Pedagogical Tools For Teaching Articulatory Setting

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ABSTRACT

This paper reports on the application of different techniques to the teaching of articulatory setting. The results of the effect of an articulatory setting training programme on the overall degree of native-like and foreign accent as well as the degree of good pronunciation of seven Spanish first-year university students of English as perceived by native speakers of English will be presented and discussed.

1. INTRODUCTION

Since Honikman (1) popularised it in the sixties, the concept of "articulatory setting" has gained increasing importance in phonetic theory. Despite having a long history (see 2, 3, 4, for reviews) in the work of British (5, 6), French (7), Dutch (8) and, above all, German and Austrian phoneticians (9, 10, 11, 12, 13, 14), since Honikman's paper, authors have been paying some (moderate) attention to it at least in books on the phonetics of (British) English (15, 16, 17, 18, 19).

Discussed under a wide variety of headings, the concept of articulatory setting (henceforth AS) has been defined in many different ways (e.g. 1, 20, 21, 22, 23, 24, 25) but there is a consensus that AS is the speaker's overall articulatory posture or setting of the speech organs as well as the movement or manoeuvring of those organs. Authors also agree that this general arrangement or disposition of the speech organs is a quasi-permanent one and that the parts of the speech mechanisms involved are the larynx, pharynx, tongue, velopharyngeal system, lips and vocal cords as well as the cheeks and jaw. Finally, AS is also assumed to provide a long-term and overall quality or colouring to the voice affecting the production of all the individual sounds in whole stretches of speech.

The causes of the AS of individuals are both their anatomical and physiological condition (particularly their vocal apparatus) and the articulatory habits or adjustements of the larynx and the supralaryngeal tract *acquired* by those speakers (15, 18, 20, 27, 30). The anatomical components are specific to the individual's body and may be permanent (e.g. length of the vocal tract from larynx to lips, size of the tongue and vocal cords, etc.) or temporary (e.g. produced by a common cold) and are usually outside the speaker's control. On the other hand, the speaker's articulatory habits are within his/her control and have been acquired by social imitation or idiosyncratically. These habits are the ones specific to a language, social or cultural group or idiosyncratic to the speech of a given individual.

The functions of AS have also been discussed by different authors (e.g. 21, 23, 26, 27, 28, 29, 30). The general consensus is that these functions fall within three main categories: linguistic, paralinguistic, and extralinguistic. Firstly, AS has a linguistic function because it serves to characterise the particular language as well as the regional and/or social accent of speakers. Secondly, AS has a paralinguistic function because it signals mood, attitude, emotion and, most possibly, personality traits. Thirdly, AS functions extralinguistically in the sense that it characterises or identifies a specific individual when a particular AS is idiosyncratic to him/her. In short, AS can characterise the speaker on an individual, emotional-psychological, social, geograhical or native language basis.

Until recently in the history of phonetics, most descriptions or references to AS were carried out in impressionistic terms using expressions borrowed from popular speech (21, 32). An initial attempt to set up descriptive categories was made by Honikman's (1) distinction between "external setting", the overall visible configuration and movement of the lips and jaw, and "internal setting", the overall positioning of the internal mobile speech organs. Initial efforts were also made to describe different phonatory categories (e.g. 30, 32). However, since Laver (33), the most elaborate and systematic description of AS and voice quality with the aim of ultimately incorporating them into a theory of general phonetics and providing more stringent scientific terminology, the distinction between what is usually called "supralaryngeal" (also "articulatory" or "resonant") setting and "phonatory" (also "laryngeal" or "voice") setting has become standard (e.g. 17, 18, 34, 35).

2. ARTICULATORY SETTING TEACHING

Parallel to phoneticians' concern with AS, those concerned with pronunciation teaching have gained a growing interest in AS (e.g. 3, 21, 22, 23, 24, 25, 26, 28, 36, 37, 38, 39, 40). These authors suggest that AS should occupy an important (or even privileged) place in pronunciation teaching and they give several reasons for it. First, since AS has application to several phonemes of the target language (1, 22, 25), the large-scale readjustment that mastery of the AS of the L2 variety studied requires is believed to facilitate small-scale changes needed in the articulation of segmental units (1, 21, 38) and to improve the pronunciation of those

lower-level segments (17, 23). Second, intelligibility and comprehension in spoken language can be presumably enhanced by studying AS if a feature of AS figures prominently in the setting of the student's L1 but does not occur commonly or to the same degree in the L2 (23, 24). Third, since personal and social connotations are communicated to some extent through the voice as a result of the workings of AS, mastering the AS of the L2 could help students to improve the image they project when they speak the L2 (23, 28). For instance, mastery of AS would appear to contribute substantially to a native-like accent and to sound more authentically English (24, 40).

Given the increasing interest in the teaching of AS and its apparent benefits, different recommendations and suggestions for AS instruction have occasionally appeared in the literature (see 25, 26, 37, 40 for the most representative and extensive discussions). The reason why different techniques for AS teaching have been provided is that, as authors suggest (e.g. 20, 26, 39), verbal indications alone seem largely ineffective as a corrective in the pronunciation of L2 learners. This is so because the AS of the L1 is usually so deeply rooted as to seem as much an unalterable part of a person as his anatomical characteristics. Thus, more concrete forms of intervention are needed apart from verbal instructions.

3. AS TRAINING: AN APPLICATION

3.1. DESIGN
Despite many claims that AS teaching is beneficial for L2 learners' speech in a number of respects and that a wide variety of techniques can be useful for its improvement, few studies have actually looked at the application of specific techniques to AS training and the effects of such training. Instead, most evidence on the effect of AS training on students' speech is anecdotal (e.g. 1, 22). Exceptions to this are found in the work of Wenk (39) or Jones and Evans (28). Although restrictions of space prevent an adequate review of such studies, it is interesting to note that these studies suggest that AS instruction can actually produce a qualitative and quantitative difference in the speech of the L2 learner. These studies are very valuable but they did not exploit the rich inventory of techniques found in the literature. In short, although potentially useful, the promising suggestions presented in the literature have for the most part, remained within the realm of theoretical proposals with few applied studies to test their effectiveness. The application of the descriptions available to practical teaching is still in its infancy (22).

In an attempt to provide evidence on the usefulness of an AS training programme, the study described below was conducted. Its aim was to ascertain whether the combined use of different techniques could produce a change in the perception of the speech of students of English by native speakers of English regarding degree of native-like accent, degree of foreign (Spanish) accent as well as degree of good pronunciation as a consequence of readjustment of the overall L2 AS in the speech of those students. The research questions posed were: firstly, does the degree of perceived native-like accent change after readjusting the AS in the L2 student's speech?; secondly, does the degree of perceived "good pronunciation" change?; and finally, does the degree of perceived foreign (Spanish) accent change? Given past successes in the studies by Wenk and Jones and Evans, the hypotheses we entertained were that changes would take place: students would sound more native-like and less Spanish and they would be considered as having better pronunciation after receiving the AS training programme.

3.2. METHOD
3.2.1. SUBJECTS
Seven female first-year students of English Philology (mean age 19.1) volunteered to take part in the study. The students had previously completed a pronunciation course which included no AS instruction.

3.2.2. PROCEDURE
The students listened to a 90-word text on the North-Korea/USA 2002 crisis obtained from BBC World Service.com. Students were then presented the text in written form, allowed to read it first and then record it on a hard disk file by speaking into a microphone attached to a computer. After this, students attended ten sessions in the space of a month with an overall duration of 18 hours. Students went through a series of techniques suggested in the literature (1, 22, 23, 25, 26, 28, 36, 37, 40) as well as techniques not previously discussed (see below).

It must be pointed out that given that AS partly derives from the anatomical-physiological condition of speakers and it can also include idiosyncratic features, it seems reasonable that only language-specific articulatory habits typical of the L2 speech community should be the interest and focus for the language (or pronunciation) teacher (27). This is so because these AS features, which are under potential muscular control, are not only potentially learnable and imitable (28, 29, 37) but can also be generalised to most speakers of a given L2 community independently of their physiques or idiosyncratic habits. However, restricting AS training to language-specific features poses a problem. Since AS varies from language to language, and from accent to accent, advice to L2 learners depends crucially on which L2 variety is chosen as pronunciation model. For the students in this study the model was RP, which had been set as target in the pronunciation course they had previously completed. However, this given model (or any other) poses a further problem: RP, like *any* other accent, is no accentual monolith (18) and different ASs are probably to be found in different subvarieties which would without hesitation be labelled RP (27). As students had been taught the characteristics of the so-called "Mainstream RP" (18) or "General RP" (15), the AS of this subvariety of RP, which has been recurrently described in the literature (e.g. 1, 21, 27, 37, 40), was then chosen. The characteristics of the AS of Mainstream RP are: first, neutral lip position and slight, unvigorous lip-rounding and spreading; second, alveolar anchorage: active tongue tip frequently moving towards the

alveolar ridge; third, tongue tethered laterally to the roof of the mouth by allowing the sides to rest along the inner surface of the upper lateral gums and teeth not tensely held for comfortable lowering, retracting or advancing of the tongue; fourth, upper surface of the tongue just behind the tip lying concave to the roof; fifth, jaws held loosely together but not clenched, occasional lowering of the jaw, but relatively infrequent and slight; sixth, pharynx generally relaxed. Seventh, neutral or slightly lowered larynx, with low energy and low tension, slight creaky voice.

With these characteristics in mind, a set of techniques was employed which together made up an AS training programme. The application of this training programme was characterised by trying to make it: 1) multisensory by using visual, auditory, tactile and kinesthetic modes; 2) enjoyable, by using humour and helping students have a good time doing the exercises; 3) pedagogically motivating and attractive by using technological resources like Internet and the video in the language laboratory.; and 4) emotionally attractive by establishing a non-threatening student-friendly environment The pedagogical strategy followed was to try to foster an ideal receptive learning state for AS improvement.

The techniques used aimed to raise awareness of ASs, to promote auditory and visual self-observation and observation of others and to provide multiple opportunities for production practice. The techniques were: 1) listening to different types of recordings of speakers of various different languages, including L1, L2a, L2b, L3, L4, L2 spoken with an L1 accent, with an L3 accent, etc., followed by identification and discussion of distinguishing features; 2) listening to contrasting recordings of L1 and L2 speakers performing the same task each in their own language; 3) watching a video extract with the sound turned down to identify the language spoken -L1 or L2-, a brief film extract dubbed from L2 into L1 to observe mismatch between actors' articulatory movements and those suggested by the Spanish translation and conversations between L2 speakers, discussing external AS, body postures, etc. 4) use of a hand-mirror to observe external AS as well as internal contact between tongue tip and alveoli; 5) direct instruction, explanation and constant reminders using colourful language, transparencies, drawings, computer files, web sites, etc, to obtain AS readjustment; 6) speaking with a pen-cap placed lightly between the lips but not gripped to become aware of a small degree of opening in English; 7) placing fingers in two corners of the mouth to trace lip movements; 8) speaking with a "yawning" voice when counting in English to lower the larynx; 9) breathing exercises to achieve an almost total laxity of speech organs; 10) relaxation and articulation exercises to relax and warm up the organs of articulation for further training and to obtain greater articulatory agility and clearer speech; 11) lengthening of long open vowels and diphthongs produced in context to obtain muscular laxity; 12) imitation of L2 accent in the student's own native language; 13) role-play performance in front of others featuring common English expressions ("thank you", "sorry", etc.) taking on different characters; 14) individual repetition of everyday expressions; 15) reading passages featuring alveolar consonants; 16) delivery of nonsense speeches composed of words regarded as typical of L2; 17) production of tongue twisters featuring alveolars.

At the end of the ten sessions, students were given the same text as the one they had recorded earlier and were asked to read it taking into account the AS characteristics they had worked on. Later, three native speakers of English were told that they would hear "14 voices" reading the same passage. The native speakers were also told that they had to use a 7-point scale measuring "degree of native accent", "degree of good pronunciation" and "degree of foreign (Spanish) accent" in order to rate the voices according to those parameters, which they readily did finding no problem in the task.

3.3 RESULTS AND DISCUSSION
In order to compare the subjects' ratings of the first recording (before the instruction) the with those of the second (after the instruction), t tests were carried out. The results of these tests revealed that the differences between the ratings of the first recordings and the second were statistically significant for "degree of native-like accent" ($t(20)$ = -2.5394, P-value: 0.0195 < 0.05), for "degree of good pronunciation" ($t(20)$ = -2.4138, P-value: 0.0255 < 0.05), and for "degree of foreign Spanish accent" ($t(20)$ = 4.6634, P-value: 0.0001 < 0.05). Although we cannot ascertain the specific effectiveness of each technique in the AS programme students followed, the overall effect of the AS training programme (leaving aside possible differences in the usefulness of techniques) was a positive one in the sense that subjects were perceived as having a more native-like accent, a better pronunciation, and a less strong Spanish accent after the treatment. This suggests that AS training programmes can actually benefit students in their attempt to improve their spoken language and the image they project of themselves.

4. CONCLUSIONS

Nowadays, those interested in teaching pronunciation agree that language-specific AS features should be described and taught within the pronunciation component of the ESL curriculum (e.g. 23). The results of the experiment reported above suggest that AS instruction may actually contribute to a change in L2 native speaker's perception of the speech of L2 learners. Provided students wish to sound more authentically English, be considered as having a "good pronunciation" and not having a strong foreign accent, AS training should become a part of pronunciation teaching. We believe that the results of the study reported above support the current view in the specialised literature.

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