). Priorities in pronunciation teaching: responses from Singaporean trainee teachers and international experts. In A. Brown, D. Deterding & E.L. Low (Eds). *The English Language in Singapore: Research on pronunciation* (pp. 121-132). Singapore: Singapore Association for Applied Linguistics.

Carey, M.D. (2002). *An L1-specific CALL pedagogy for the instruction of pronunciation with Korean learners of English* (Unpublished doctoral thesis). Macquarie University, Australia.

Carey, M. (2004). CALL visual feedback for pronunciation of vowels: Kay Sona-Match. *CALICO Journal*, *21*(3), 571-601.

Carey, M.D., & Mannell, R.H. (2009). Interlanguage phonology accommodation contributes to inter-examiner variation when rating pronunciation in oral proficiency interviews. *IELTS Research Papers*, *9*, 217-236.

Carey, M.D., Mannell, R.H., & Dunn, P.K. (2011). Does a rater's familiarity with a candidate's pronunciation affect the rating in oral proficiency interviews? *Language Testing, 28*(2), 201-219.

Casserly, E.D., & Pisoni, D.B. (2010). Speech perception and production. *Wiley Interdisciplinary Reviews: Cognitive Science*, *1*(5), 629-647.

Clyne, M. & Sharifian, F. (2008). English as an international language: challenges and possibilities. *Australian Review of Applied Linguistics, 31*(3), 28.1-28.16.

Copeman, P. (2012) Performing English: Adapting actor voice training techniques for TESOL to improve pronunciation intelligibility. *English Australia Journal, 27*(2), 17-33.

Couper, G. (2013). Talking about pronunciation: Socially constructing metalanguage. *English Australia Journal, 29*(1), 3-18.

Crystal, D. (2008). Two thousand million? Updates on the statistics of English. *English Today, 24*(1), 3-6.

Derwing, T.M., & Munro, M.J. (1997). Accent, intelligibility, and comprehensibility. *Studies in second language acquisition, 19*(1), 1-16.

Gattegno, C. (1972). *Teaching foreign languages in schools: The silent way*. New York: Educational Solutions Worldwide Inc.

George Mason University. (2014). *Speech accent archive*. Retrieved from http://accent.gmu.edu/browse.php

Gilbert, J.B., & Rogerson, P. (1993). *Speaking clearly*: *Pronunciation and listening comprehension*. *Student's book*. New York: CUP.

Gimson, A.C., & Cruttenden, A. (1994). *Gimson's pronunciation of English (*5th ed.). London, UK: Edward Arnold.

Harrington, J., Palethorpe, S., & Watson, C.I. (2000). Does the Queen speak the Queen's English? *Nature, 408*, 927-928.

Holliday, A.R. (2005). *The struggle to teach English as an international language*. Oxford, UK: Oxford University Press.

Howard, I.S., & Messum, P. (2011). Modelling the development of pronunciation in infant speech acquisition. *Motor Control, 15*(1), 85-117.

Howard I.S., Messum, P. (2014). Learning to pronounce first words in three languages: An investigation of caregiver and infant behavior using a computational model of an infant. *PLoS ONE*, *9*(10), 1-21.

Huang, B.H. (2013). The effects of accent familiarity and language teaching experience on raters' judgments of non-native speech. *System, 41*(3), 770-785.

International Phonetic Association. (1999). *Handbook of the International Phonetic Association*. Cambridge, UK: Cambridge University Press.

Jenkins, J. (1995). *Variation in phonological error in international talk* (Unpublished doctoral thesis). University of London, UK.

Jenkins, J. (2000). *The phonology of English as an international language*. Oxford, England: Oxford University Press.

Jenkins, J. (2002). A sociolinguistically based, empirically researched pronunciation syllabus for English as an international language. *Applied Linguistics, 23*(1), 83–103.

Jones, R.H. (1997). Beyond "listen and repeat": Pronunciation teaching materials and theories of second language acquisition. *System, 25*(1), 103-112.

Kachru, B. (1985). Institutionalized second language varieties. In S. Greenbaum (Ed.). *The English language today* (pp. 211-226). Oxford, UK: Pergamon.

Kirkpatrick, A. (2007) *World Englishes: Implications for international communication and English language teaching*. Melbourne, Australia: Cambridge University Press.

Kuhl, P.K., & Meltzoff, A.N. (1996). Infant vocalizations in response to speech: Vocal imitation and developmental change. *Journal of the Acoustical Society of America, 100*, 2425–2438.

Kuhl, P.K. (2010). Brain Mechanisms in Early Language Acquisition. *Neuron, 67*(5), 713-727.

Krashen, S.D. (1996). The case for narrow listening. *System, 24*(1), 97-100.

Lear, E. (2013). Using guided reflective journals in large classes: Motivating students to independently improve pronunciation. *The Asian EFL Journal Quarterly*, *15*(3), 113-137.

Lee, J., Jang, J., & Plonsky, L. (2014). The effectiveness of second language pronunciation instruction: A meta-analysis. *Applied Linguistics*. doi:10.1093/applin/amu040.

Levis, J.M. (2005). Changing contexts and shifting paradigms in pronunciation teaching. *TESOL Quarterly, 39*(3), 369-377.

Liberman, A.M., & Mattingly, I.G. (1985). The motor theory of speech perception revised. *Cognition, 21*(1), 1-36.

Lindblom, B. (1986). Phonetic universals in vowel systems. In J. Ohala & J. Jaeger (Eds.). *Experimental phonology* (pp. 13–44). Orlando, USA: Academic Press.

Linebaugh, G., & Roche, T. (2013). Learning to hear by learning to speak: The effect of articulatory training on Arab learners' English phonemic discrimination. *Australian Review of Applied Linguistics, 36*(2), 146-159.

Linebaugh, G., & Roche, T. (2015). Evidence that L2 production training can enhance perception. *Journal of Academic Language and Learning, 9*(1), A1-A17.

Messum P.R. (2010). Understanding and teaching the English articulatory setting. *Speak Out! The Newsletter of the IATEFL Pronunciation Special Interest Group, 43*, 20-24.

Moore, H. (1997). Learning pronunciation and intonation of Japanese through drama by beginning language students: A case for reflective journals. *JALT Journal, 19*(2), 235-259.

Munro, M., & Derwing, T. (1999). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning, 49*, 285-310.

Nation, I.S.P., & Newton, J. (2009). *Teaching ESL/EFL Listening and Speaking.* New York, USA: Routledge Publisher.

Richards, J.C., & Schmidt, R. (2010). *Longman Dictionary of Language teaching and Applied Linguistics* (4th ed.). Harlow, UK: Longman.

Ridgway, T. (2000). Listening strategies – I beg your pardon? *ELT Journal, 54*(2), 196-197.

Rogerson-Revell, P. (2011). *English phonology and pronunciation teaching*. London, UK: Continuum Press.

Saito, K. (2012). Effects of instruction on L2 pronunciation development: A synthesis of 15 quasi-experimental intervention studies. *TESOL Quarterly, 46*(4), 842-854.

Seidlhofer, B. (2004). Research perspectives on teaching English as a lingua franca. *Annual Review of Applied Linguistics, 24*, 209-239.

Sharifian, F. (Ed.). (2009). *English as an international language: Perspectives and pedagogical issues*. London, UK: Multilingual Matters.

Scrivener, J. (2005). *Learning Teaching*. Oxford, UK: Heinemann.

Taylor, D.S. (1996). Demystifying word stress. *English Today, 12*(04), 46-52.

Trudgill, P. (2005). Native speaker segmental phonological models. In K. Dziubalska-Kołaczyk & J. Przedlacka (Eds.). *English pronunciation models: A changing scene*. Berne, Switzerland: Peter Lang.

Underhill, A. (2005). *Sound Foundations*. London, UK: Macmillan.

Ur, P. (2008). *A Course in Language Teaching: Practice and theory*. Cambridge, UK: Cambridge University Press.

Winke, P., & Gass, S. (2012). The influence of second language experience and accent familiarity on oral proficiency rating: A qualitative investigation. *TESOL* Quarterly, *47*(4), 762-789.

Winke, P., Gass, S., & Myford, C. (2013). Raters' L2 background as a potential source of bias in rating oral performance. *Language Testing, 30*(2), 231-252.

Yates, L., Zielinski, B., & Pryor, E. (2011). The assessment of pronunciation and the new IELTS pronunciation scale. *IELTS Research reports, 12*. Melbourne, Australia: IDP: IELTS Australia and British Council.

Yeung, H.H., & Werker, J.F. (2013). Lip movements affect infants' audiovisual speech perception. *Psychological Science, 24*(5), 603-612.

Young, R., & Messum, P. (2011). *How we learn and how we should be taught: An introduction to the work of Caleb Gattegno*. London, UK: Duo Flumina.

Zielinski, B.W. (2008). The listener: No longer the silent partner in reduced intelligibility. *System, 36*(1), 69-84.