

APPLYING PHONETICS TO THE TEACHING OF ENGLISH

Rebecca M. Dauer

University of Massachusetts, Amherst, MA, USA

ABSTRACT

Second language learners need both accurate phonetic details and a way of accessing them directly in order to improve their pronunciation of English. Examples of methods to teach tense and lax vowels, voiced and voiceless consonants, and stress and rhythm will be described.

INTRODUCTION

Although much research has been done on the phonetics of spoken English, only a little of this information has been incorporated into the teaching of English pronunciation to non-native speakers. Textbooks tend to use phonological labels, such as "tense-lax," "voiced-voiceless," and "stress," along with two-dimensional diagrams of "tongue positions" as explanations. Not only are these labels generally incomprehensible to the learner, but they may even mislead him by ignoring the major phonetic difference involved in a contrast. Learners need accurate phonetic details reflecting how English is actually spoken and processed in continuous speech, as well as a way of accessing this information directly, through their own experience, instead of merely understanding on an intellectual level. The same articulatory techniques used in teaching general phonetics to native speakers [1, 2] can be applied to teaching pronunciation to adult second language learners. These include becoming aware of one's own articulatory mechanism and being able to isolate, control, and recombine features in new contexts.

TENSE AND LAX VOWELS

One of the most difficult contrasts for non-native speakers to learn is the difference between the so-called tense and lax English vowels, /i - ɪ, u - ʊ/ (as in *seat-sit, suit-soot*). Writers of textbooks quite literally interpret this to mean that the muscles are either tense or relaxed, and advise students: "Say /i/ and then RELAX your tongue without moving it.

This is the /i/ sound" [3]. This kind of advice is accompanied by the typical line drawings of a sagittal section with tongue positions. As Ladefoged [2] points out, the difference has to do with the types of syllables these sounds can occur in; diagrams of tongue positions merely reflect the relationship of vowels in auditory space. In addition, students are told that /i/ and /u/ are long and /ɪ/ and /ʊ/ are short (often transcribed as /i:/, u:/ vs /i, u/. In fact, all vowels can be long or short; length is determined primarily by the following consonant and stress; /i/ in *bid* is longer than /i/ in *bear*; /ʊ/ in *should* (stressed) is longer than /ʊ/ in *shoot*.

Teaching Suggestions

Students need to first find /i/ and /u/ and feel how they differ from /ɪ/ and /ʊ/. They can do this by gliding very slowly from /i/ to /a/ (or /u/ to /ɛ/) a few times, both silently and aloud. Then they do it again, but stop as soon as they move away from /i/ (/u/); they hold on to this vowel and try some words that use it: *it, hid,...* (*hood, look*). Or they can try getting at these the other direction, by slowly saying /ai/ (/au/) and stopping just before the end. This method can also be used to find /ə/, another difficult vowel for non-native speakers: glide from /i/ to /a/ but stop about half way, before your mouth opens completely; or glide from /ɛ/ to /ɔ/ and stop half way, before the lips start to round.

Lip position is also important for /i, u, ə/. Students can develop both kinesthetic and visual awareness of their lips by gliding continuously back and forth from /i/ to /u/, from /ɛ/ to /ɔ/, aloud while observing their lips in a mirror and silently (with eyes closed). They should then alternate /i - ʊ, /u - ɔ/, making sure that the lips are close to neutral during /ɪ/ and /ʊ/.

Finally, they need to practice making all these vowels both long and short without changing their quality. The way to lengthen /i/ or /u/ is to move the

tongue down and towards central /ə/- [ə], [ʊə] (*hid* [hɪəd], *hood* [hʊəd]), while they must keep pushing up and forward/back for /i/ and /u/. Once they have developed the kinesthetic awareness and ability to say these vowels in isolation, they are ready to do intensive practice in words, sentences, and longer discourse [4]. Minimal pair practice should include not only the traditional *seat-sit, heed-hid* type, but also *reach-ridge, heat-hid*, where short /i/ contrasts with long /i/. This is difficult for most learners: they tend to pronounce /i/ either too long or change it to /ɪ/ in a voiceless environment, and are unable to stretch out /i/ without changing it to /i/ in a voiced environment.

For some learners, even a preceding consonant can influence vowel quality; /l/ and /r/ can cause the tongue to retract so that *leaving-living, or reason-risen* sound alike. To overcome this, they should try saying the words without the initial consonant (*eaving-iving*), and then try to maintain the distinction while adding the consonant.

VOICED AND VOICELESS CONSONANTS

The teaching of voiced and voiceless consonants is another area where textbooks oversimplify and may even obfuscate the truth. Labeling is not enough: students need to be taught how to make sounds voiced and voiceless and given a method for self verification. As phoneticians have known for years, the major difference between initial and final stops in English is not voicing of the consonant, but rather aspiration and vowel length [2, 5]. For a learner trying to speak the language, the allophonic variations or phonetic realization rules are most important, yet are often overlooked.

Teaching Suggestions

Just like students in a phonetics class, learners can become aware of voicing by alternating back and forth between voiced and voiceless fricatives /szsz; fvf; fʒʒ; θθθ/ [1]. They should try this at different speeds until they gain enough control to turn on and off voicing at will. By putting a hand over their lar-

ynx, they will be able to feel the voicing and experience it directly. For most learners, the voiceless fricatives are easier; by observing themselves in a mirror, they can check to make sure they are making no other changes to the tongue or lips when they add voicing. They need to separate what is going on in the larynx from what is going on in their mouths. It's also a good idea to have them try devoicing /r, l, m, n/ to prove they really have separate control over the larynx. This procedure enables many students to produce consonants (such as /θ/) which they had been unable to make before. Of course, further practice is needed in different environments in words and sentences. Textbooks seem to favor initial position, but it is not always the easiest. For example, the voiced fricatives are often easier to produce between vowels so that *mother* is easier to pronounce correctly than *this*; some find that /θ/ is easier to pronounce in final position (*math*) than initial position (*thing*). Students should experiment to find the words in which they can pronounce the sounds the best to use as starting points.

Final Consonants

Teaching the final consonants, particularly the stops and affricates, is entirely a different matter. The most common mistake for learners is to make them voiceless, which besides causing confusion in monosyllabic words, results in an unpleasant choppy rhythm. If students are told to lengthen the preceding vowel and leave the final consonant entirely voiceless, letting it naturally die out before a pause, most will be able to pronounce words like *bed, bag, badge, please* perfectly. On the other hand, if they strive to make the final consonant fully voiced, they often make it too long, too strong, or add an epenthetic [ə]. They need put their effort into the vowel, and weaken and shorten the consonant. In addition, they must link final consonants smoothly to following words, resyllabifying if the following word begins with a vowel (*find it = fin dit*), remembering to drop unstressed /h/. This has the added advantage of breaking up final consonant clusters and thus

making them easier to pronounce (*change his* = *changes* /tʃeɪn dʒɪz/). Respelling words can counteract the strong belief in the existence of spaces between words.

Other techniques for teaching final consonant clusters are to isolate and practice them as nonsense sounds /sks, tʃt, tʃtʃ, dʒdʒ/ and then try them in words, *desks, watched, which channel, orange juice*. Articulating words silently is another excellent method to help learners get in touch with and gain control over their speech organs. It can help them to coarticulate (link consonants together) as in *keep quiet, back door, right time* because they can verify more easily whether they are truly beginning the second consonant before releasing the first one.

Aspiration

Many non-native speakers do distinguish initial voiced and voiceless stop consonants, but they do it entirely by voicing--voiceless unaspirated versus fully voiced. In fact, aspiration is more important than voicing in distinguishing initial stops in English. Textbooks often teach aspiration by having students try to blow on a piece of paper to make it move. Some students will take a breath, tense up (i.e. make a glottal stop), then release a very crisp, yet totally unaspirated stop. The important thing is that aspirated sounds are actually more relaxed than unaspirated stops. In order for there to be a delay in voice onset time, the glottis must be open. This is more easily achieved by having students sigh and say words like *a key, a tie, a pie* on a long exhalation, as if they were very tired.

A fact that is usually ignored by textbooks is that /p, t, k/ are also aspirated when followed by /l/ and /r/. Students need to get the same relaxed feeling in *cold, crowd, cloud; pay, pray, play*. If they have been taught how to make any sound voiced or voiceless, they can devoice /r/ or /l/ (or think of saying /h/ and /r/ or /l/ at the same time), add the following vowel, and then the initial stop: [hr], [hrei], [phrei]. Aspirating, along with lengthening /r/ and /l/ in these clusters, also makes them more distin-

guishable from each other as well as from their voiced counterparts. Substituting completely voiceless, but unaspirated, stops for initial /b, d, g/ in these clusters can help those who tend to weaken them.

STRESS AND RHYTHM

In teaching stress and rhythm, modern ESL textbooks tend to emphasize listening. Stress is usually treated as unpredictable. Definitions of stress and reduction are often not sufficiently detailed: stress tends to be identified with high pitch, and reduction is simply a matter of using the vowel /ə/. The contribution of length, linking, and pausing to rhythm is often slighted.

Teaching Suggestions

The single most important thing that a non-native speaker can do to improve his comprehensibility is to slow down and pause more often. This is in fact very easy to teach since most students already know where they should pause. The necessity for slowing down becomes obvious even to naive students when they record and listen to themselves. Not only do pauses give the listener extra time to process what he hears, but they also give the speaker more time for speech planning. When learners focus on pausing more frequently and for a longer time, they often discover that other problems, such as omitting final consonants, disappear. Slowing down means stretching out stressed syllables, particularly monosyllabic content words, and slowing down before an actual or potential pause. Unstressed syllables may be pronounced as quickly as possible without dropping them and should be linked smoothly to other words in the phrase.

Vowel Reduction

Although reducing unstressed syllables and function words is essential to English, many learners have difficulty pronouncing /ə/, tending to pronounce it more like /a/ or /ɔ/ (if spelled <o>). Students usually have much more success if they are told to pronounce unstressed vowels as /l/ (e.g. *Washington, today, can, was, that*): it is inherently short and has no lip rounding. They can

try pronouncing function words such as *can, was, some, them*, with no vowel: [kn, wɜ, sm, ðm]. This keeps them from opening their mouths too much and making the syllable too long. In practice, they need to concentrate on pronouncing the function words quickly and weakly, yet without shortening stressed syllables. Their goal should be to maximize the difference between stressed and unstressed syllables.

Since stress is primarily auditory, it doesn't lend itself as well to kinesthetic and visual feedback. However, students should be able to see a difference in the degree their mouths open in minimal pairs such as *a contract, to contract, an addict, to addict*, with a mirror or on videotape. The mouth should be almost closed (a hand can be put under the chin to keep it from opening if necessary) during reduced syllables. Noun-verb minimal pairs such as these are very useful in clearly pointing out to a listener whether a student is reducing enough.

Stress

Stress is predictable in the majority of words, and the rules are not difficult to teach [4]. When students in a class disagree or when they are unsure about which syllable is stressed, the teacher should say the word all possible ways (e.g. *'develop, de'velop, deve'lop*) to see if they can recognize which sounds right. They should then try to develop this capacity to stress any syllable of a word themselves. They also need practice moving stress in different forms of a word and alternating reduced and full vowels (*academy, academic*).

Words with various stress patterns also need to be practiced when they are non-tonic (without sentence stress). A common error is the automatic association of word stress with high pitch. This leads some students to jump up on every stressed syllable; as a result, their speech may sound choppy, words are not heard as grouped into larger syntactic units, and there is no focus or continuity in discourse. These students need to start each phrase on a low to mid pitch and delay jumping up to their highest pitch until they reach the tonic, which is typically towards the end of a pause group. Other

students tend to destress (shorten excessively) all non-tonic stressed syllables; thus, words are all run together, it's hard for the listener to establish word boundaries, and words at the beginning of a sentence may be lost. These students need to concentrate on lengthening and clearly articulating all stressed syllables, even when they have no pitch prominence.

CONCLUSION

Just like students in phonetics classes, ESL students need to learn how to separate, independently vary, and then recombine phonetic features through experimenting with their own vocal tracts and moving from known to unknown. If they are to improve their production, they need to be given specific articulatory strategies as well as accurate descriptions of how fluent English is spoken. For most students, improvements in production also lead to better perception and comprehension of oral English.

REFERENCES

- [1] Catford, J. C. (1988), *A practical introduction to phonetics*, New York: Oxford University Press.
- [2] Ladefoged, P. (1975), *A course in phonetics*, New York: Harcourt Brace Jovanovich.
- [3] Hagen, S. A. & Grogan, P. E. (1992), *Sound advantage: A pronunciation book*, Englewood Cliffs, NJ: Prentice Hall Regents.
- [4] Dauer, R. M. (1993), *Accurate English: A complete course in pronunciation*, Englewood Cliffs, NJ: Prentice Hall Regents.
- [5] Peterson, G. E. & Lehiste, I. (1960), "Duration of syllable nuclei in English," *JASA* vol. 32, pp. 693-703.