The Role of Phonological Awareness in Language Learning

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Relevance of the Topic

Under ordinary circumstances, the goal for a speaker in any interaction is to be understood by the person to whom they are talking. For second language (L2) speakers, the first utterance in any given exchange is crucial, because it determines how listeners will react – will they understand and respond appropriately, will they switch to the speaker’s first language (L1), perceiving challenges with the L2 speaker’s productions, or will they simply not comprehend at all? To produce an utterance successfully, language learners must have intelligible pronunciation, i.e. the listener must understand exactly the message intended by the speaker, and furthermore, they should be comprehensible, or easy to understand. (It is possible to be both intelligible and difficult to understand.) This means not only having an adequate knowledge of vocabulary in the L2, and a reasonable grasp of grammar, but also relatively good control of the phonology or sound system of the L2. Thus, it is critical that L2 learners adapt their pronunciation of their new language so that they can be easily understood, despite the influence of the phonology of their L1, that is, their ‘foreign accent’. How an individual pronounces the L2 not only determines (in part) the comprehensibility of their speech, but it also reflects on the identity of the speaker, which makes the phonology of L2 speech doubly important (Derwing and Munro, 2009). However, phonological awareness in the L2, a factor which is essential to comprehensible pronunciation, varies tremendously across learners.

Main Issues

Phonological awareness in the target language is intrinsically tied to ‘goodness of L2 pronunciation’ in that it entails not only metalinguistic understanding of L2 phonology, but also “implicit knowledge about the phonological system of the target language and its structural properties at the segmental, suprasegmental and phonotactic levels” (Mora, Rochdi and Kivistö-de Souza, 2014: 58). Multiple variables affect the phonological awareness of language learners; these can be categorized as linguistic
factors, learner factors, and the roles of exposure and instruction. Linguistic factors include the phonologies of both the L1 and the L2 as well as orthographic influences of the L2 (particularly in alphabetic languages). Learner factors such as age, aptitude, motivation all influence phonological awareness. Moreover, individual variation within learner factors is greater than has traditionally been assumed. Finally, the extent and quality of learners’ exposure to the L2 and whether they receive explicit pronunciation instruction also contribute to phonological awareness. All of these variables interact with each other, but research is only in its infancy in considering how phonological awareness in the L2 is differentially affected depending on the weighting of these factors.

Main Research Findings

Linguistic Factors

L1 and L2 Inventories

The phonological inventories (including both segmental and prosodic elements) of language learners’ first and second languages have a profound impact on the ease or difficulty of successful oral communication. When inventories share many characteristics (e.g. German and Dutch), the challenge of pronouncing the L2 intelligibly is relatively minor, to the extent that some highly proficient individuals who have learned their L2 as adults may be mistaken for native speakers (Bongaerts, Mennen and van der Slik, 2000). However, when two languages have strongly divergent inventories, intelligibility and comprehensibility are more likely to be compromised, as in the case of English and Vietnamese (Bongaerts et al., 2000). In the 1960s, advocates of contrastive analysis, an approach to L2 language learning popular then, posited that all pronunciation errors could be predicted based on a direct comparison of the phonemes in the L1 and L2 (Stockwell and Bowen, 1965). Subsequent research suggested that a simple comparison of forms is not adequate to predict errors, but the notion of direct comparisons for predictability purposes is still popular in pronunciation pedagogy circles, e.g. Swan and Smith (2001) and Nilsen and Nilsen (2010), perhaps because of the salience of particular (but certainly not all) accent features, which are shared by many speakers of the same L1. However, the situation is much more complex.

Rather than relying on a comparison of inventories alone to inform our understanding of L2 productions, two theories of perception have been put forward that are relevant to our understanding of how people perceive forms in their L2. The first is Flege’s (1995) Speech Learning Model (SLM), in which he posits that individuals rely heavily on the L1 phonological inventory when learning the L2. L2 sounds that are similar but distinct from those in the L1 may be assimilated to the L1 sound (for instance, an English speaker learning Hindi is likely to use (and perceive) an English /t/ in all three ‘t’ phonemes in Hindi. According to the SLM, sounds that are clearly different from anything in the L1 inventory will be easier for a learner to perceive than sounds that are closely related, and thus distinct phonetic categories can be learned and added, whereas similar sounds will be subsumed under an existing category until a learner notices that they are not exactly the same. The realization or awareness that a sound that was previously assimilated into an L1 category is actually distinct allows for the creation of a new category. The SLM also suggests that an L2 sound that does not occur in the L1 must be perceived accurately before it can be produced. Thus, perception is considered
to precede production. Correspondingly, Best (e.g. Best, McRoberts and Sithole, 1988), in her Perceptual Assimilation Model (PAM), hypothesized that listeners’ perception of sounds is affected by the organization of the L1 inventory. The original conception of PAM offers a rationale for distinguishing sounds that are not in the L1 inventory, but it is not intended to explain phonological learning. In both these theories, perception of sounds is seen as a process, and in the SLM, the inventory will shift with new learning. Both models see perception and production as separate but related processes. Other work has suggested that accurate perception will lead to improved production (e.g. Bradlow, Pisoni, Ahahane-Yamada and Tohkura, 1997) and now very recent research suggests that L2 production, even in the absence of perception, can be enhanced with the use of visual supports (Sakai, 2016). Moreover, a meta-analysis of several training studies conducted by Sakai and Moorman (cited in Sakai, 2016) suggests that there is a continuum of segment salience, such that differences in L2 consonants appear to be more obvious to learners than in vowels: “those phonemes which have more easily detectable articulations might be more susceptible to crossover effects from perception to production” (Sakai, 2016: 16).

Orthography

The transparency of the L2 orthographic system can also affect learners’ phonological awareness and pronunciation. Unless explicit instruction regarding the spelling system is offered in fairly non-transparent languages (e.g. English), learners may be unaware that they are mispronouncing words. Levis and Barriuso (2012) compared speakers from four different L1 backgrounds (Spanish, Chinese, Korean and Malay) who were asked to read passages in English, and to speak spontaneously about familiar topics in an interview. The authors found significantly higher error rates in the production of vowels in the read samples, compared to the interview data. The error rates for consonants were very similar in both read and spontaneous samples for each group of speakers. The authors concluded that most consonants have a relatively stable and transparent representation in English orthography, whereas the indirectness of the relationship between spelling and vowels in English causes difficulties for L2 speakers. They recommended that sound/spelling correspondences be explicitly taught to raise learners’ awareness of these relationships, particularly in view of the fact that a considerable amount of language learning takes place through written texts.

Learner Factors

Several learner factors influence phonological awareness, including age, aptitude, and motivation. Not only is there individual variation within each of these issues, but even holding these variables constant, there are individual differences that can be somewhat unexpected. These variables likely interact in ways that have yet to be teased apart, and indeed, each individual is probably somewhat unique.

Age

Age of acquisition is clearly implicated in phonological awareness. In keeping with the SLM notion that the L1 phonological inventory changes with perceptual input is evidence from studies of the phonological development in infants. The research of Werker and Tees (2002) suggests that very early in life, humans start to discriminate phonemes
that appear in the L1 input, and that infants stop discriminating sounds to which they are not exposed before they reach their first birthday. Presumably this organization of the L1 inventory facilitates phonological processing by favouring phonemes in the input, but it also interferes with, or at least complicates, L2 language learning, particularly in older learners.

Prior to Werker’s and her colleagues’ research, however, the predominant view was that a critical period existed for language learning from birth to puberty: an L2 learned within that timeframe would develop using the same, innate mechanisms involved in the learning of the L1 (Lenneberg, 1967), with the consequence that a child learning an L2 would have accent-free or close to accent-free speech. It was thought that this biological mechanism deteriorated or stopped functioning at puberty, at which time general learning processes (those used for all non-linguistic learning) would be employed for language acquisition. A great deal of research focused on the existence of a critical period, and whether the differences between child and adult learners, which clearly do exist (Abrahamsson and Hyltenstam, 2009) are a result of the disintegration of a language acquisition device, or because of several other factors, including the nature of the input, sociolinguistic and educational factors, and the effect of memory and learning itself on subsequent learning (Trofimovich, Kennedy and Foote, 2015). In fact, some researchers (e.g. Granena and Long, 2013) still argue for critical or sensitive periods at various times from childhood through the 20s without taking into account Werker’s and her colleagues’ perceptual reorganization in the first year of life (Derwing and Munro, 2015).

Regardless of the numerous possible explanations for differences in L2 phonological awareness between children and adults, younger children appear to have an advantage over adolescents and adults, a fact that is demonstrated by their acquisition of accent-free or mildly accented L2 speech (Flege, Munro and Mackay, 1995). In the most extensive study of its kind, Flege et al. compared L1 Italian speakers who arrived in English-speaking Canada at different ages – and who started to learn English as an L2 between 2 and 23 years of age. Speech samples in English were taken from these individuals as adults. These samples were then played to monolingual native speakers of English, who judged them for degree of accentedness. Some speakers who arrived at the age of 3 were rated as having an L2 accent; nearly everyone who came over the age of 15 was considered to have L2 accented speech. Age of arrival in the L2 environment accounted for 59% of the variance. This study showed that the critical period, as originally conceived, does not exist, but that there is a sensitive period for nativelike L2 phonological development that ends relatively early for most people. Interestingly, if an individual has been exposed to an L2 early in life (childhood overhearing), but then has no more contact with the language until adulthood, the L2 phonological skills in that language will be better than those of individuals who had no early exposure. The former group’s productions in the L2 will be less accented than those of their counterparts (Knightly, Jun, Oh and Au, 2003). This suggests that early phonological awareness, once activated (even in the absence of language development) can be maintained into adulthood.

It is often assumed that learners’ ability to acquire a second language plateaus after puberty, but in fact, it appears to continue to deteriorate as people age (Derwing, Munro, Abbott and Mulder, 2010). Assessments of 3,827 individuals’ speaking and listening skills at the time they took out Canadian citizenship showed a negative correlation of age with level of proficiency. Presumably acquisition of the L2 phonology mirrors the
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Aptitude

The correspondence between the L1 and L2 sound systems, although likely the most important variable affecting L2 phonological development, and age, another key variable, are not the only factors influencing phonological awareness. Aptitude is also implicated. Carroll (1981) defined it as “some special cognitive talent or group of talents that is largely independent of intelligence, and operates independently of the motivations and attitudes of the learner” (p. 94). He saw L2 aptitude as a cluster of abilities, including phonetic coding (see below), grammatical sensitivity, rote learning ability, and inductive language learning ability. The existence of expert L2 speakers, or what Abrahamsson and Hyltenstam (2008) have labeled individuals of “non-perceivable nonnativeness” (p. 484) (e.g. Abrahamsson and Hyltenstam, 2009; Bongaerts et al., 2000; Ioup, Boustagui, El Tigi and Moselle, 1994; Piller, 2002), suggests that some people possess high L2 aptitude. In each of these studies, L2 speakers who learned their second language as adults were considered to sound native-like at least some of the time. Unlike the majority of speakers who learn an L2 in adulthood, these individuals were able to master the L2 phonological inventory (including prosodic factors) well enough to ‘pass’ as native speakers. It is not entirely clear why some people outperform others in this dimension, but presumably advantages in short-term memory and phonetic coding ability are implicated. Carroll (1981) described phonetic coding as “an ability to identify distinct sounds, to form associations between those sounds and symbols representing them, and to retain these associations” (p. 105).

Venkatagiri and Levis (2007) undertook a study investigating the relationship between L2 speakers’ phonological awareness and comprehensibility. Seventeen high proficiency L2 speakers of English completed 14 tasks designed to measure phonological awareness. These included several manipulation tasks where the speakers had to delete, add or substitute segments; listening tasks in which they heard individual sounds that had to be combined to form a word; sounding out written words, etc. In addition, the participants read a short passage aloud and undertook a picture narration. Sentences from both these tasks were extracted and played to 12 listeners who rated the utterances for comprehensibility on a 9-point scale. The authors found a relatively high correlation between phonological awareness scores and the comprehensibility ratings, which they interpreted as follows: “Greater amounts of explicit knowledge of phonological patterns and rules, as measured by the phonological awareness tasks, may have facilitated greater speech comprehensibility” (p. 275). Venkatagiri and Levis point out that their findings do not necessarily mean that teaching phonological awareness will result in more comprehensible speech, but evidence from instructional studies (see below) suggests that this is the case. In their study, however, it appeared that those individuals with stronger phonological awareness, an aspect of language learning aptitude, were also easier to understand.

Another area for investigation of aptitude is musical ability. It is appealing to think that persons with high musical ability, which is relatively easy to measure, will also excel at the phonological level when learning a second language. Some researchers have examined musical ability and L2 speech perception, but with mixed results. It is as yet unclear to what extent musical ability and L2 pronunciation are related (Trofimovich et al., 2015).
Individual Variation

The very fact that we can sometimes identify a particular L2 accent speaks to similarities across speakers who share the same L1. However, listeners are often wrong when they think they hear a particular accent (Derwing, Fraser, Kang and Thomson, 2014), despite the fact that they are generally excellent at perceiving that there is an accent in another person’s speech. There are several reasons for this. For instance, let us assume that two French L1 speakers are talking in English. There are some stereotypical aspects of French phonology that may appear in their speech, such as missing /h/ in word initial position, the substitution of /ʁ/ (the uvular trill) for English /ɹ/, the substitution of /z/ for /ð/, and so on. There may be considerably less reduction of unstressed vowels as well. These and other characteristics may lead us to assume that these individuals are native French speakers. Not all French speakers use these forms in this way, however. There are many different dialects of French, some of which sound quite distinct from a classic Parisian accent (a Québécois French accent in English, for instance, is noticeably different). Second, even holding dialect, age of learning, proficiency, and education level constant, there can be striking individual differences across speakers. Munro, Derwing and Saito (2013) conducted a longitudinal investigation of aspiration in word-initial [pʰ] in Russian and Ukrainian learners of English. Speech samples were collected when these individuals first arrived in Canada, then five more times over the course of a year, and then again at the seven-year point. Since pronunciation textbooks alert teachers to the problem that Slavic language speakers will have with these sounds (not aspirating enough, so that their stops will sound voiced, e.g. ‘pat’ will sound like ‘bat’), the authors were curious to know if, in the absence of explicit pronunciation instruction, a common pattern of learning would emerge. In fact, the 24 learners fell into 5 distinct groups. Twenty-nine percent demonstrated no difficulty aspirating effectively from the very start; another 29% were fast learners and had mastered aspiration in the first six months. Yet another group, the slow learners (17%), showed gradual improvement over time, eventually plateauing with aspiration occurring in 80% of their initial /p/ s. There were two non-learners (8%), who showed no improvement over the entire period, and finally, the last group (17%) had an erratic pattern, with no ultimate improvement. This degree of individual variation was remarkable and is indicative of a wide range of phonological awareness in a group of otherwise relatively homogenous language learners. Most applied linguistics studies tend to rely heavily on means and other aggregated forms of data, but this research clearly showed that speakers from very similar backgrounds can exhibit tremendously different learning trajectories. In a later study involving these same Slavic language participants as well as Mandarin speakers, Munro, Derwing and Thomson (2015) found evidence of both within group and between group variability that led the authors to conclude that one-size-fits-all pronunciation training is not suitable, even if the learners are as homogeneous a group as possible.

Willingness to Communicate: Motivation/Attitude/Identity

Motivation in language learning circles is typically defined as a complex array of factors that lead to certain behaviours, such as whether one chooses to speak in the L2, and whether one cares to develop a good L2 accent. The Willingness to Communicate framework, outlined in MacIntyre (2007), offers a comprehensive depiction of the many contextual, psychological and social variables that determine whether a person will
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speak. A speaker’s attitudes towards members of the L2 community and the perceived attitudes of the community towards the speaker are some of the contributing factors to overall motivation; they also influence how a speaker wishes to present him or herself to others. For adult L2 learners in the early stages, identity is somewhat at risk, because it is almost impossible to present oneself as well in the L2 as in the L1, given limitations in vocabulary, grammar and phonology (and in many contexts, a lack of understanding of local cultural practices). As proficiency in the L2 progresses, learners have greater volition in how they present themselves, including their accents. In an autobiographical account of her acquisition of German as an L2, Marx (2002) described her initial efforts to disguise her North American English accent with a French accent, followed by her motivation to sound native-like a year later, once her proficiency in German was more advanced. She changed the way she dressed, and she avoided contact with other North Americans, all in an effort to blend into German society. She was pleased “at not being ‘caught’ as a foreigner when speaking with strangers” (p. 272). Moyer (2016) argues strongly that teachers should be promoting learner autonomy, encouraging learners to envision themselves speaking the L2 well, just as Marx (2002) did. She offers several strategies for supporting learners’ engagement with the L2, enhancing motivation, and self-reflection.

However, as Derwing and Munro (2009) indicate, pronunciation involves motor control, which places constraints on L2 productions. It could be identity that ensures that some speakers never produce some aspects of the L2; for example, Gatbonton, Trofimovich and Segalowitz (2011) found that Quebec French speakers who had strong ties to separatism were less likely than federalists to use English /ð/, a highly frequent segment. On the other hand, an individual may be extremely motivated to sound like a native speaker of the L2 community, and still struggle with intelligibility and/or comprehensibility, due to a lack of aptitude, or an L1 phonological system vastly different from that of the L2. An early investigation of the relationship between students’ attitudes towards accurate pronunciation and explicit pronunciation instruction indicated that a positive attitude was not a significant predictor of gains brought about by instruction (Elliott, 1995), although there was a positive correlation between attitude and pre- and post-instruction scores. This suggests that motivation, although important, is not adequate on its own to improve L2 pronunciation, even though for several decades teachers have attributed good target language pronunciation to motivation. In two studies of exemplary Dutch speakers of L2 English and L2 French, Bongaerts (1999) concluded that three factors contributed to their native-like pronunciation: “high motivation, continued access to massive L2 input, and intensive training in the perception and production of L2 speech sounds” (p. 155). Let us now turn to the matter of input, both general and explicit instruction.

Degree and Quality of L2 Exposure

General Exposure

Degree and quality of L2 exposure also affect the extent to which adult L2 speakers master the phonological inventories of their L2s (Piller, 2002). Piller interviewed several dual language couples, about a third of whom reported that they were often mistaken as native speakers of their spouse’s L1. These individuals had learned their L2s in contexts where they had massive exposure to the language (e.g. an English L1 speaker, married
to a German, living and working in Germany). The breadth and depth of exposure was such that in short service encounters, such as in a store or a restaurant, the participants reported that they were perceived to be native speakers. This was not the case for the majority of interviewees; presumably the persons who achieved such a high level of phonological accuracy had an ideal combination of aptitude, input, and perhaps instruction. But the study does suggest that massive exposure/interactions influence ultimate attainment.

Derwing, Munro and Thomson (2008) also found that both the degree and nature of exposure have a major impact on L2 speakers’ productions. In a longitudinal study tracing the development of English pronunciation over a period of two years in two groups of speakers (Mandarin and Slavic language L1s), they identified clear differences in the comprehensibility of their speech. The groups comprised adult learners who were all well-educated, all had been in Canada for less than four months at the outset of the study, all were enrolled in a federally funded ESL program, and all were relative beginners in speaking and listening. Speech samples for the purposes of this study were collected two months after the study began (T2), eight months later (T6), and a year after that (T7). These samples, taken from a picture narrative, were played to 33 listeners, who rated them for comprehensibility on a Likert scale (1 = very easy to understand; 7 = extremely difficult to understand). Exposure was measured by asking the learners at each testing point how often they interacted in English for ten minutes or more on a scale ranging from ‘never’ to ‘several times a day’. The participants also indicated the amount of time they spent listening to talk radio, and watching English language TV. Moreover, qualitative interview data were collected at T6 and T7 regarding the participants’ English development.

The results of the listening study indicated that the Slavic language speakers were significantly easier to understand at T6 and T7 than they were at T2. Unfortunately, there was no improvement in the Mandarin speakers’ comprehensibility. The amount of time the two groups interacted with English speakers and listened to talk radio was significantly different; the Slavic language speakers reported more interactions and more (and deliberate) exposure to radio. Years later, this pattern continued. In 2013, Derwing and Munro conducted another comprehensibility listening task, using speech samples from T2, T7 and T8 (seven years after the study began). The Slavic language speakers showed on-going improvement in comprehensibility, such that they were easier to understand at T8 than at T2 or T7, whereas the Mandarin speakers showed no change from T2 to T8. When the authors examined individual performance, they found that seven Mandarin speakers actually showed worse performance at T8 than at T7, five years earlier. Again, there was a correlation with reported interactions of ten minutes or longer in English: more exposure was associated with better comprehensibility. As noted above, comprehensibility, or ease of understanding, is not limited to phonological issues. Clearly, word choice, grammar, and other linguistic variables factor in (Munro and Derwing, 1995), yet in studies of this type it has been shown repeatedly that listeners do focus on the pronunciation of both segmentals and suprasegmentals as well (Saito, Trofimovich and Isaacs, 2015). Thus, the longitudinal comprehensibility studies suggest that both quantity and quality of input have an effect on phonological awareness.

Trofimovich, Collins, Cardoso, White and Horst (2012), in an innovative and labour-intensive study of the relationship between teacher input and student output, developed a corpus of teacher talk, focusing on the frequency of occurrence of /ð/. Similarly, they
developed a corpus of learner talk (the learners, whose L1 was French, were in Grade 6, in an intensive ESL programme in Quebec). The goal was to determine whether frequency in the input was related to development of the phoneme in learners’ L2 inventories; thus the researchers examined learners’ productions at 100 and 300 hours of instruction. They found that the lexical items with the highest frequency in the teachers’ productions were the ones most influenced in the learners’ productions. However, the findings were not entirely straightforward. The learners whose performance was weakest on /ð/ at Time 1 improved significantly at Time 2, whereas the learners whose productions were better at Time 1 showed a decline in accuracy at Time 2, although they were still significantly better than the weaker learner group. The authors suggest that language learners are influenced by the frequency of phonological features in the L2. As for the learners whose performance became weaker, they posited that they might have been influenced by the substantial input of inaccurate productions in their peers’ speech. Thus, phonological awareness may be affected by frequency in the input, both of accurate and inaccurate models. It should be noted that the students were not given any explicit pronunciation training in this research.

The Role of Instruction

For individuals who struggle with L2 intelligibility as a result of pronunciation, explicit instruction can be beneficial, first, to help learners become aware of the nature of their pronunciation problems, and second, to help them produce the feature(s) in question more intelligibly. Derwing (2003), in interviews with 100 English as a second language (ESL) learners, found that the majority believed that their pronunciation interfered with their communication at least some of the time, but very few had any idea what their problems were. In fact, the most often nominated problem was ‘th’, the orthographic representation of two phonemes that have extremely low functional load in English, and as such, are unlikely to be the source of intelligibility/comprehensibility problems. Fully 97 of the respondents indicated that “they believed or strongly believed that it is important to pronounce English well” (p. 555). This study suggests that many adult learners are concerned with their L2 pronunciation, but they are largely unaware of which aspects of their productions are problematic.

No doubt L2 speakers’ limited awareness of the nature of their pronunciation difficulties is partially explained by a lack of specific instruction in their language classes. When Foote, Holtby and Derwing (2011) surveyed ESL instructors across Canada, they found that many instructors avoided teaching pronunciation, despite an acknowledgement that it is important, because they felt ill-prepared to do so. This finding echoes studies in Australia (Burns, 2006), the UK (Burgess and Spencer, 2000), Finland, France, Germany, Macedonia, Poland, Spain and Switzerland (Henderson et al., 2012). As Henderson et al. reported, “Our findings suggest that teacher training in relation to the teaching of English pronunciation is woefully inadequate, according to the majority of participants” (p. 23).

Despite the reluctance of many language instructors to teach pronunciation, the last decade has witnessed an increase in classroom-based studies focused on aspects of pronunciation. For instance, Ramirez Verdugo (2006) compared two groups of Spanish speakers’ intonation in English. One group served as a control, while the experimental group received instruction involving specific explanations of intonation use in English. The learners were shown pitch displays of native speaker models, and could then see
a pitch display of their own productions in real time. Recordings were made both pre- and post-instruction. At the pre- and post-tests the participants responded to questionnaires probing their awareness of intonation functions and their reflections on their progress. The author analysed the recordings acoustically and found evidence of change in the experimental group but no change in the controls. Four judges also assessed pre- and post-instruction conversations for comprehensibility; the experimental group was rated much better at the post-test, whereas there was no change in the control group. The responses to the questionnaires from the experimental group corroborated the linguistic evidence: prior to the course, the learners said they never paid attention to intonation. Several participants indicated that after instruction, this had changed. As one noted: “Now I am aware of the fact that different intonation patterns carry different meanings, and I try to apply it” (p. 153).

In an awareness-raising study, Kennedy, Blanchet and Trofimovich (2014) trained learners of French to perceive connected speech by emphasizing typical processes such as enchaînement and liaison; they also focused on segments and fluency development. Learners completed a picture narration and a read-aloud task as pre- and post-tests of their pronunciation. They also kept a pronunciation journal for 13 weeks, in dialogue with an assigned classmate. The students reflected together on what they were learning in class and what they noticed in the French environment outside class. The point of the journals was to determine phonological awareness. The researchers conducted an error analysis of the students’ productions pre- and post-instruction. Gains were made on both tasks. They also coded the entries in the journals as qualitative (“when learners depict language as an environment for learning … and when learning is expressed as a way of extracting meaning”, p. 86) or quantitative (“when learners describe language as a set of items to be memorized … or when they portray learning as a process of internalizing items or rules through effort, practice and time”, p. 86). In examining whether a relationship existed between these types of awareness and improvements in pronunciation, the authors found that both types were connected. Moreover, they concluded that “the relationship between awareness and instruction is reciprocal and self-reinforcing” (p. 91). In a related study with the same learners, Kennedy and Blanchet (2014) assessed learners’ perception in pre- and post-test dictation tasks, in which learners wrote the utterances they heard in standard French to determine whether they could decipher instances of enchaînement and liaison. Success on the perception tasks was compared to the journal entries – again using the qualitative and quantitative coding. First, the learners showed improvement in their perception of connected speech over time, which was ascribed to the instruction they received. Second, there was a correlation between qualitative comments indicating phonological awareness and higher scores on the post-test. The authors attribute this finding to a learner orientation whereby the individual seeks meaning from input, rather than an orientation in which language learning is viewed as a body of facts to be acquired.

A novel approach to triggering implicit phonological awareness is Everitt’s (2015) study in which she compared L1 Spanish/Catalan learners of English who imitated an English accent while speaking in their L1 with a second group of learners who received pronunciation instruction using the L2. Both groups did word and sentence imitation, as well as mini-dialogues, but one group carried them out with an English accent in the L1, while the other group did the activities in English. A control group had no pronunciation instruction. The focus of the study was perception and production of Voice Onset Times (VOT) in English and Spanish stops. The benefits of imitating an English accent
in the L1 were considered to be the ability to produce far more output, thus giving the learners additional articulatory practice while focusing on form. Everitt surmised that the mimicking of an English accent would also lead to increased phonological awareness. Although both experimental groups showed progress in both perception and production, the group imitating an English accent in their L1 demonstrated greater gains in L2 production than the traditional group. Rojczyk (2015) proposed a similar approach. In an examination of VOT in voiceless stops he found that students increased their VOTs when mimicking an English accent while producing words in Polish. These studies suggest that learners utilize their implicit knowledge of L2 accents in their L1 to improve productions in the target language.

Recently, several classroom pronunciation studies have involved the use of technology, based on earlier laboratory research. Thomson (2012), for instance, developed a game based on High Variability Phonetic Training (HVPT) (multiple voices) to train L2 learners on 10 English vowels. The game, which eventually was developed into a much more comprehensive website for any learners of English to use, resulted in successful perception of the vowels for most learners, a finding that was replicated in a delayed post-test. Lee and Lyster (2016) also used technology to train learners to perceive English vowels, with the goal of comparing the efficacy of four modes of corrective feedback (CF) to raise phonological awareness. Although all the forms of CF evidenced improvement (as opposed to the control group), the most effective CF was a combination of the other three. This is one of the first CF interaction studies on raising phonological awareness and as such is a landmark.

The preceding studies have all shown that phonological awareness and consequent improved L2 productions can be brought about through explicit instruction. It is also encouraging to recognize that it is never too late. Derwing, Munro, Foote, Waugh and Fleming (2014) conducted a study with speakers of Vietnamese and Khmer who had spent an average of 19 years in an English-speaking environment. They were employed in a window factory, where they had received several promotions, but with each new position came greater speaking requirements. The employers requested that the authors provide instruction to enhance the employees’ comprehensibility. There were considerable time constraints involved; the instruction lasted only 17 hours, in 30-minute intervals, three times a week. Additionally, the participants completed a minimum of 10 minutes’ homework every day throughout the course. Speech samples were collected in several tasks both pre- and post-instruction; these were used in listening experiments to determine whether intelligibility and comprehensibility could be altered with such a short intervention. Both speech dimensions showed significant improvement. Furthermore, a delayed post-test of comprehensibility six months later indicated that the speakers maintained their improvement, suggesting that their phonological inventories had been positively and permanently affected, despite the entrenched patterns that had been a feature of their speech for so long.

**Future Directions**

Some factors affecting phonological awareness are out of our control. There is no choice when it comes to a person’s L1, at least not on the part of the baby initially developing a phonological inventory, and often the L2 is not an individual’s choice either – in immigrant contexts newcomers are usually expected to learn the language of the majority. In many schools, foreign language choices are limited, and all over the
world, English is increasingly thought of as a necessity (although it may be unwelcome in some settings). Age of learning is also partially out of our control. Life circumstances usually (but not inevitably) dictate when an L2 is learned. People do not choose their aptitude for L2 learning either. It appears to be “relatively fixed over long periods of an individual’s life span and relatively hard to modify in any significant way” (Carroll, 1981: 86). However, there are factors over which individuals do have some control, including motivation, exposure, and, for some, explicit instruction, which can lead to improved phonological awareness, and more comprehensible pronunciation.

It is clear that, although researchers have been interested in pursuing questions of L2 pronunciation for over a decade, evidenced by the burgeoning number of studies, the appearance of a new journal devoted to L2 pronunciation matters (Journal of Second Language Pronunciation), and several regularly scheduled conferences dedicated to L2 pronunciation, many language teachers are still uncomfortable with explicit pronunciation instruction (e.g. Foote et al., 2011; Henderson et al., 2012). It is also patently clear that phonological awareness-raising in general language classrooms is necessary for many L2 learners to move forward (Derwing and Munro, 2015). Two implications of these findings are obvious. First, teacher training that focuses on how to teach L2 pronunciation is necessary. Study after study has shown, regardless of the L2 being taught, and regardless of the geographical region of the students and teachers in question, that L2 instructors generally report that they have been inadequately prepared. Their awareness of their lacuna is the source of their reluctance to introduce formal pronunciation teaching into their classrooms. In future, language instructors need better preparation, and university programmes are responsible for fulfilling this need. Furthermore, language schools should demand that their teachers have this preparation, and should offer appropriate, targeted pronunciation instruction for those students who need it. Second, it is abundantly clear that pronunciation instruction can make L2 speakers both significantly more intelligible and more comprehensible, even if they have been immersed in their L2 for decades (Derwing et al., 2014). Two extensive reviews of the pronunciation literature have shown that explicit instruction affects L2 phonological accuracy (Lee, Jang and Plonsky, 2015), and can also have a positive effect on intelligibility and comprehensibility (Thomson and Derwing, 2015). Awareness-raising and explicit instruction are key to assisting learners make long-term changes to their production (Couper, 2006).

Unfortunately, most of the research on these issues has involved the teaching of English. Far more study is required focusing on raising phonological awareness in other target languages, particularly with regard to aspects of an accent that affect the intelligibility and comprehensibility in those languages. Concepts such as functional load should be explored in a wide range of languages. Moreover, additional research on the efficacy of pronunciation instruction techniques to raise phonological awareness would be most useful. There have been very few longitudinal studies that examine naturalistic L2 phonological development over time. A good understanding of which features are likely to change on their own, in the absence of intervention, would be extremely beneficial. New technologies offer the possibility of natural recordings that would shed light on the degree and type of exposure L2 speakers encounter (Surtees, 2015) and, as importantly, the nature of communication breakdown that is attributable to pronunciation. Such data could inform instruction in the classroom. Classroom tasks should also be researched to a greater extent. Although many different activities have been shown to be effective individually, we have little sense of whether combinations of
certain tasks might have interaction effects that could accelerate learning. More research along the lines of Lee and Lyster (2016) is warranted. Finally, individual variation has been shown to be far more extensive than previously thought (Derwing and Munro, 2015). In instructional circles the development of more technological tools that allow for individual practice under a teacher’s guidance (such as Thomson’s 2016 *English accent coach*) would be a boon to students and instructors alike.

**Related Topics**

Intelligibility; comprehensibility; accent; speech perception

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**References**


