THE WEIGHT OF PHONOLOGICAL VS. PHONETIC ACCENT IN TEACHING PRONUNCIATION: IMPLICATIONS AND APPLICATIONS [1]

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Abstract: Teaching pronunciation especially in Second Language (L2) and Foreign Language (FL) learning situations has traditionally involved some haphazard practices and procedures such as dealing with it mechanically and exclusively through modeling by the instructor and repetition by the learner as if speech is a mechanical skill and the exclusive function of the auditory sense. Moreover, teaching pronunciation in those situations has often failed to focus on aspects that are more important for effective and efficient communication and comprehension. Generally speaking, this paper is an attempt at shifting the pedagogy of teaching pronunciation in the cognitive direction since speech is physical only at its surface structure, but distinctly cognitive at its deep structure with the brain being at the helm of the efficient process of speech. This pedagogical shift is premised on two major principles. First, it promotes a *multisensory* (auditory, visual, tactile-kinesthetic) and *multicognitive* (think, associate, analyze, synthesize etc...) *approach* (MMA) to replace the exclusively auditory one and build sets of teaching and learning strategies based on those three senses to function jointly whenever relevant. Second, to respond to the failure to secure efficient pronunciation with no or with minimum accent, the dichotomy of phonological accent vs. phonetic accent is introduced. *Phonological accent* results from mispronunciations that lead to radical semantic (meaning) change, whereas *phonetic accent* rarely interferes with meaning. From a didactic perspective, priority in teaching L2 or FL pronunciation should be geared in the direction of overcoming phonological accent first and then work on phonetic accent.

Keywords: Teaching pronunciation and the MMA; phonetics; phonology; phonetic and phonological accent; implications and applications

1 - Introductory remarks

In any general course in linguistics, learners are exposed to the structure and system of human language. More often than not, the disciplines of *phonetics* and

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phonology are dwelt upon to different degrees of breadth and depth depending on the design of the course and its targeted audience. Phonetics is often introduced as the study of human capabilities for speech sounds production. In contrast to phonetics, phonology is dwelt on as the sound system of a given language with focus on sound contrasts and patterns that trigger semantic differences. Based on this distinction each language may have thousands of sounds that occur in various contexts within words, whereas the number of sound units that trigger semantic differences is usually very limited—often between twenty (20) and forty (40). The units in phonetics are simply known as 'sounds' or allophones, whereas those of phonology are known as 'sound units' or phonemes. Thus, each phoneme is supposed to have as many allophones as the number of contexts in which it occurs.

A different way to look at the concepts of 'allophone' and 'phoneme' is to envisage the former as a physical (concrete) entity produced by the vocal tract of the speaker as opposed to a cognitive (abstract) entity encoded and signaled by the brain of the speaker and decoded by the brain of the listener. Failing to linguistically and pedagogically understand the differences between the *concrete* nature of speech sounds and their *abstract* one results in serious failure in teaching pronunciation, especially to adults learning a second language (L2). It is the abstract vs. concrete nature of speech that dictates the instructional dichotomy of 'phonological accent' vs. 'phonetic accent' in teaching pronunciation which is the focus of this study. The next sections will elaborate on the dichotomy and highlight its pedagogical implications and applications.

2 - Speech, an intricate socio-cognitive potential

Speech is a socio-cognitive species-specific potential that only human beings are genetically endowed with. Such a unique potential is impossible without a powerful brain. Consequently, since human speech with all its phonemes and the rules that govern them originate in the brain then all those phonemes and rules must be neuronized (encoded in the brain) to have an abstract cognitive base. Once the brain (cognitive base) fires its commands to formulate meaningful utterances, the relevant speech organs are set into action (physical phase). With the initiation of the articulatory maneuvers, air is perturbed and appropriate pressures are built up (aerodynamic phase) generating all types of air turbulence that give birth to different forms of noise and voice (acoustic phase). It is these acoustic signals that are transmitted to the ear of the listener who, in turn, conveys them to the brain for decoding (cognitive phase). Thus, speech is a cycle of cognitive activity that is encoded and initiated in the brain of the speaker and received and decoded in the brain of the listener

3 - Physical and abstract nature of the phoneme

In the modern history of linguistics the concept of 'phoneme' has been quite controversial. Nathan (2006), citing other authors, summarizes the history

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of the phoneme especially with regard to its abstract or physical identity. He mentions, quoting Krámský (1972), that originally, the concept was introduced by Baudouin de Courtenay as "the representational area of individuals' linguistic consciousness—the psychic equivalent of a sound". Nathan interprets the quotation as an *abstract mental* image. Later, the views of some of the American structural linguists are presented foremost of whom are those of Bloomfield as a proponent of the *physical* (concrete) nature of the phoneme as opposed to Sapir who emphasized its mentalistic (abstract) nature quite similar to that of Baudouin de Courtenay.

Since this study is pedagogy-oriented and didactics-geared with primary focus on the acquisition of one's native language (L1) phonology as well as the learning and teaching of the phonology of an L2 especially by/to adults; both the physical and the abstract nature of the phoneme will be relevant on three conditions. *First*, speech should not simply be considered a bidimensional 'audio-lingual'[2] activity; rather, it should be treated as a multidimensional process in perception, recognition and production (PRP). Stated differently, it should be treated as a multisensory and multicognitive (Odisho 2007a) process both as input and output. *Second*, speech should not be assessed exclusively from the perspective of the *acquirer* (of L1), but also of the *learner* (of L2). *Third*, similarly, speech should not be judged from the perspective of the s*peaker*, but also of the *listener*. As will be elaborated on in the forthcoming sections, if all those conditions are taken into consideration the cognitive (abstract) and the physical (concrete) nature of the phoneme will be accommodated for in the process of L1 acquisition and L2 learning/teaching.

Because the PRP triplet[3] will be repeatedly used in promoting the cognitive approach to teaching pronunciation, a brief clarification of the terminology is invaluable. *Perception* is used to denote the condition of feeling and sensing the presence of a given sound; *recognition* includes the condition of perception as well as the condition of being able to distinguish the given sound from others and, perhaps, identify the difference(s) in comparative/contrastive situations. As for *production*, it satisfies the above two conditions of perception and recognition in addition to the ability to retrieve the sound and reproduce it at will with an acceptable degree of proficiency and accuracy. In terms of actual learning, the triplet of PRP corresponds with *registration*, *retention* and *retrieval*, respectively. In standard literature on learning, *registration* refers to the perception, encoding and neural representation of stimuli at the time of an original experience; *retention* is the neurological representation of an experience to be stored for later use; and *retrieval* is the permit to access previously registered and retained information (Arnold 1984; Levitt 1981).

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2 - The term has nothing to do with the so-called 'audio-lingual' approach to teaching language emerging in mid-1950s in North America. In this context, it simply means 'the tongue articulates and the ears listen'. Human speech acquisition and learning are far more complex.

3 - Stands for Perception, Recognition and Production or for their verb forms.

4 - Principle of economy determines the concrete and abstract nature of human speech sounds

No doubt, the number of physical sounds that the human vocal tract can produce is virtually infinite. However, and in as much as language is concerned, this profusion in physical sound generation is incompatible with the dominating tendency of the brain towards economy in both physical and mental activities. One of the most salient attributes of human cognitive existence is the twin-nature of the brain as *conscious* and *subconscious*. It is, therefore, logical and substantiable to say that the human brain dichotomy of conscious-subconscious has been one of the main evolutionary developments that gradually evolved to manage, administer and execute millions of biological, social and cultural functions that humans have to successfully perform in order to survive healthily and rationally. One such fundamental function of the brain is language; indeed, without a highly sophisticated brain there would be no language. Furthermore, without the dichotomy of conscious and subconscious brains, language would be too much of a mental burden on the conscious brain to be able to handle so smoothly and effortlessly. Thus, the only way out is the transfer of most of the processes and dynamics of speech management to the subconscious brain through the cognitive process of neuronization. The transfer of sound impressions from the conscious brain to the subconscious has to progress step by step through the channels of sensory memory to short-term memory to be registered in long-term memory. Once in long-term memory, the more they are repeated the better their stabilization in the subconscious brain. In other words, language acquisition as a child, in general, and learning it as an adult, in particular, are processes of mental (cognitive) habit formation (Odisho 2003). It is common knowledge to say that "whenever anything has been repeated a sufficient number of times to have become habitual, it becomes second nature, or rather a subconscious action" (Larson 1912). Such transformation of mental burden from the conscious brain to the subconscious is the greatest relief that nature has ever bestowed upon human beings.

4.1 - Phoneme abstract in brain, concrete in mouth

It has been hinted earlier on that the manner in which the human brain functions is governed by the principle of economy in conscious effort. This principle should make it crystal-clear that any activity that is essential for physical, mental or social survival of humans must be neuronized to require minimum effort and time. The almost century-long argument as to whether the 'phoneme' is an abstract (cognitive) entity or a concrete (physical) one should not have arisen in the first place as speech is one of the most subconsciously habitual activities that is exclusively human. Consequently, its minimal units (phonemes) and basic rules governing them have to be neuronized. The neuronization of phonemes for immediate and instantaneous PRP in L1 is a grand system of economy in both

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mental and physical effort. The fact that human speech apparatus can hypothetically generate an infinite number of sounds (Catford 1977, 1994) raises two questions. *First*, does human language need that many sounds to generate speech? *Second*, does the brain, which has thousands of other biological functions to handle, like to stock up several hundreds if not thousands of speech sounds, the differences between which are at times minuscule? The answer to both questions is 'no'. In the first instance, the generative design of speech requires only tens[4] of phonemes. This very limited number of phonemes has to be applied in a *recursive* manner in different combinations. In actual speech, each phoneme assumes different *allophones* depending on the context in which the phoneme appears. Unlike the phonemes, which have to be mental in nature, the allophones are concrete (physical) in nature because they occur in actual speech that is transmitted to the ear of the listener for decoding. One of the primary reasons that justifies the creation of the disciplines of 'phonology' and 'phonetics' is the difference in the nature and function of phonemes and allophones.

4.2 - Phonemes and allophones relative to speaker and listener

In order to elaborate on the relationships of phonemes vs. allophones, on one hand, and the speaker vs. listener on the other hand, the foremost fact to be considered is whether the speaker and listener belong to the same language or to two different languages or even to two different dialects within the same language. If they are speakers of the same language variety, then they have no difficulty in PRP the same phonemes and other speech components. Contrary to this, if speaking occurs cross-language then it is quite likely for one interlocutor to fail to PRP the phonemes that are typical of one language only. This is because the neuronization process of the phonemes of a given L1 results in the creation of a specific phonological filter for that L1. Consequently, this L1-specific filter is likely to fail to PRP the L2 phonemes that are alien to it. It is even likely to fail to PRP the phonemes of L2 that happen to have an allophonic variant in L1. Let us cite some concrete examples to illustrate the effect of language-specific phonology filter. A native speaker of English whose plosive phonemes /p, t, k/ are typically aspirated [pʰ, tʰ, kʰ] fails to PRP their Spanish unaspirated counterpart phonemes [p, t, k] although English does have the unaspirated *allophonic* versions as in the s-initiated consonant clusters <s<u>p</u>in>, <s<u>t</u>ick> and <s<u>k</u>im>.

There are two significant inferences that are drawn from the above observations. *First*, it is the phonological filter of a given language that determines which of the phonemes of L2 will be difficult to PRP. This happens by completely blocking the alien phonemes from passing through the filter because it fails to recognize

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4 - Most of the languages throughout the world have less than 40 phonemes or just slightly more. For more specific details, consult: Ladefoged and Maddieson's (The sounds of the world languages) 1995.

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them. At times, the filter misidentifies them as native phonemes due to phonetic similarity and allows them in. With Hispanic learners of English, the /v/ phoneme is consistently misidentified as /b/ and stored in the same slot. The foremost consequence of this misidentification is phonological accent in light of which all English /v/s are rendered /b/s. *Second*, there is evidence that the phonological filter of L1 does not store all the allophones of its phonemes no matter how perceptible they are. This is why L1 natives fail to PRP the phonemes of L2 in spite of the existence of their allophonic variants in their L1. The above examples of unaspirated variants of the English plosives fail to enable native English speakers to PRP the unaspirated plosives phonemes of Spanish.

5 - Phonetic accent vs. phonological accent

This distinction of phonetic accent vs. phonological accent was implemented in real classroom situations for teaching cross-language pronunciation in early 1990s which later appeared in print (Odisho 2003 and later). The longer implemented, the greater was the opulent and positive feedback received from learners representing a wide variety of linguistic backgrounds. Phonological accent represents sound substitutions that directly result in semantic confusion in words as well as in sentences, whereas phonetic accent may not result in semantic confusion directly, but it may generate noise or uncertainty that may interfere with proper conveyance of meaning. To demonstrate, a Hispanic learner of English may fail to produce the standard approximant (frictionless continuant) /r/ as in the word <rat>, but the failure will not change its meaning; it will simply give a somewhat different phonetic perception. In a reversed linguistic situation if a native speaker of English learning Spanish fails to distinguish between the words <pero> (but) and <perro> (dog) the result is phonological accent. The two words are semantically set apart by two different phonetic realizations of <r>, namely a tap <ʀ> = [ɾ] versus a rolled one <rr> = [r]. If the expression of meaning is the main purpose of speech then the focus on phonology in teaching pronunciation should be the primary target followed by focus on overall phonetic accuracy to lessen the cumulative noise that ensues from phonetic mispronunciation. No doubt, cumulative phonetic noise can really conceal the semantic identity of the targeted word or discourse. Let us shed some light on the last point. Suppose an adult native speaker of Spanish is learning English and he/she accidentally came across the word 'color'. Obviously, not knowing how to pronounce the word, he/she is tempted to apply his own orthographic and/or pronunciation rules and the outcome is [koˈlor] rather than [ˈkʰʌlɚ] or [ˈkʰʌlə][5]. There are several serious sources of noise between the actual pronunciation and the intended one foremost of which are the following:

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5 - American English [ˈkʰʌlɚ]; British English [ˈkʰʌlə]

● Stress placement is different: first syllable for English and second for Spanish;

● The <c> grapheme in English is pronounced as a voiceless *aspirated* velar plosive [kʰ], whereas in Spanish it is a voiceless *unaspirated* velar plosive [k];

● The two <o> vowels in Spanish retain the 'traditional vowel quality' of [o], whereas in English the 'traditional vowel quality' completely drifts away in both instances into [ʌ] and [ə] vowels, respectively;

● The <l> in English under the influence of the [ʌ] tends to be somewhat verlarized or what is traditionally identified as 'dark L', whereas in Spanish it has no velarization (i.e., it remains a 'clear-L'); and

● The <r> in English is a retroflex approximant that coalesces with the preceding schwa vowel [ə] to produce an 'r-colored vowel' [ɚ].

If one puts all those bits of inaccurate pronunciation together the phonetic noise will be enough to conceal the identity of the intended word.

6 - Implications

The portrayal of all the above points and their discussion were made to set priorities in teaching effective and efficient cross-language pronunciation especially for adults embarking on L2 learning. Some of the major implications of the discussions are:

a) It is the brain that manages the perfect and smooth internalization of pronunciation through the process of neuronization and the transmission of what has been neuronized of sounds and governing rules from the conscious brain to the subconscious. After this process of neuronization, a phonological filter is established. Any learning of an L2 sound in adulthood that has no representation in L1 phonological filter[6] needs to be introduced to the brain to internalize it and consequently enhance the L1 filter to become L1 phonology-plus.

b) The neuronization of tens of phonemes rather than thousands of allophones is a process that is compatible with the rule of 'economy in effort' both mental and physical. This is why nature has exceptionally endowed human beings with a powerful subconscious brain. If the brain were to handle speech through its thousands of allophonic variants, it would be very vulnerable to confusion; instead, it functions smoothly with only tens of meaning-triggering phonemes.

c) Generally speaking, when the human brain is in the process of decision-making, it does not just depend on one sensory source; rather, it manipulates all the relevant senses to gather as much information as possible. The analogy of 'all roads lead to Rome' applies here because all the senses meet in the brain; besides,

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6 - For short 'L1 filter' is used.

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receiving data from different sensory channels provides the brain with a far more accurate and gestalt conceptualization of the targeted sounds. In adult L2 cross-language pronunciation classes, the instructor should not take for granted that the auditory modality will do the job of teaching sounds alien to L1. With certain sounds, especially the so-called 'visual sounds' such as [p, b, f, v, θ, ð] etc…the eye can see as much as the ear can hear. In order to ascertain that the L2 targeted sound is really perceived and recognized by the learners, the instructor should familiarize the learners gradually with the targeted sound using different exercises premised on different instructional modalities. The process of the enhancement of the L1 phonological filter should manipulate a variety of multisensory (auditory, visual, tactile/kinesthetic/proprioceptive)[7] and multicognitive (think, remember, associate, compare etc…) modalities. Always remember, it takes time for adults to enhance L1 filter. It is quite difficult for adults, except if they are phonetically trained/gifted, to enable their L1 filter to PRP alien sounds instantaneously. Thus, the teaching of pronunciation should not be directed exclusively to the 'ear' and the 'mouth'; rather, the responsibility should be delegated to the brain to *listen* to the sounds (auditory), *see* the sounds (visual) and *sense* the sounds (tactile) (Odisho 2014).

d) In any successful execution of a major task at hand basic priorities should be considered. Undoubtedly, this applies to teaching, in general, but pronunciation in this case, in particular. In the linguistic dichotomy of phonological accent vs. phonetic accent, the former should be taken care of first to enable learners avoid mispronunciations that result in major semantic change. This will leave the sources of phonetic accent to a later stage when the learner is better familiarized with L2 phonology. Any failure to distinguish between the two forms of accent will result in squandering valuable time of both learner and instructor.

e) To set apart the phonological sources of accent from the phonetic ones, the instructor has to be familiar with the sound system of the languages involved and/or has to be ready to identify those sources while carefully watching the performance of learners of L2. My personal experience with Hispanic learners of English serves as an example of the instructor learning from the errors of his/her students to develop his/her teaching approach and techniques. I did not have competency in Spanish, but because I always have had Spanish-speaking students in my classes, I had to watch carefully for their phonological problems and try to help learners overcome them. The most crucially important phonological problem discovered was related to the vowel systems—the English one identified as *centripetal* and the Spanish one as *centrifugal* (Odisho 1992, 2003, 2007b). The centripetal system has vowels with different length (tenseness) and such length is seriously affected by the primary stress. The centrifugal system, very much unlike the centripetal, has one degree of length (tenseness) which is only minimally affected by the

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7 - Tactile/kinesthetic/proprioceptive to be abbreviated as TKP.

location of primary stress. Thus, hundreds of minimal pairs in English are often confused such as <pill>, <sin>, <kin>, <bit>, vs. <peel>, <seen> <keen>, <beat>, respectively. All those English words are pronounced by Hispanics with one type of half-long vowel [iˑ] instead of [ɪ] for the former set and [iː] for the latter.

f) Teaching effective and efficient pronunciation is both a science and an art. The instructor should be quite knowledgeable in the basics of phonetic science, have familiarity with the sound systems of the languages involved and be aware of the latest techniques of a cognitive approach to teaching. Knowing the difference between phonetics and phonology is a prerequisite that enables the instructor to tell the differences between the sound systems of the two languages and what constitutes a phonetic accent vs. a phonological one. Such knowledge is indispensable for efficient and effective teaching of cross-language pronunciation. During at least four decades of my teaching career, I have come across very many poorly qualified or at least under-qualified teachers of English as L2 or FL (foreign language) who themselves had certain problems with pronunciation, but they did not realize they had those problems. For instance, I have seen Arab teachers of English in elementary and high schools who themselves had difficulty with the proper pronunciation of English <p>. I had high school teachers taking a graduate course in 'Methods of Teaching a Foreign Language' who had difficulty pronouncing certain sounds in their targeted L2 languages which they were going to teach. For example, a teacher of German language consistently pronounced the <z> in <zeit> and <zitrone> as fricative [z] instead of voiceless alveolar affricate [t͡s], while several non-native prospective teachers of Spanish were still unable to pronounce the typically unaspirated plosives [p, t, k] of Spanish. I also supervised the orientation of many teachers of English of Hispanic background who were unable to distinguish between hundreds of pairs of words in English which differed in short versus long vowels as in <sin> vs. <seen> or <pill> vs. <peel>. In all those instances, I had to interfere to rectify the errors. The lesson to learn here is that all those teachers did not realize that they were failing to teach the targeted correct pronunciation.

g) The most effective and efficient procedure of enhancing the L1 filter with an L2 phoneme is a strict three-step procedure of perception, recognition and production (PRP). Oftentimes, the violation of this sequence may result in the failure to admit an alien phoneme to L1 phonology. The most common violation of the PRP procedure throughout the known history of teaching pronunciation has often been the 'repeat-after-me' or the 'audiolingual' practice. According to this practice, the instructor unknowingly bypasses the first two phases of perception and recognition and plunges immediately into the third phase of production. Oftentimes the result is failure because the L1 filter does not recognize the alien phoneme leading to either producing a different sound or producing an L1 phoneme that happens to have phonetic similarity with the alien L2 phoneme, but it is not identical to it; in both cases, the targeted sound is missed. For example, in a public presentation to highly

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educated audience of native speakers of English, I asked for volunteers to produce immediately after me the Arabic voiceless unaspirated uvular plosive <ق> = [q]. The result was either an aspirated <k> = [kʰ] or a sound that was identical with a glottal stop [ʔ]. Obviously, the failure was because the reproduction was done without much needed rehearsal in the perception and recognition of [q] which is phonetically alien to the phonology of many languages including English.

h) To perceive a new sound, the learner has to transition from the world of hearing (involuntary action) to the world of listening (voluntary action) as the former is a "sense while the latter is a skill... *listening is where hearing meets the brain...* listening to language is uniquely human" (Beck & Flexer 2011). When teaching pronunciation, the instructor has to implement different discovery strategies to ascertain that the learner is actually listening to the demonstrations.

i) In any classroom, there are learners who are eager to listen attentively, with others who listen casually and there are also some who are indifferent to what is being conducted because of lack of interest. In light of such a reality, a conscientious instructor should realize this fact and plan instruction accordingly to motivate the majority if not all learners. There are several strategies one should apply. *First*, diversify the teaching strategies in terms of sensory and cognitive modalities to afford learners the opportunity to select the modality (or modalities) that appeals to them. *Second*, ascertain that learners are actually connected with your presentation and are positively interacting with it and learning. For instance, suppose the instructor was demonstrating the stress placement in a set of English words for which the difference between their verb forms and their noun/adjective ones is signaled by the location of the primary stress as in <contract> = [kənˈtɹækt] (verb) vs. <contract> = [ˈkɒntɹækt] (noun). To assess the level of positive reaction, instructor can ask for individual volunteers to reproduce his/her demonstrations. The number of volunteers may indicate the level of positive reaction. However, he/she should expect that some of the volunteers may not accurately reproduce the targeted demonstration. In such instances, the instructor refrains from bringing the inaccurate demonstration to the attention of the learners; rather, he/she goes on to conduct further exemplary demonstrations and return to learners for additional reproductions. If need be, the instructor compares the inaccurate rendition with the accurate one. Such two-way interactions should go on until the instructor is satisfied with the level of positive mastery of the targeted sounds or sound features. *Third*, instructor should also make available one-on-one private sessions in his/her office for interested individual learners. Such private sessions may be necessary for those individuals who are shy, culturally less outgoing and not sure if they have mastered the accurate reproduction of the targeted sounds.

7 - Applications

The applications imply the actual implementation of the approach to teach cross-language pronunciation for adults together with some of the strategies and techniques needed. Since the study strongly believes that the brain plays the major

role in neuronizing the L1 phonology and establishing its filter (inventory), any addition to the filter from an L2 phonology must be perceived and recognized by the L1 filter so that it is accurately produced. Stated differently it has to be neuronized and given a different identity to append it to the L1 filter. Without abiding by the PRP sequence the learner is highly liable to fail to produce the targeted sound. Another major principle to abide by in implementation is the emphasis on the concept of the phoneme rather than simply handling sounds as autonomous distinctive features. This should not imply, in any way, that distinctive features do not carry instructional weight in teaching pronunciation; they certainly do. The difference is that the phoneme is not simply a mechanical combination of distinctive features; rather, it is an intertwined cluster of interactive distinctive features. So, the overriding question will be: how does an instructor guide the learners along a successful path in teaching new phonemes or other phonological features such as stress, rhythm, tone and intonation, that are alien to L1 phonology? Due to space limitation, the multisensory and multicognitive approach to overcome phonological accent will be demonstrated in teaching Hispanic learners one example of English vowels coupled with an example of consonants.

7.1 - Selected problematic vowels

The selected problematic vowels will be the English pair of [ɪ] as in <sin> = [sɪn] and [iː] as in <seen> = [siːn] vs. the Spanish vowel [iˑ] as in <sin> = [siˑn] meaning <without>. Also for space limitations, the relevant sensory and cognitive tips will be covered only during the teaching of the perception phase.

7.1.1 - Teaching the perception of tense (long) vs. lax (short) vowels

In dealing with vowels, quantity is generally meant to stand for length differences, whereas quality stands for the different acoustic and/or auditory impressions (timbre) a vowel may have on the listener. However, length is a term that is somewhat controversial in that some phoneticians prefer to portray those differences in terms of laxness and tenseness – the former tends to be associated with shortness and the latter with length. To maintain a level of simplicity in handling the feature 'quantity', the dichotomy of short vs. long is preferred; however, this should not exclude the use of 'lax vs. tense' when and where necessary. In order to arrive at a relatively accurate identification of English vowels targeted here as in <sin> and <seen> versus the Spanish one in <sin> (without), Gimson's (1967) transcription is adopted. Accordingly, the English vowels are transcribed as [sɪn] and [siːn] vs. the Spanish [sɪˑn]. Notice that the three vowels are different in both quantity and quality. Quantitatively, English [ɪ] is short and [iː] is long, whereas the single dot next to the Spanish vowel indicates 'half-length'. In other words, the Spanish vowel stands half-way between the English ones. Also, transcribing the English vowels with the symbols [ɪ] and [i] is meant to reflect a quality difference. Hence, the use of the same symbol [i] for English and Spanish reflects the shared

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quality, whereas [ː] mark for English and [˙] mark for Spanish signal the difference in quantity. As was hinted earlier on, it is because of this primary difference between the two vowel systems (centripetal vs. centrifugal) that Hispanic learners of English experience the most critical phonological problem with English vowels.

It is noteworthy pointing out that vowels, in general, do not yield themselves readily to TKP sensations as many consonants do; therefore, the instructor is primarily left with the auditory feedback with assistance from the visual feedback if the lips are distinctly involved such as different degrees of lip spreading vs. lip-rounding.

Below is a sketch of some of the available multisensory and multicognitive techniques used to enable learners overcome problems. The exercises are planned to abide by the three phases of perception, recognition and production (PRP).

Auditory tips

a) Instructor carefully demonstrates the English vowels in the context of <sin> and <seen> as many times as deemed necessary.

b) Inserts the Spanish word <sin> between the English ones and demonstrates the triplet thoroughly several times. Instructor has to be careful in demonstrating the difference as *precisely* and consistently as possible. Precision in demonstrating the differences is imperative because it may be tough to perform even by instructors with limited experience in phonetics.

c) Instructor *may* ask volunteers to repeat the demonstration in (a) and (b) to check the initial response from gifted and more sound-savvy learners. No correction is made if mispronounced since this is only a perception phase.

Visual tips

a) Instructor visually highlights the difference between the two English vowels and the Spanish one in the context of [sɪn] and [siːn] vs. the Spanish [si˙n] using a short elastic band. The natural shape of the band should represent the English short vowel [ɪ]; with slight stretching, it should signal the Spanish vowel [i˙]; and with more stretching, it should stand for the English vowel [iː] as visualized below:

▬▬▬▬▬ = [ɪ], English short lax vowel

▬▬▬▬▬▬ = [i˙], Spanish half-long and somewhat tense vowel

▬▬▬▬▬▬▬ = [iː], English long tense vowel

b) To connect the visual demonstration of the vocalic differences with the auditory ones, the instructor carefully demonstrates the three vowels several times with the elastic band in natural and stretched conditions.

c) Instructor brings to the attention of the learners the difference in lip positions for the three vowels. There is hardly any sidewise stretching of the lips with [ɪ]; slight sidewise stretching with [i˙] and more stretching with [iː]. The demonstration of each vowel is repeated three times in a row while pointing to the lips.

Cognitive tips: think of and remember

a) With casual exposure, it is difficult to cognitively reflect on a phonologically alien sound that is by definition fleeting in nature and has no meaning to be retained momentarily in L1 phonological inventory. However, field experience has shown that when the production of the sound is continuously repeated with very short pauses, such a demonstration may stimulate some thinking about the nature of the sound and leave a short-lived impression on the sensory memory.

b) Obviously, the short-lived impression on the sensory memory will be wiped out in a split second, but with further exposure the impression could be refreshed, reintroduced and reinforced in the phonological inventory.

c) It is quite normal for the learner to forget the targeted L2 sound, but with continued exposure, it is likely to trigger a process of thinking about the nature of the new sound; it affords him/her the opportunity to compare and contrast the new sound with other sounds that he/she already has in his/her L1 phonological filter.

7.1.2 - Teaching the recognition of tense (long) vs. lax (short) vowels

a) Just to refresh the memory of the learner with the acoustic images of the three vowels [ɪ], [iˑ], [iː], instructor demonstrates each vowel in context several times prior to initiating the recognition process.

b) Instructor designs an exercise in which each of the three vowels is repeated twice in context in *random* order: e.g. [sɪt], [sɪt]; [siˑt], [siˑt]; [siːt], [siːt]; [siˑt],[siˑt]; [siːt],[siːt]; [sɪt], [sɪt] etc... for a total of 12 pairs. Numbers the three vowels as: [sɪt] = 1; [siˑt] = 2; [siːt] = 3. A worksheet has to be designed with 12 spaces and each time the instructor demonstrates a pair, learners mark it as 1, 2 or 3 on their worksheet. Worksheets are collected and checked to decide the degree of positive perception and recognition.

7.1.3 - Teaching the production of tense (long) vs. lax (short) vowels

a) Once learners have had enough exposure to the three vowels and are fairly able to recognize the vowels at random sampling, it is time to initiate the production phase. However, just as a warm up, the instructor once again carefully demonstrates the three vowels in context.

b) Instructor asks for volunteers to produce each vowel *instantaneously* after his/her model demonstration in isolation and in context. Oftentimes, it is quite likely for learners to succeed in accurate production due to what is to be known here as 'immediacy effect'[8]. It is not unlikely for the immediacy effect to be a

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8 - This is coined after the pattern of 'recency effect' according to which items pronounced the last in a list are more likely to be recalled than those pronounced first. With 'immediacy effect' the repetition should occur instantaneously after the demonstration because the sound may still be in the loop of the sensory memory or even of the short-term memory.

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practice in 'hit or miss'; nevertheless, once the learner 'hits' the right production, the instructor has to ask the learner to keep repeating the targeted sound as many times as necessary to impress his/her phonological inventory.

c) Instructor prepares a list of English monosyllabic minimal pairs involving the targeted vowels with different consonants such as: <pill> vs. <peel>; <bit> vs. <beat>; <dip> vs. <deep> etc...It is extremely helpful to highlight the difference in meaning and associate it with pronunciation.

Finally, the instructor has always to be patient and bear in mind that some learners will take longer time to master a phoneme that is alien to their L1 phonological inventory.

7.2 - Selected problematic consonants

The selected problematic consonants will be the teaching of /v/ as opposed to /b/. Since /v/ does not exist in Spanish, it is predominantly replaced with /b/ resulting in serious phonological accent and semantic confusion when learning English or other languages for that matter. My long experience in teaching pronunciation to Hispanic students has been one of the richest sources of the success of the multisensory multicognitive approach. They taught me how to think about their problems and how to help in overcoming them. In fact, teaching them the /v/ vs. /b/ has been one of my most successful field experiences. Unlike the teaching of vowels, handling this pair of consonants is much more straightforward due to the diversity of sensory and cognitive modalities to which the pair /v/ vs. /b/ yields itself. If one abides by the approach promoted in this study, the teaching of /v/ should never be a difficult one. Below is a summary of those modalities.

7.2.1 - Teaching the perception of /v/ vs. /b/ consonants

Traditionally, as well as historically, the auditory modality has received the priority in teaching pronunciation. No doubt, this is comprehensible because it is the primary sense of acoustic intake. Nevertheless, in real-life situations, when adults are embarked on learning L2 phonology, the auditory sense should not be the exclusive medium of instruction; rather, it should be the collective function of the auditory, visual and tactile[9] senses. Follow the steps below:

Auditory tips

a) Instructor carefully and thoroughly demonstrates the two consonants as many times as deemed necessary asking the learners to listen carefully. The demonstration helps the brain to begin the process of their initial registration en route to their eventual neuronization.

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9 - The tactile sense covers all the kinesthetic and proprioceptive sensations that are transmitted to the brain via muscular innervations.

b) Exaggerate the difference auditorily between the two sounds, especially by lengthening the [vvvvvvvvvv] (a fricative) as opposed to the absence of length with [b] because it is a stop.

Visual tips

a) Instructor models /b/ vs. /v/ a few times asking learners to visually watch the facial gestures during demonstration emphasizing the two lips closing together tightly for /b/, while for /v/ the upper incisors touch the lower lip. Learners are asked to perform the articulatory gestures (not to pronounce) for both /b/ and /v/ separately and repeat the gestures several times for each one. The repetition of the two markedly different articulatory impressions should leave some distinct visual and kinesthetic impressions on the brain even for a few seconds.

b) Demonstrate the above conditions as practically as possible placing a flimsy paper in front of the mouth. With /b/ there is hardly any movement whereas with /v/ the paper should slightly flutter.

c) Since /f/, which is the voiceless counterpart of /v/, is a phoneme in Spanish, it has to be used as a visual articulatory posture to help with the mastery of the articulatory posture of /v/.

d) Select a minimal pair such <ballet> vs. <valet> and show pictures that reflect, even if indirectly, the meaning of each word. Frequently, the semantic difference captures the attention of the learners and reinforces the auditory and visual props.

Tactile (kinesthetic) tips

a) Repeat the demonstration of /b/ and /v/ one sound at a time several times and ask learners to repeat after you spontaneously drawing their attention once again to the visual difference.

b) Direct learners to assume the articulatory posture of /b/ and /v/ one at a time and ask if they can feel the different kinesthetic and proprioceptive sensations that accompany each sound.

c) Bring to the attention of learners the difference in the manner of articulation of the two sounds and the subsequent differences in the aerodynamic conditions. For plosive /b/, the airflow is being trapped momentarily behind the lips while continuously forcing itself through a narrow slit for /v/. Let learners do the demonstration.

Cognitive tips

a) The abundance of clear-cut auditory, visual and TKP clues will certainly stimulate the cognitive processing of the differences between /b/ and /v/ through comparing and contrasting the two sounds.

b) Based on the above item, if a learner forgets how to produce the /v/, then reminding him/her of the visual posture for its production (lower lip touching the upper incisors) should help in the retrieval of the articulatory posture.

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c) The very vivid semantic differences between some minimal pairs such <boat> vs. <vote> or <ballet> (dancing) vs. <valet> (parking) should really send a signal to the brain (memory) to think more emphatically about the phonetic difference.

7.2.2 - Teaching the recognition of /v/ vs. /b/ consonants

a) Demonstrate the pair several times as a warm-up for recognition. Cover your mouth while producing the /b/ or /v/ randomly and ask learners to identify the demonstrated sound.

b) Prepare a couple of minimal pairs such as <best> vs. <vest> and <ballet> vs. <valet>. Place them on the board or project them on screen numbered 1 through 4 then demonstrate the words separately while turning your back to learners (so that they will not see your facial gestures) and ask them to identify them by numbers.

7.2.3 - Teaching the production of /v/ vs. /b/ consonants

a) Prior to asking learners to produce the sounds impress their memory once again with a fresh demonstration of them. Ask for volunteers to demonstrate the bilabial articulatory posture (two lips together) for /b/ and the labial-dental posture (lower lip and upper incisors) for /v/ then ask all learners to perform the articulatory postures while monitoring their performance.

b) Place the learners in pairs facing each other and taking turns in performing a /b/ articulatory posture followed by a /v/ posture. Move around the classroom to observe the performance.

c) Ask if any learners are willing to demonstrate a few minimal pairs in front of the class such as:

<boat> vs. <vote>
<bowel> vs. <vowel>
<best> vs. <vest>
<ballet> vs. <valet>

This will serve two purposes. *First*, discover the learners who are more gifted for PRP and use them as models. *Second*, peer demonstrations may encourage other learners to pitch in.

All the above demonstrations and exercises will collectively send auditory, visual, tactile (AVT) messages to the brain for consideration and cognitive internalization. It is at the end of the above multisensory/multicognitive variety of inputs the brain will be more prepared to cognitively recognize the two sounds and produce them successfully. Obviously, the first stage of cognitive retention will be in the short-term memory; hence, it is not uncommon for some learners to lose the cognitive impression of the two sounds. This means that some of the exercises have to be repeated in the next sessions until the brain transforms the /v/ articulatory impressions from the short-term memory to the long-term one en route to the subconscious. Once the /v/ sound successfully passes PRP phases, the brain begins to make all the preparations to register the sound in a slot that is

cognitively separate from that of /b/. This is how the /v/ phoneme becomes part of their enriched phonology (L1 phonology-plus).

8 - Conclusions

Teaching effective and efficient cross-language pronunciation to adults cannot be a casual practice on the part of the instructor; rather, it should be a practice with prerequisites of a thorough knowledge base in linguistics/phonetics, awareness of constructive approaches to instruction and field experience. Without such prerequisites, instructors are vulnerable to ineffective teaching away from the intended goals and objectives.

A thorough knowledge base in linguistics/phonetics should not only imply theoretical linguistics; rather, it has to be supported with methodical exposure to a few cross-language phonologies and applied phonetic tools for comparison and contrast. It is such a knowledge base that will enable an instructor to identify areas of phonological and phonetic similarities and differences in light of which his/her approach will be designed and implemented.

The instructor has to have an approach to teaching cross-language pronunciation or at least has to gradually develop one. In my case, I familiarized myself with the approaches and methodologies available in literature. Each one had positive and negative aspects which in both cases inspired me to gradually develop my own approach labelled as 'multisensory multicognitive' which is outlined and applied in this study. The approach rests on three principles: 1), language acquisition (L1) and language learning (L2) should be dealt with as cognitive processes besides being physical ones. 2) Speech is not the exclusive function of the ears and the tongue (i.e., audiolingual); rather, it is the interlinked and the collective function of several senses and cognitive processes. 3) For a sound to be accurately produced by an adult embarking on learning an L2, the sound has to be first perceived and recognized by him/her. Bypassing those two phases can often lead to inaccurate production which, in reality, has been the age-long failed practice in teaching pronunciation.

Besides having the needed knowledge base and the approach, the instructor has to be open-minded to field experience which can enhance the knowledge base and augment the approach. Personally, I can attest to the rich experience I gained from the linguistic diversity I have had in my classroom situations. It is this experience that finally led me to develop the 'multisensory multicognitive approach.' A major instructionally pragmatic discovery that classroom situation brought to my attention in teaching cross-language pronunciation was the distinction between *phonological accent and phonetic accent.* Teachers of pronunciation should not get bogged down in every mispronunciation; rather, they should focus first on cases that cause phonological accent and then handle those causing phonetic accent.

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