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**Once you have been speaking
a second language for years,
it's too late to change your
pronunciation.**

Tracey Derwing and Murray J. Munro
University of Alberta and Simon Fraser University

In the Real World

David Nguyen, originally from Vietnam, moved to Canada in 1980, a time when many Vietnamese people were fleeing their country. David was an engineer and, although it took a long time and a lot of hard work, his credentials were eventually recognized, and he was hired in a large engineering firm. His professional skills were very strong, but his employers often complained that they had difficulty understanding him, despite the fact that he had taken several ESL courses when he first arrived and had a good grasp of both spoken and written English. The problem, as they put it, was his "heavy accent."

Sixteen years after his arrival in Canada, David enrolled in a Clear Speaking course offered two evenings a week for twelve weeks at a local college. Along with his classmates, he received instruction intended to

make him more intelligible. On the first night, the students were invited to participate in a study that would entail collecting samples of their English pronunciation at the beginning and end of the course. Like David, the other students had all been in Canada for extensive periods of time; the average length of stay was ten years. They were all well educated and ranged from high intermediate to very advanced in terms of English proficiency. Each student agreed to record speech samples in the first and last weeks of the course; they were offered an honorarium at the end of the study.

What the Research Says

What could David, after 16 years of living in an English-speaking city in Canada, realistically expect from thirty-six hours of instruction over twelve weeks? The conventional wisdom about immigrants like David is quite discouraging. A widespread assumption is that he would have *fossilized*, a term coined by Selinker (1972) to describe the process undergone by a second language (L2) speaker who is unlikely to show improvement in certain forms of the target language, regardless of instruction. Selinker's proposal is supported by a number of early pronunciation studies. Oyama (1976), for instance, examined the pronunciation of 60 Italian immigrants to the United States. Their ages on arrival ranged from six to twenty years, and they had lived in the U.S. for five to eighteen years. Two linguistically trained judges assessed their accentedness on a five-point scale. Oyama found that the immigrants who arrived at later ages had much stronger foreign accents than those who had come at an earlier age. Interestingly, length of time in the U.S. made no significant difference to degree of accentedness. Oyama concluded that pronunciation instruction in an L2 should take place when learners are young. Her finding has often been interpreted as indicating that older learners don't benefit from pronunciation instruction; in other words, they have "fossilized."

Another interpretation of fossilization is connected to the length of time an L2 learner has spent in the target language community. Research on naturalistic development of L2 pronunciation patterns has shown that experience in the second language environment does indeed have some impact on pronunciation, even though it is quite small. Moreover, most changes in the direction of the target language tend to occur within the first year in the second language environment (Flege, 1988; Munro & Derwing, 2008). These findings, along with those of Oyama (1976), suggest that L2 learners' productions will fossilize after even a relatively short period of residence in their new language environment. Thus, fossilization has been tied to both age and length of residence. Older learners are considered to have more difficulty modifying their L2 speech, and learners who have resided in the target language community for more than a year are considered to be likely candidates for fossilization.

Is Fossilization Restricted to L2 Speakers?

Although the concept of fossilization is usually discussed as an unwanted aspect of second language learning, even native speakers of a language often demonstrate a comparable resistance to change, despite extensive exposure to accepted norms. English language prescriptivists are fond of complaining about the "deterioration" of the language, citing mispronunciations that they find egregious. Some of these mispronunciations arise when a native speaker first encounters a word in written form and attributes a pronunciation to it that may conform with other similarly spelled words. For example, some people pronounce *epitome* with three syllables (/ˈɛpətom/), rather than with four (/əˈpɪtəmi/).² Another common mispronunciation is the word *heroine*, the second syllable of which is mistakenly pronounced to rhyme with *groin*. Reading pronunciations like these seem remarkably resistant to change. Even after hearing the more accepted pronunciation, some

¹ /ˈɛpətom/ is also represented as /ˈɛpətowm/.

² /əˈpɪtəmi/ is also represented as /əˈpɪtəmiy/.

speakers persist in using the one they learned on their own. Uneducated speakers may produce innovations such as *drowneded* for *drowned* and *spayeded* for *spayed*. Other non-standard forms become so widespread that eventually they are accepted as alternative pronunciations. Some dictionaries, for instance, list *expresso* as an acceptable alternative to *espresso* and *heighth* as an alternative to the more common *height*. In the most extreme cases, a word can actually change in response to the new pronunciation. For example, *apron* came into existence because people interpreted *a napron* as *an apron*. The point to all of these examples is that native speakers, in spite of ongoing exposure to accepted forms, sometimes do not notice that these differ from their own productions. Thus, although fossilization is often regarded as a process restricted to L2 speakers, it appears in native speaker speech as well. In the absence of overt correction, native speakers do not necessarily change their mispronunciations.

The main fossilization difference between native speakers and second language speakers is the level of the errors. Native speaker mispronunciations are usually restricted to specific words. The same can happen with L2 learners, but they are also subject to systematic grammatical and phonological fossilization. A Japanese speaker who is unable to produce English /r/ (the first sound in the word *run*), for instance, will extend the error across a wide range of contexts.

Why Don't More Teachers Address Fossilized Pronunciation in Their L2 Classrooms?

Many researchers have bemoaned the fact that language instructors tend to shy away from teaching pronunciation. One key reason is the belief that pronunciation teaching is not effective. A discouraging study conducted by Purcell and Suter (1980) reinforced this sentiment. They examined the speech of 61 English learners from a variety of first language backgrounds. The authors collected information on several factors including age of arrival, length of residence in an English-speaking

³ /r/ is also represented as /r/.

country, amount of English used in conversation, motivation, aptitude for oral mimicry, strength of concern for pronunciation, amount of general English instruction, and number of weeks focused specifically on pronunciation instruction. In their correlational analyses, Purcell and Suter (1980) concluded that four factors accounted for accuracy of pronunciation: first language, aptitude for oral mimicry, residency, and strength of concern for pronunciation. Notably, pronunciation instruction did not correlate significantly with accent. The authors concluded that the contributors to pronunciation accuracy are largely out of the control of a second language teacher, which led to the interpretation that formal pronunciation instruction is largely ineffective.

Second language instructors may also be reluctant to devote class time to pronunciation because of pedagogical theory regarding second language acquisition. During the audiolingual era of the 1950s and 1960s, pronunciation skills were a central aspect of L2 classrooms. Students were taught to mimic native speaker models as accurately as possible as a means of developing good habits of oral language production. The publication of Purcell and Suter's (1980) study coincided with a major shift in second language classrooms across North America from audiolingual and 'designer' methods to communicative language teaching (CLT). A basic premise of CLT was that with enough input, learners would gradually develop acceptable English pronunciation, but that any special pronunciation instruction was not only unnecessary, but unlikely to be effective. The CLT approach emphasized authentic use of language and moved away from repetition and mimicry and minimized corrective feedback, which was seen as disruptive to communication. Without formal pronunciation instruction, students in CLT classrooms were left to their own devices to change their oral productions in the direction of the target language. In the absence of explicit correction, many students exhibited fossilized patterns. It seemed, then, that pronunciation fell outside the responsibilities of the CLT classroom. A decade later, in a detailed overview of what research revealed about classroom teaching, Pica (1994) agreed with Purcell and Suter: "Precise pronunciation may be an unrealistic goal for teachers to set for their students and in their teaching" (p. 73).

A third reason for the neglect of pronunciation in the language classroom is the lack of formal training in pronunciation pedagogy available to teachers (see Murphy, Myth 7, for more on this topic). In the post-audiolingual period, only a handful of researchers and practitioners promoted the view that adult learners could indeed benefit from explicit pronunciation instruction. Acton (1984), for example, described the approach he used in working with “fossilized” adult learners. Similarly, Ricard (1986) outlined strategies and techniques used in an English pronunciation course for adults that she argued were successful. Meanwhile, pronunciation specialists such as Gilbert (1984) developed materials that could be used within the CLT framework. The impact on teaching, however, appears to have been somewhat limited, right into the twenty-first century, in part because second language instructors generally had little or no training in how to teach pronunciation and were therefore uncomfortable using these materials (Burgess & Spencer, 2000; Breitzkreutz, Derwing, & Rossiter, 2002; MacDonald, 2002). Furthermore, articles that were accessible to teachers, such as those of Acton (1984) and Ricard (1986), were based on personal experience rather than empirical evidence that could be replicated by others.

In summary, research and pedagogical practice over the last two decades of the twentieth century conspired to marginalize pronunciation instruction. The empirical studies of pronunciation learning had a negative message. Language teaching shifted to an approach that seemed incompatible with pronunciation instruction, and publications with a positive message for teachers were based on the authors' personal experiences rather than verifiable data.

Is Pronunciation Instruction Effective?

When we began our own program of research on second language pronunciation in the 1990s, we were taken aback at the paucity of empirical research on the effectiveness of explicit instruction for adult learners on pronunciation. At that time, we could identify only a handful of published studies, many of which were relatively inaccessible to second

language instructors (Derwing & Munro, 2005). One of the very few before and after studies was an investigation by Perlmutter (1989), suggesting benefits of pronunciation instruction for international teaching assistants in their first six months in the U.S. Regrettably, the lack of an uninstructed comparison group meant that the improvement noted in pronunciation may have been due to overall exposure within the English-speaking community rather than to the teaching intervention.

Since that time, other studies that have included non-instructed comparison groups have been conducted. Couper (2003, 2006) investigated the benefits of explicit pronunciation instruction aimed at certain features that he deemed most problematic for listeners. He administered pre- and post-tests to international university students who were enrolled in his pronunciation courses. Couper found in both cases that the overall number of errors was reduced as a result of the instruction. In his 2006 study, he included an uninstructed comparison group; that group showed no improvement over time. These studies suggest that second language learners' speech can be changed in reaction to targeted instruction.

If we consider second language learners' pronunciation to have a propensity to "fossilize" within the first year of residence in target language community (Flege, 1988), then the studies by Couper (2003, 2006) can be understood as applicable to improving fossilized pronunciation. In both studies, the learners' mean length of residence in New Zealand was 2.5 years, ranging from 0–8 years. Derwing, Munro, and Wiebe (1998) assessed the pronunciation improvement of three groups of high-intermediate ESL learners in Canada over a 12-week period. Most of these individuals had been in the country for longer than one year (on average 3.4 years with a range of 7 months to 15 years). One group received suprasegmental (prosodic) training, while a second group received instruction focused only on individual vowels and consonants (segmentals). The third group had no pronunciation-specific instruction. An important aspect of this study was the evaluation of progress in comprehensibility (how easy or difficult listeners perceived the second language speech to be) as well as accent (how much the second language speech differed from the listeners' own native variety of English) and flu-

TABLE 1.1: Perceptual Dimensions for L2 Speech Evaluation

Dimension	Measurements (Listeners' Tasks)
Accentedness <i>How different is the speech from a local variety?</i>	9-point rating scale (not accented to very heavily accented)
Comprehensibility <i>How easy is it to understand the speech?</i>	9-point rating scale (very easy to very difficult)
Fluency <i>To what degree is the speech free of pauses, repetitions, hesitations, false starts, etc.?</i>	9-point rating scale (very fluent to very dysfluent)
Intelligibility <i>How much does the listener actually understand?</i>	Number of words correct in a dictation task, true/false verifications, summaries, comprehension questions

ency (how smooth and hesitation-free the speech flow was). When the speakers described a picture story, the suprasegmental group showed improvement in both comprehensibility and fluency, whereas the other groups did not; however, the suprasegmental group did not show any change in accent ratings, despite their improvement on the other dimensions. This outcome supports our multi-dimensional approach to L2 speech (Munro & Derwing, 1995; Derwing & Munro, 1997), which regards accent as only partially connected to factors such as comprehensibility and intelligibility (how understandable speech actually is). Table 1.1 illustrates the definitions of these speech dimensions and gives examples of how these dimensions can be measured.

What Really Matters in Pronunciation Instruction?

The findings of this study help us sort out some of the complexities that arise in understanding pronunciation research in general. Despite its possible usefulness for theoretical purposes, the study of accentedness is not very relevant to second language teaching. Far more important are the concepts of intelligibility and comprehensibility, both of which are strongly connected to communicative success. After all, the

primary goal of most language learners is to make themselves understood and to understand other speakers. As our research has shown (Munro & Derwing, 1995), it is possible to have even a heavy accent and still be relatively easy to understand. Moreover, comprehensibility and intelligibility can improve even when there is no noticeable improvement in degree of accentedness. Seen in this light, the somewhat pessimistic view held by researchers and theorists who are concerned with the acquisition of native-like accuracy is essentially immaterial to second language teachers. What is important is to help learners to develop a comfortable intelligibility (Abercrombie, 1949), not the elimination of a foreign accent per se.

What Are the Mechanisms That Make Pronunciation Instruction Effective?

Because we do not yet fully understand all the factors that make second language instruction difficult for adults, we also do not have a complete grasp of the most effective techniques for teaching pronunciation. However, research has provided us with several useful insights. Some studies have indicated a relationship between learner perception and production. For instance, when Bradlow, Pisoni, Akahane-Yamada, and Tohkura (1997) trained Japanese speakers to perceive the English /ɹ/ versus /l/ distinction, their production also improved, even though there was no oral component to the training. Thomson (2011) found a comparable effect of perceptual training on the production of English vowels.

The choice of focus in the second language classroom is also important, such that those elements that are known to interfere with intelligibility should be highlighted first. Aspects of accent that may be noticeable but that have a negligible effect on intelligibility and/or comprehensibility can be left aside until greater intelligibility is achieved. For example, several studies have pointed to the importance of stress to intelligibility, whether at the level of the word or in larger units (Hahn, 2004; Field, 2005; Zielinski, 2008). On the other hand, research on certain individual segments, such as the notorious English

interdental fricatives (/θ/ and /ð/), indicates minimal importance for comprehensibility (Munro & Derwing, 2006). Although there is still much work to be done in testing these expectations (that is, which factors affect intelligibility and comprehensibility the most), the available research provides some tentative guidelines to teachers.

A promising new line of work applies concepts from grammar teaching to pronunciation. In a study of Japanese speakers' production of English /ɹ/, Saito and Lyster (2012), using communicative language tasks, showed that an explicit focus on form with corrective feedback (recasts, in this case) led to improvement. Focus on form alone in the absence of corrective feedback (that is, tasks requiring productions of many instances of /ɹ/, which was both italicized and printed in red on prompting materials) did not result in changes in the speakers' productions. This study suggests that the provision of corrective feedback is vital to successful pronunciation instruction. Indeed, many students complain that interlocutors, including their teachers, do not correct their pronunciation enough (Derwing, 2010). In summary, learners' perceptions of target language phenomena are important, as is the instructor's choice of aspects of the learners' speech that challenge intelligibility and comprehensibility; finally, explicit corrective feedback is valuable.

An Empirical Study of Pronunciation Instruction for “Fossilized” Learners

Let us return to our discussion of a typical “fossilized” learner, David Nguyen. Along with 12 other students representing a variety of language backgrounds (Mandarin, Cantonese, Farsi, French, Spanish, and Ukrainian, in addition to Vietnamese), he took part in our before-and-after study of the effectiveness of a Clear Speaking course (Derwing, Munro, & Wiebe, 1997). The students were enrolled in two small classes with the same content. The instructors focused on general speaking habits and on suprasegmentals. They used the same materials (Gilbert, 1993; Grant, 1993; Matthews, 1994) and very similar teach-

ing strategies. Their course notes indicated that they followed the “Zoom Principle,” identified by Firth (1992) as an approach whereby the instructors begin with overarching issues that affect all parts of the speaker’s message (e.g., body language, voice quality, speaking volume, rate, and discourse markers) and then zoom in on suprasegmentals, such as intonation, rhythm, and stress. Little emphasis was placed on individual vowels and consonants, it turned out, because the students shared very few problems at the level of the segment.

David, like his fellow students, met individually with two researchers on the first and last evenings of class to record an extensive list of true/false sentences that we have used in a number of studies (e.g., *Many people drink coffee for breakfast. Spaghetti grows on tall trees.*). We randomized a balanced selection of sentences taken from both time periods from all of the participants and played them to 37 native speakers of English. The listeners’ task was to write in standard orthography exactly what they heard. The recordings were then played a second time, sentence by sentence, so that the listeners could judge each one for comprehensibility on the 9-point scale previously described. To assess intelligibility, we examined the listeners’ renditions of the sentences and counted the number of words they transcribed correctly. We then calculated a percentage correct for each sentence. As can be seen in Figure 1.1, there was a statistically significant improvement on the sentence task for both true/false items from Time 1 to Time 2. In other words, the speakers’ true/false sentences were more understandable after the instruction was completed.

The speakers’ true sentences were also judged to be easier to understand (comprehensibility) at Time 2 (see Figure 1.2). The false sentences, although more intelligible at Time 2, were not perceived by the listeners to be easier to understand. This makes sense, because the false sentences had such unexpected, unpredictable content.

These findings are important because they show that even people who have been living and working in English for an average of ten years can make changes to their speech that noticeably improve listeners’ comprehension and ease of understanding. Of course we don’t know to what extent the learners were able to implement their new knowledge

in their day-to-day speaking activities, but at least they became aware of what their main difficulties were. A breakdown in communication caused by a common problem is much easier to repair if the speaker is aware of what the problem is. Another important observation is that not all the students showed significant improvement, but this is not surprising given that the course was only two evenings a week for 12 weeks.

FIGURE 1.1: Significant Improvement in Intelligibility after 12 Weeks Instruction, True and False Sentences Combined (Mean LOR = 10 years), $p < .01$ (see Derwing, Munro, & Wiebe, 1997)

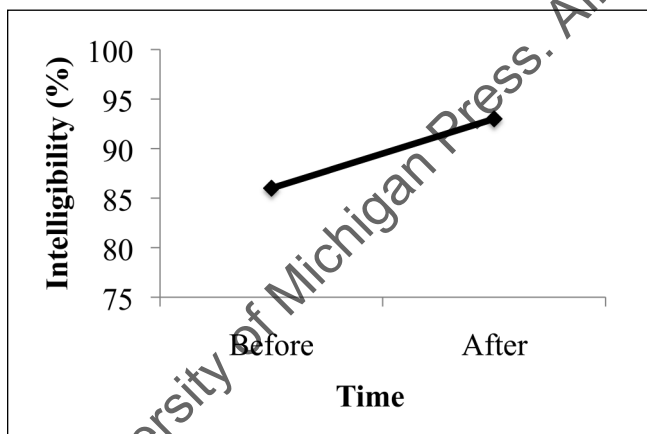
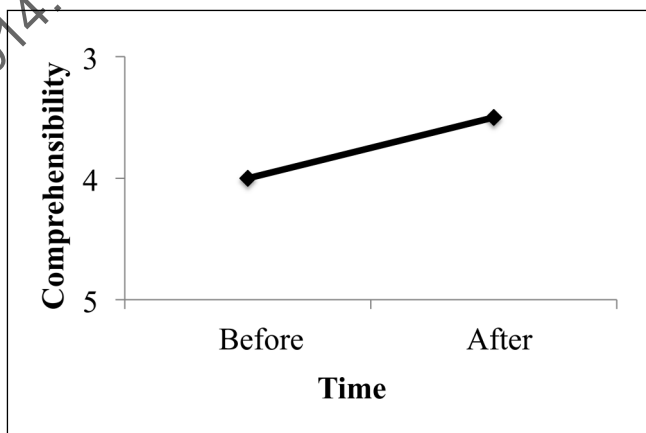


FIGURE 1.2: Significant Improvement in Comprehensibility on True Sentences, $p < .01$ (see Derwing, Munro, & Wiebe, 1997)



These individuals had been speaking English in a particular way for a very long time; thus a short intervention is unlikely to benefit everyone to the same degree. In this case, motivational factors may have played a role. Three of the learners did not self-select for the course but were required to take it by their PhD supervisor. One of these individuals did not show any significant improvement in either intelligibility or comprehensibility, but he was quite upset at having to attend and was not open to participating in the course activities.

In summary, this study indicates that so-called “fossilized” speakers can improve their pronunciation in a relatively short period of time, despite many years of producing some aspects of their second language incorrectly.

What We Can Do

1. Teach perception.

Students who have been speaking their L2 for a long time are their own most frequent source of input; they hear their own speech more than that of any other person. Years of input from their own speech patterns contributes to fossilization because the learners come to establish their own perceptual categories for segments and for prosodic phenomena. These deeply engrained representations make it difficult to change pronunciation patterns. Change seems to require drawing L2 speakers' attention explicitly to the differences between their own productions and more intelligible forms. The teacher's role in fostering new pronunciation skills is to first determine whether the speakers can perceive the target and whether they can distinguish between the target and their speech. If there is a problem with perception, then exposure to a range of suitable targets with feedback on incorrect perception is a suitable approach. For example, software such as *English Accent Coach* (www.englishaccentcoach.com) provides learners with opportunities to practice listening to acceptable variants of target sounds from multiple

speakers, with explicit corrective feedback to guide perception. The prototype of this program was used in an experiment in which language learners' perception and production was shown to improve significantly over time (Thomson, 2011). For prosodic aspects of language, a resource such as Cauldwell's (n.d.) website, Cool Speech: Hot Listening, gives students opportunities to hear speech produced at a normal rate, as well as slowed down rates to help them realize their goals.

2. Give explicit corrective feedback.

Ample studies have shown that improved pronunciation can be achieved through classroom instruction (Couper 2003, 2006; Derwing, Munro, & Wiebe 1997, 1998). However, it is becoming increasingly clear that a key factor in the success of instruction is the provision of explicit corrective feedback. Contrary to ideas prevalent in the late 1970s and early 1980s, and still popular in some classrooms today, there is no indication that, after the first year in the target language country, pronunciation will improve to any significant extent under conditions of exposure alone. To defossilize speech patterns that interfere with intelligibility and/or comprehensibility, explicit corrective feedback for both perception and production tasks is required. Saito and Lyster (2012), for instance, describe an approach to teaching English /ɹ/ to Japanese learners within the context of communicative activities. Significant improvement was noted after four hours of instruction over a period of two weeks.

Feedback should be geared to those aspects of speech that have the greatest impact on intelligibility and comprehensibility. It may be best to provide a combination of metalinguistic feedback, explaining the nature of the error in question, and recasts, giving the student a model to imitate. Dłaska and Krekeler (2013) compared two groups of students. One group listened to their own productions along with a model (similar to a recast), while the other group heard their own productions and then received individualized metalinguistic information as well as a correct model. More than twice as many students improved their own productions when provided with explicit instruction.

Another source of explicit feedback is from student peers. Often in language classrooms, students tend to ignore each other's contributions in order to focus on those of the teacher. However, peer correction should be encouraged in an atmosphere of trust because students should be actively noticing differences across speakers. As they become aware of their own speech patterns, students should also be more sensitive to similar patterns in their classmates' speech. Friendly explicit correction of one's peers will benefit both students involved.

3. Choose the right focus.

Class time is at a premium, whether the course is pronunciation specific or a general skills L2 class. Therefore instructors need to be careful to prioritize pronunciation issues that will best address the intelligibility of their students. In doing so, the teacher should first consider the problem areas of the students. Individual needs should be identified by a thorough assessment of both perception and production. This assessment, together with research findings, should guide the selection of activities. If students typically assign stress to the wrong syllables, for instance, they are likely to confuse their interlocutors (Field, 2005; Hahn, 2004); thus, stress is a good candidate for prioritization. When selecting features that merit priority at the segmental level, teachers should take into consideration the concept of functional load (Catford, 1987). This principle is used to assess the amount of "work" that phonemic contrasts perform in the language. For instance, because many commonly encountered words are distinguished by the /n/ – /l/ distinction (*no/low, night/light, not/lot*), this sound pair is said to have a high functional load (e.g., 61 percent). See Column 1 in Table 1.2. Confusing the two sounds, as Cantonese speakers of English often do, is quite likely to lead to a loss of intelligibility. In contrast, the /ð/ – /d/ distinction (*though/dough*), a low functional load pair (e.g., 19 percent), is much less frequent and does not distinguish many commonly used words. As a result, confusion of these two sounds poses only minor problems for communication. Catford's functional load hypothesis was tested empirically in a study conducted by Munro & Derwing

TABLE 1.2: Relative Functional Load (Catford, 1987)

Initial Consonants		Final Consonants		Vowels	
	%		%		%
k/h	100	d/z	100	bit/bat	100
p/b	98	d/l	76	beet/bit	95
p/k	92	n/l	75	bought/boat	88
p/t	87	t/d	72	bit/but	85
p/h, s/h	85	d/n	69	bit/bait	80
l/r	83	l/z	66	cat/cot	76
b/d	82	t/k	65	cat/cut	68
t/k, t/s	81	t/z	61	cot/cut	65
d/l	79	l/n	58	caught/curt	64
p/f	77	t/s	57	coat/curt	63
b/w	76	p/t	43	bit/bet	54
d/r	75	p/k	42.5	bet/bait	53
h/zero	74	m/n	42	bet/bat, coat/coot	51
t/d	73	s/z	38	cat/art, beet/boot	50
b/g	71	t/tʃ	31	bet/but, bought/boot	50
f/h	69	k/g	29	hit/hurt	49
f/s	64	t/θ	27	bead/beard	47
n/l	61	k/tʃ	26	pet/pot	45
m/n	59	b/d	24	hard/hide	44
d/g	56	d/g	23	bet/bite, cart/caught	43
ʃ/h	55	v/z, d/dʒ	22	cart/cur	41
s/ʃ, d/n	53	b/m, g/ŋ	21	boat/bout	40.5
k/g	50	b/g	20	cut/curt	40
g/w	49	n/ŋ	18	cut/cart	38
n/r	41	p/f, s/θ	17	Kay/care	35
t/tʃ, d/dʒ	39	dʒ/z, m/v	16	cart/cot	31.5
s/tʃ	37	ŋ/l	15	here/hair, light/lout	30
g/dʒ	33	p/b, m/ŋ	14	cot/caught	26
b/v	29	g/dʒ	13	fire/fair	25
w/hw	27	tʃ/ʃ	12	her/here, buy/boy	24
ʃ/tʃ	26	f/v, f/θ	9	car/cow	23
f/v	23	tʃ/dʒ	8	her/hair	21
v/w	22	b/v, s/ʃ, z/ð	7	tire/tower	19
dʒ/dr, s/b	21	θ/ð	6	box/books	18
dʒ/y	20.5	d/ð	5	paw/pore	15
d/ð, tʃ/dʒ	19	v/ð	1	pill/pull	13.5
θ/ð	18			pull/pole	12
tʃ/tr	16			bid/beard	11
f/θ	15			bad/beard	10
f/hw	13			pin/pen, put/putt	9
v/ð	11			bad/Baird	8
kw/hw	8			pull/pool	7
d/z	7			sure/shore, pooh/poor	5
s/z	6			cam/calm, purr/poor	4.5
tw/kw	5			good/gourd	1
tw/kw	5				
v/z	2				
θ/ð, z/ð	1				

From Catford, J.C. (1987). Phonetics and the teaching of pronunciation: A systemic description of English phonology. In J. Morley (Ed.), *Current perspectives on pronunciation: Practices anchored in theory* (pp. 89–90). Alexandria, VA: TESOL. Used with permission.

(2006). Their study found evidence in favor of the functional load principle. To decide which segmental issues, if any, to cover in their classes, teachers can apply the functional load principle.

4. Use authentic language.

To become effective communicators, language learners need to understand speech as it is used in ordinary interactions. While it is not necessary for them to use reduced speech exactly as native speakers do, to be easily understood they should be able to produce connected utterances in ways that do not lead to ambiguity. Excessive use of citation pronunciations is a particularly unwise practice in the classroom. For instance, if students produce the auxiliary *can* /kæn/ in its citation form within a typical utterance, they are almost certain to be misunderstood. In fact, this form of the word is almost never used except in cases of contrastive emphasis and will very likely be heard as *can't* /kænt/. Learners should be taught to produce the obligatory reduced form of *can* as in *I can* /kən/ *stop at the store after work, if you like*. This example is just one of many aspects of reduction that warrant attention in the pronunciation classroom. Even people who have spent years in English speaking environments are often unsure about forms such as *gonna*, *hafta*, *wonchyu*, etc.

Sources of authentic language are readily available on the internet. Many instructors employ YouTube videos, for instance, to provide models of particular aspects of pronunciation. Such recordings can be incorporated in a range of activities, including heightening perception, serving as a catalyst for explicit explanations, as well as providing shadowing and mirroring opportunities. (Shadowing is a technique also known as echoing, in which learners repeat what another speaker says almost immediately, whereas with mirroring, students speak simultaneously with a model, while at the same time producing the same gestures and other body movements.) Levis and Pickering (2004) indicate that intonation is best taught at the discourse level, and they provide suggestions for ways in which technology can support such study. In an examination of given and new information patterns in authentic texts,

Levis and Levis (2010) argue that students should be introduced to the organizational structures in order to understand sentence focus. They make explicit recommendations for instruction of this type. Thus pronunciation instruction and discourse instruction go hand in hand, as noted by Tyler (1992).

5. Make judicious use of technology.

A tremendous advantage of technology is the opportunity it affords learners to practice on their own time (Chun, Hardison, & Pennington, 2008). This allows for individualization of instruction; the teacher can point the learner to areas of focus that are particularly troublesome. It also allows the instructor to use classroom time for problems that are shared across students and for provision of corrective feedback and novel listening and production activities. There is little point in encouraging students to use technology without guidance, however. Many options are available on the web, including, unfortunately, many poor quality offerings, some of which may actually do more harm than good. It is therefore important that the instructor examine and suggest what the students should work on at home.

In class, there are numerous options that can be both instructive and entertaining. Youtube videos from sitcoms can offer a wealth of helpful examples. For instance, a scene from the television show *King of Queens* depicting the rhythm and appropriate word stress needed when giving a telephone number provides useful illustrations (www.youtube.com/watch?v=RW7iB2iOTKw).

6. Don't wait for fossilization to happen.

Finally, as previously noted, much of the development of a learner's L2 phonological system takes place within the first year. An explicit focus on pronunciation in language classes, based on intelligibility priorities during that first year, may help learners to become sufficiently comprehensible that intervention for fossilized patterns several years later may not be necessary.

Now, let us return to David Nguyen. At the end of the research period, David, like his peers, was offered a modest honorarium for his participation in the study. He refused the money, insisting that it should go toward more research. David stated that advances in L2 pronunciation instruction were crucial, and he wanted to make a direct contribution to that. When native speakers assessed David's before-and-after speech samples (in a blind, randomized rating task), they detected a significant improvement in intelligibility, even though he had spent 16 years using his L2 English speech patterns before taking the course. As an old dog, David had learned new tricks, and he wanted to be sure that others like him would learn new tricks as well.

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