
SEGMENTAL TRAINING IN TESOL : A Speech Pathology Approach

Allan Stoops

Today over two thousand five hundred languages crowd and clutter the air. Because of the nature of language itself and the variety of ways of expressing ideas, misunderstandings arise. Misunderstandings usually arise, first of all, because of the sounds involved in these languages.

Some individuals find it necessary to learn more than one language and if little or no “accent” is evidenced we call such persons “bilinguals.” A “polyglot” is a person who uses a variety of languages, usually inexpertly, with an accent. Foreign accent occurs usually because the speech sounds of one language overlap into another, resulting in sound substitutions, or because of organic causes. Organic causes include such things as physical deformations caused at birth or by accidents, or they may be caused by psychological phenomena, or damage to the central nervous system, etc.¹⁾

In addition to speech sound changes, learning a foreign language requires changes in intonation patterns, stress, rhythm and meaning.²⁾ It is primarily with speech sounds alone, however, that this paper is concerned. The points of view expressed here are mainly those of speech clinicians and practitioners and are not necessarily those of descriptive linguists. As such, they may offer at least another perspect-

1) Christ, Fred M. *Foreign Accent*. New York: Prentice-Hall, 1964 pp. 1-12.

2) *Ibid.*, p. XV.

ive to the foreign language teacher whose training has been linguistically-oriented rather than otherwise.

Here there follows a general statement about the development of language habits. First of all, they are not instinctive and do not develop from a child's cries of protest or hunger : they develop from a controlled modulation of the voice stream of laryngeal tone. Some individuals mature and develop faster than others; girls develop faster than boys and, interestingly enough, show fewer speech defects. These habits develop first in the finer and then in the grosser muscles from the extrinsic to the intrinsic. Language habits develop first that involve movements of the mandible, the lips and the tongue : those involving the velum, uvula and back of the tongue develop later. Pitch precedes high-frequency sounds. Generally speaking, the development of specific consonant and vocoid sounds is as follows: /m/, /b/, /p/, /w/, /h/, /n/, /t/, /d/, /k/, /g/, /ŋ/, /j/, /f/, /v/, /ð/, /ʃ/, /l/, /e/, /ž/, /s/, /r/. Consonant and semi-vowel combinations are usually learned in order of their relative frequency. Initial sounds are apparently easier to learn than final ones. The first words to be learned are mainly interjections, followed by nouns, action verbs, adjectives, then more nouns and gradually all other parts of speech.³⁾

A speech act is, at least outwardly, a phonological act.* A speech variation or a speech difference becomes a speech defect when 1) it calls attention to itself by obviously deviating from an established norm or objective, 2) when it interferes with communication either directly (the phones are misarticulated and tend to distort or conceal meaning) or indirectly (the meaning is relatively clear but the hearer is repelled by the strangeness of it all), or 3) when it causes its possessor to feel maladjusted.⁴⁾

3) West, Robert; Ansberry, Merle and Carr, Anna. *The Rehabilitation of Speech*. New York: Harper & Brothers, 1957. pp. 57-61.

*This is not to deny that all speech is essentially a symbolic function i. e., a covert, coded representation of a notion expressed through vocal behavior.

4) Van Riper, Charles. *Speech Correction, Principles and Methods*. New York: Prentice-Hall, 1963, p.16

In other words, speech differences become speech disorders when they are conspicuous, relatively or completely unintelligible, unpleasant, or, for the speaker, frustrating. The teacher of a second language could well adopt this definition in determining the seriousness of faulty pronunciation.

In the United States, one survey of speech defects indicates that some ten percent of the population of a non-dialect city have some kind of speech defect, while another survey of speech disorders, in which specific defects were listed, indicates that over nine million people in the general population and close to two million of the school population have speech defects.⁵⁾⁶⁾

There are four types of functional speech disorders. They include articulation, stuttering, voice (damaged or abnormal conditions of the larynx) and aphasia (inability to handle symbolic meaning). Nearly eighty percent of those affected with speech disorders are articulation cases. Probably this is the only type most teachers of a foreign language will encounter. Occasionally a stutterer may appear in the classroom, but these cases are probably best dealt with by psychologists.

Misarticulation is characterized by the substitution, omission, addition and distortion of speech sounds. There are five general classifications:

1. *baby talk*, in which certain stereotyped substitutions occur for standard speech sounds.
2. *lalling*, characterized by sluggishness in /l/, /r/, /t/, /d/, and /s/.
3. *lisp*ing, in which sibilant sounds are substituted by /ð/ and /ç/, mushy sounds (*lateral lisp*: alveolar fricatives become

5) Mills, A. and Streit, H. "Report of a Speech Survey, Holyoke, Mass.," *Journal of Speech Disorders*, 1942, Vol. 7, pp. 161-169.

6) Spilka, Bernard, and Steer, M. D. "Incidence of Speech and Hearing Deficiency in the General Population and Schools of the U. S., 1951," *Purdue Speech and Hearing Clinic Research and Staff Report No. 2*.

palatalized), sloppy /t/ and /d/ (*occluded lisp*: apicoalveolar stops become fricatives), and *nasal snorts*.

4. *delayed speech*, Characterized by consonantal unsophistication or unintelligibility.
5. *oral inaccuracy*, any mild articulatory defect.

Seldom does any one of these disorders appear alone; most occur frequently in combinations with others, and the relative consistency of one or more of these disorders in a speaker ranges from the nearly constant to the sporadic to the occasional. It is customary for speech clinicians to refer to a speaker's language-sample as his *idioglossia*. Since no two persons in the world are absolutely identical, neither can the speech of these persons be. Hence the term.

The etiology, or causes, of general and specific articulatory disorders is not always identifiable. Nor are such mutually exclusive. They include:

1. *transient hearing losses*.
2. *physical injury* (burns, cuts, brain damage, earaches, etc.) or, in cases where complete physical recovery has taken place, the indirect causes or after-effects: the patient is still afraid to move his tongue because of fear of more pain.
3. *mislearning* (poor models are imitated with subsequent reinforcement).
4. *poor general physical coordination* (observable in the student's walking, agility and reflexes).
5. *maturation* (almost any element which retards physical development retards speech development as well).
6. *intelligence*.
7. *social factors* (there is an especially strong tendency for the student to imitate the "boss," or to emulate the "in group" regardless of the individual's ability to be correct.)
8. *home factors*. In domestic situations wherein rivalry and aggression predominate, the student with problems of any kind is tempted to retreat into unchallenging situations. Immature and

dependent types are often reluctant to deal with the sources of their ostracism or personal unhappiness.

9. *neurotic profit motives*. Some students actually use their defects to gain sympathy or attention. Or they find that speech conceits gain approval. The use of various types of accents frequently expresses nationalistic or some kinds of anti-feelings.⁺
10. *organic abnormalities*. Actually, such often constitute no really effective deterrent to proper articulation, though the student may think they do. Compensatory speech acts or sometimes surgery can remedy these. There are numerous nonstandard ways of producing most sounds.⁷⁾
11. *genetic differences*. Brosnahan⁸⁾ suggests that climate, physique and race *may* result in certain abilities and inabilities to produce certain sounds.
12. *orthography*. The peculiarities of English spelling cause considerable difficulty for the native as well as the foreign born.

The student of a second language has additional etiological factors. He begins the study of a foreign language with an already highly-developed repertory of sound, and any new sound may conflict with this repertory; reinforcement, as provided in domestic or social situations with the native language, is only marginal, and expressed real demands and real responses are often totally absent. He may often be ridiculed or ostracized outside school, or even within school, for daring to move outside his native cultural sphere. Or in attempting to do so he may face the severest and most frustrating kind of competition or, in the case of the egregious, the student may feel that he cannot afford to excel because of the threat of peer punishment.

Important too is the fact that the second language learner must constantly make choices between his native language and his second

7) Van Riper, *Op cit.*, pp. 164-191.

8) Brosnahan, L.F. *The Sounds of Language: An Inquiry into the Role of Genetic Factors in the Development of Sound Systems*. Cambridge: W. Heffer & Sons, Ltd., 1961.

language, not only phonologically but structurally, lexically and, in particular, culturally.

Another factor to consider is this: the native language of a student is learned by means of patterns of speech (phonological patterns as well as patterns of meaning) and for the speaker talking becomes a kind of conditioned reflex to which lexical sophistication is subsequently added. Nearly all second-language learners begin with individual sounds and isolated meanings and the process of language learning is thus totally different.⁹⁾ This remains true even in modern linguistically based pattern practice drill and, I suspect, it always will. The second-language learner must, at first and for a long time subsequent, translate back into his "real" language. Otherwise there is no real meaning. In the case of the first language, meaning is forced upon the learner's brain, which is a virtual *tabula rasa*. It is only the young child who has this, and only the unusually gifted student who somehow manages to make a clearing in the cluttered jungle of his mind wherein the sovereign seed of language may be planted and nurtured in an autonomous and fructifying territory.

Those inhibiting factors which the second-language learner experiences are termed "noise." This is what some linguists, Weinreich for example, call "interference." According to the speech clinician, noise has five subdivisions: linguistic, semantic, neurological, physiological and physical (the linguist would probably use the terms structural, lexical, psychological, physiological and external interference). Interference begins on the level of hearing and is the result of the overlap of two speech systems. The amount of interference (or noise) encountered depends upon several factors: the languages involved (two nearly similar phonological systems do not by any means augur well for accurate pronunciation: on the contrary, the greatest difficulty often arises just because of phonologically similar systems), and whether the student learns speech as a coordinate or as a compound bilingual.

9) Christ, *Op. cit.*, p. XXXIX.

A question here arises: is true phonetic discrimination necessary or even relevant to the true coordinate bilingual?

So much for etiology. The speech pathologist first obtains a sample of the speaker's idioglossia. This may be done in several ways, but the most common is by means of a series of illustrated cards, on which are printed pictures which will elicit specific phones. General tests are available such as the *Templin-Darley Test of Aural perception*.¹⁰⁾ Or in some cases, specific tests for students whose native language is not English are recommended. The *Test for Aural Perception in English for Japanese Students* is an example.¹¹⁾ *The Maximum Auditory Perception Word List* ("MAP") of Haspiel and Bloomer,¹²⁾ John Black's *Multiple Choice Intelligibility Test*,¹³⁾ and Barker and England's numerical measurements for articulation defects¹⁴⁾ are also of great help to the teacher and pathologist.

Test results are tabulated according to whether they constitute substitution, distortion or omission, and the position-initial, medial, or final-is indicated. Specific forms and nomenclature are used for this purpose by the speech pathologist, and the more modern clinicians use linguistic terminology.

The next step is an analysis in which the student is grouped according to the type of misarticulation he demonstrates.¹⁵⁾ In the classroom, small groups of students with similar articulation difficulties

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- 10) Johnson, W., Darley, F.L., and Spriesterbach, D.C., *Diagnostic Methods in Speech Pathology*. New York: Harper & Row, 1952, pp. 80-99.
- 11) Lado, R.; Andrade, R., and Fries, C., *Test for Aural Perception in English for Japanese Students*. Ann Arbor: Univ. of Michigan Press, 1958.
- 12) Haspiel and Bloomer, "Maximum Auditory Perception (MAP) Word List" in *Journal of Speech and Hearing Disorders*, 1961, p. 156.
- 13) Black, John W., "Multiple Choice Intelligibility Tests." in *Journal of Speech and Hearing Disorders*, 1957, p. 213.
- 14) Barker and England, "A Numerical Measure of Articulation Defects: Further Developments," in *Journal of Speech and Hearing Disorders*, 1957, pp. 23-27.

may be grouped together. Sometimes this works better than individual therapy, sometimes not.

The treatment for almost all articulatory difficulties is the same, with the exception of neurotic lispings and baby talk. Specific steps outlined by Van Riper include:

- “(1) The speech defective must be convinced that he has errors which he must eradicate.
- (2) The causes of the disorder, if still existent, must be eliminated. If those causes are no longer present, their influence must be counteracted.
- (3) Through intensive ear training, the old word configurations are broken down so that the correct sound and the error may be *isolated, recognized, identified, and discriminated*.
- (4) Through various methods, the speech defective must be taught to produce the correct sound in isolation at will.
- (5) The new and correct sound must be strengthened.
- (6) The new sound must be incorporated within familiar words, and the transition to normal speech must be accomplished.
- (7) The use of the correct sound must be made habitual, and the error must be eliminated.”¹⁶⁾

The first step in speech therapy is often the most difficult, and at the same time, controversial as to its real efficacy, for the relationship between a patient's ability to discriminate phonetically between correct and incorrect sounds and his ability to produce correct sounds has been the subject of much research. Van Riper maintains that discrimination ability is essential in treating functional articulation cases.¹⁷⁾ Backus and Beasley maintain otherwise.¹⁸⁾ Kronvall and

15) Johnson, Darley, and Spriesterbach, *Op.*, pp. 89-96.

16) Van Riper, *Op cit.*, p. 205

17) Van Riper, Charles. “Ear Training in Treatment of Articulation Disorders,” in *JSHD*, 1939. p. 141.

18) Backus and Beasley, *Speech Therapy in Children*. New York : Houghton. Mifflin, 1951. p.

Diehl, in a study involving thirty cases of severe articulatory disorders among school children from six to nine years of age conclude that:

- a. deficiencies in auditory discrimination are the cause of some articulation disorders.
- b. some articulation disorders cause poor auditory discrimination.
- c. both functional articulation disorders and auditory discrimination disorders are caused by some other factor.¹⁹⁾

Edmondson and Horowitz show that a great amount of vowel discrimination in connected speech depends upon contextual clues rather than upon the sounds themselves and that vowels in isolation might not be recognized frequently.²⁰⁾

Sommers, Mayer and Fulton point out that patients with functional articulation problems were found to be much poorer in mean pitch discrimination.²¹⁾

Schiefelbush and Lindsay found that significant differences were observed between speech defectives and normal speakers in sound discrimination ability, but that speech defectives do *not* have any greater difficulty in discriminating self-monitored sound patterns involving /z/, /l/, /r/, /ʃ/, /f/, /v/, /t/, /s/, and /k/.²²⁾

And so on. The essential point is to direct the student to the point where he cannot help but see the difference between the target sound and his deviation from it. These sound substitutions, or male-phones,²³⁾ may be understood intuitively, or they may be grouped,

- 19) Kronvahl and Diehl, "The Relationship Between Auditory Discrimination and Articulation Defects of Children with no Known Organic Impairment," in *JSHD*, 1954. pp. 335-338.
- 20) Edmondson and Horowitz, "Cues to Vowel Discrimination," in *JSHD*, 1950. pp. 202-206.
- 21) Sommers, Mayer, and Fulton, "Pitch Discrimination and Articulation," in *JSHD*, 1961, pp. 153-159.
- 22) Schiefelbush and Lindsay. "A New Test of Sound Discrimination," in *Journal of Speech and Hearing Research*, 1958, pp. 153-159.
- 23) Bloomer, H.H. "The Phonetic Symbolization of Malephones," in *Journal of the American Speech and Hearing Association*, 1960.

listed and collated in the manner suggested by Van Riper,²⁴⁾ but a somewhat augmented approach is likely to yield better results. This approach involves a linguistically-based contrastive analysis, as suggested by Marquardt,²⁵⁾ and amplified and exemplified by Schaafsma.²⁶⁾ Speech pathologists, as well as teachers of a second language, "...to be effective, must know linguistically (not necessarily practically but "descriptively") the native language of the students they teach. Such knowledge is not for the sake of practicality in using that language in the classroom, but for the sake of understanding the precise nature of the difference with which the students are struggling."²⁷⁾

Language, according to Bloch and Trager, is "...a system of arbitrary vocal symbols by means of which a social group cooperates."²⁸⁾ This implies that the phonological system of each language, too, is a system unto itself and, since we do not have universal categories, linguists have long maintained that linguistically-based, descriptive-contrastive studies of the phonologies of two different languages will enable us to locate important points of similarity and difference so that we can predict and then deal with the points at which a person with the language background of "A" will experience facilitation or interference (noise) when learning language "B."²⁹⁾ "The list of problems resulting from the comparison... must be considered a list of

24) Van Riper, *Op. cit.*, pp. 219-238.

25) Marquardt, Wm. F. "The Speech Problems of Foreign Students Learning English," in *Journal of the American Speech and Hearing Association*, 1961,

26) Schaafsma, H.M. *Japanese and English Sound Patterns and Their Bearing on Japanese Pronunciation of English*. Unpublished M. A. thesis, Univ. of Leeds, England, 1965.

27) Fries, Charles C. *Teaching and Learning English as a Foreign Language*. Ann Arbor : Univ. of Michigan Press, 1945. p. 14.

28) Bloch and Trager, *Outline of Linguistic Analysis*. Baltimore : Linguistic Society of America, 1942. p. 9.

29) Schaafsma, *Op. cit.*, p.

hypothetical problems until final validation is achieved by checking against the actual speech of the student.³⁰⁾

Therefore, it can be understood how, in relation to articulatory speech therapy, a familiarity with phonologically-contrasted speech sounds is of great value to both the therapist and the teacher of a second language when dealing with either non-native speakers or native speakers. Both work on the basis of contrast.

Here, unfortunately, the linguist and the speech therapist part company, and from this point on the teacher and/or the speech therapist works on his own.

It is important that the student understand the specifics of his problem. Such can be explained and demonstrated to the reasonably mature; it can only be demonstrated (and perhaps illustrated) to the immature. There are several types of exercises useful in teaching the student to recognize his own errors. They include:

1. having the student read prepared material which illustrates his error: He thaw/saw the bird fly to the netht/nest.
2. having the student learn certain key phonetic symbols, and then writing from dictation both correct forms and errors which the teacher dictates.
3. the teacher utters a word five times, one of which includes an error; the student signals immediately upon hearing it, or gives the number of the utterance which included the error.
4. student reads from prepared material and underscores all errors he thinks he made; or, he may orally indicate probable errors.
5. student reads down prepared, error-laden lists; memorizes lists, prepared speeches, and "conversations."
6. various penalties can be arranged; using the telephone, the teacher hangs up immediately upon hearing an error, or may require the student to rush to the mirror and say "Oh, oh," etc., or, perhaps most useful of all, the student may be required

30) Lado, Robert, *Linguistics Across Cultures*. Ann Arbor : Univ. of Michigan Press, 1958. p. 72.

to imitate with great exaggeration the errors he makes as he goes along.³¹⁾

Speech pathologists generally work on the penalty theory rather than on the motivation theory: a fear of punishment is, after all, usually a stronger incentive to improvement than a pressing desire to communicate.³²⁾ When the student experiences the frustration of failing to communicate sufficiently despite considerable effort, he tries harder. Frustration can act as a powerful catalytic when the student realizes that something is wrong--his message isn't getting across, or he may sense that his auditor is somehow put off by his efforts. The student must be shown what is wrong and he must be shown how to overcome it. As a corollary, it should be stated very strongly that teachers of second languages who entertain that most absurd notion that if the utterance is understandable it passes: these teachers do a profound disservice to language teaching in general and to the individual student in particular. Nor should the teacher expect the linguist to be of much help here: *his* function, after all, is merely to provide a description of the language to be learned; he cannot say how the language should be taught.³³⁾

In mastering a new sound, the student must realize consciously or unconsciously that there exist four phonic levels: the isolated phone, the phone in a syllable, the phone in a word, and the phone in a meaningful sentence. Each of these levels involves four distinct processes: identifying the standard sound, scanning and comparing this own production of the standard with that of the model, varying and correcting the sound, and then stabilizing and habituating it.

When several articulation problems exist, the teacher should begin with ones involving the error the student learned first; then those

31) Van Riper, *Op. cit.*, p. 208.

32) Hahn, Elise "Indications for Direct, Indirect and Non-direct Methods in Speech Correction." in *Journal of Speech Defects*, 1961, p. 230.

33) Halliday, McIntosh, and Strevens, *The Linguistic Sciences and Language Teaching*. Bloomington : Univ. of Indiana Press, 1965, pp. 169-170.

which have the highest frequency, those having the simplest coordination, those for which the student receives some sort of penalty, and, finally, those which are the easiest to teach.

When dealing with consonantal errors, the schwa should be used as the basic vocalic phone.

There are five basic approaches in teaching new phones. They include:

1. *progressive approximation* (the speech therapist begins by making the same error as the patient and gradually brings the patient around to the correct sound).
2. *auditory stimulation* (the therapist produces a model and demands a correct response).
3. *phonetic placement* (drawings, diagrams, mirrors, etc., are used along with instruments-tongue depressors, tubes, etc.--part of the "motokinesthetic method").
4. *modification of already mastered sounds* (viz., /f/-/v/, /θ/-/ð/, /p/-/b/).
5. *key word method* (the therapist proceeds from a word in which the usually-faulty phone is pronounced correctly).

Once the phone is pronounced correctly it must be stabilized under various circumstances. Shouting, whispering, exaggerating are helpful.³⁴⁾ Including the newly-habituated phone in babbling and nonsense syllables is also helpful.³⁵⁾ When the correct phone is habituated in phrases and short sentences. stabilization may be facilitated by *slow-motion speech* (the speed of which is gradually increased by manual signals, tapping, etc.), *echo speech* (the student repeats instantly and automatically every word he hears ("shadowing") and then a series of words and ultimately phrases and sentences ("long echo talk")), and *unison speech*, which is effective with shy students, and groups, and can be speeded up by cues.

34) Van Riper, *Op cit.*, pp. 217-276.

35) Shames, George H. "The Use of Nonsense Syllables in Articulation Therapy," in *JSHD*, 1957. p. 261.

Negative practice, in which the student is occasionally required to commit errors is effective because it keeps the student aware of his problem until it is completely overcome, acts as a penalty, and tends to make an involuntary habit voluntary. *Masking techniques*, in which proleptical problems are infiltrated into material which ostensibly is treating other articulation problems, are sometimes very useful. Having the student identify and correct mispronunciations produced by the teacher is also useful. Techniques involving *proprioceptive feedback* are often of value in difficult situations. In this, the student is trained not by audible or visual means but by tactile ones: he learns to identify phones by a sense of touch ("point of articulation"), and this may be induced by having the student talk in pantomime, or cover his ears while talking, etc.³⁶⁾

In this brief study of some of the approaches of the speech therapist to the problems of articulation ("pronunciation"), it seems to me that several items of value to the language teacher are posited. These include:

- 1) criteria by which faulty pronunciation may be more easily classified.
- 2) the proposition that suprasegmental training should *precede* segmental training in TESOL. The need for a linguistically-based contrast of suprasegmental features of Japanese and English is strong. In this category it might be very profitable to investigate non-standard intonational patterns ("akusento"), such as are observed in Kansai, with a view toward supporting or disproving the thesis that those patterns showing the widest pitch range may indicate a greater propensity on the part of the speaker for successfully acquiring new intonation patterns.
- 3) the "linguistic method" of teaching foreign languages is largely imaginary (see Sol Saporta's review of Robert Lado's *Language Teaching: A scientific approach* (N. Y. : McGraw-Hill, 1964) in *Language*, vol. 41, No. 3, part 1 (1965), pp.547-51.

36) Van Riper, *Op. cit.*, pp. 207-276.

- 4) untried remedial measures (the “penalty theory,” for example) bear experimentation.
- 5) many of the psychological causes of faulty pronunciation (in particular the “neurotic profit motive”) should be studied in reference to the peculiar psychology of the Japanese student and classroom.

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