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Pronunciation learning and teaching: What can phonetics research tell us?

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Abstract

Contemporary research on the learning and teaching of second language (L2) pronunciation indicates that "applied phonetics" must be defined as something more than simply "phonetics applied." Rather, pronunciation teaching has evolved into a separate field of inquiry with its own priorities and methodologies. Here I synthesize concepts and findings from adult L2 pronunciation research that can inform teaching practices. In doing so, I take the view that evidence-based pronunciation teaching is both possible and effective, but that it must be rooted in research that is specifically focused on pedagogy, rather than on notions extrapolated from general observations about speech. Such a position requires that we dismiss certain conventional "commonsense" notions about the L2 learning process and replace them with empirically-motivated principles. In the first place learners are more apt to be judged successful in L2 phonetic learning if we take a pragmatic view based on practical communication skills rather than emphasize the achievement of a high degree of phonetic accuracy, which is neither necessary nor likely to occur. Second, while pronunciation instruction can be effective, it must accommodate large variation in individual learning trajectories. Contrary to some popular opinion, *particular* learners' segmental and prosodic difficulties are, for the most part, not predictable from their L1 backgrounds in any useful way. Rather, they are subject to a wide range of social and cognitive influences. Consequently, the best pedagogy is not a fixed curriculum that surveys all or most of the L2 sound system, but one that is easily adapted to individual learner differences.

Keywords: evidence-based teaching, intelligibility, comprehensibility

1. Introduction

In academia, relations between "theoretical" and "applied" streams of scholarship are often strained, and the language sciences are no exception to this dictum. By the time the *American Association for Applied Linguistics* was founded in 1977, Applied Linguistics had veered away from the theoretical mainstream as a distinct area of inquiry with its own journals, conferences and research priorities. Arguably, the rift was partly due to the intractability of the ideal speaker-hearer model that dominated generative theory. Rejecting that concept, applied researchers pursued scientific investigations of precisely the things that some theoreticians considered uninteresting. Not only did they explore the effects of teaching on language learning, but they focused attention on a wide range of social and cognitive factors that contribute to variable success in L2 learning, including motivation, personality, aptitude, input and interaction. The need for separation of the two fields was underscored by flat assertions from Chomsky himself that language teaching is a "craft" that is not amenable to a scientific approach [1].

Pronunciation teaching has enjoyed a closer relationship with its mainstream sibling, phonetics, than that between applied and theoretical linguistics. Phoneticians have long held an interest in the applications of their work to pedagogy, and it is improbable that any contemporary phonetician would declare that principles and research findings from the speech sciences could not be profitably exploited in the classroom. Nonetheless, many of questions that language teachers naturally ask about pronunciation have not been addressed by the field of phonetics per se. As a result, L2 pronunciation research has now emerged as a distinct area of inquiry centred on the everyday concerns of the classroom.

2. Historical Background

One famous advocate of pronunciation teaching was Henry Sweet, whose book on the practical study of languages [2] offered an assortment of specific opinions on how pronunciation should be taught and learned. While the enduring value of some of Sweet's views may be questioned, his belief in the fundamental importance of pronunciation to success in L2 language learning is echoed in much contemporary research. Later in the 20th century, David Abercrombie, well known for his work on

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rhythm, voice quality and other challenging issues, was lauded for his contributions to English pronunciation teaching [3]. He authored several publications targeted directly at teachers, including an especially prophetic article from 1949 [4] that set the stage for the empirical focus on intelligibility that emerged decades later. Another giant of the field, Pierre Delattre, pioneered speech perception research using the Pattern Playback at Haskins Laboratories, but also pursued a career in the United States as a French instructor specializing in pronunciation, (see, e.g., [5]). Delattre's 1974 obituary in the *French Review* [6] emphasized that his passionate contributions to pedagogy were at least as important as those he made to speech science.

In recent decades, however, the phonetics expert-cum-language teacher has largely disappeared. On the one hand, studies of L2 speech perception and production command a great deal of attention at phonetics conferences and in major journals. On the other, the most influential scholars in that field, such as Winifred Strange, Catherine Best, and James Flege have not focused their work on teaching issues per se, and have generally opted not to interpret their own findings in terms of the language classroom. Meanwhile, interest in pronunciation teaching has grown considerably in recent years, and teachers are seeking answers to questions about how best to improve their practices.

The turn toward pronunciation teaching as a specialized field is well justified. Despite the clear connections between phonetics and oral language pedagogy, teaching-oriented research has its own specific aims and methodologies. Among other priorities, teachers are concerned with helping learners set goals, identifying what needs to be taught, and applying effective instructional techniques. But pronunciation is taught in the context of the many other fundamental aspects of language that learners must acquire, including grammar, lexis and discourse skills. Logically, then, pronunciation can occupy only a small part of an instructional curriculum, and the time allocated for it must be used efficiently. There is no question that instruction is best left to qualified teaching specialists who have specific training in the field of pronunciation. Just as an acquaintanceship with grammatical theory does not make one a grammar teacher, being highly knowledgeable about phonetics does not qualify one to teach L2 pronunciation. Moreover, as Abercrombie pointed out nearly 70 years ago [4], the reverse is also true: pronunciation teachers have no need for the same kinds of knowledge as the traditional 20th century phoneticians who developed extraordinary expertise in fine-grained phonetic transcription; nor is it advisable (barring some personal fascination with the subject) for them to devote time to such a pursuit. Rather, teachers require only basic phonetic transcription skills and a general grasp of articulatory mechanisms – enough for them to assess learners' communication skills and provide pronunciation help if and when necessary. Just as important, they must also have a solid understanding of what is actually achievable through pedagogy and how best to help learners identify and pursue realistic pronunciation goals. Some of the concerns of teachers are now being addressed in a growing research literature on pronunciation teaching. Ideally, this work takes the form of ecologically valid empirical studies that allow for the realities of contemporary L2 classrooms. While the current growth of the field offers much promise, it is regrettable that research from several countries points to insufficient knowledge of pronunciation issues on the part of teachers [7]. Thus, a further necessary step in the delivery of effective instruction to L2 learners is an improvement in teacher training.

3. Evidence-based Pronunciation Teaching

In a recent volume, Derwing and Munro [8] argued that evidenced-based pronunciation teaching is both possible and effective. In the sections below, I outline some of the major tenets of this view, with particular emphasis on the issues of identifying, instructional goals, addressing individual variability, and implementing effective instruction.

3.1. Establishing goals

This discussion of goals refers to the *general* aim of instruction, rather than to any specific concern about the articulation of segments or the production of suprasegmentals. One naïve – and demonstrably untenable – view of pronunciation instruction holds that it should be designed to eliminate errors in production and thus assist the learner to sound like a native speaker of the L2, with as little an indication of a foreign accent as possible. This perspective, termed the *nativeness principle* by Levis [9], has sometimes been explicitly mentioned in the literature, though historically it has often been nothing more than a "default" assumption that has not undergone critical examination. However, basic findings in the L2 speech literature discredit the notion that this type of accent change is even possible, let alone necessary. In the first place, a well-attested outcome of production studies is that the strength of speakers' L2 accents correlates highly with age of L2 learning [10]. Thus, it is the norm, not the exception, for adult language learners to produce noticeably non-native speech,

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irrespective of their proficiency levels in other domains of L2 acquisition. Second, in spite of many dubious (and possibly fraudulent) claims made in commercial advertising, no compelling evidence has been presented that *any* type of instruction can systematically and reliably lead to native-sounding pronunciation in typical adult learners. However, this observation should not be cause for dismay in light of a third fact: that even heavily foreign-accented pronunciation can be perfectly intelligible and well-suited to effective communication. The partial independence of *accentedness* (the degree to which one's speech diverges from that of the community) and *intelligibility* (the degree to which the listener understands the speaker's message) is one of the most robust findings in L2 pronunciation research [8, 11]. Also, well established is that a listener's difficulty in processing L2 speech, referred to by Munro and Derwing [11] as *comprehensibility* is only partly related to the other two dimensions. Thus L2 speakers have reliably been found to produced intelligible, easily understood speech even with a strong foreign accent. Finally, an expanding literature on pedagogical interventions has demonstrated that instruction can indeed be effective in improving the intelligibility and comprehensibility of L2 speech under a variety of circumstances, and that such improvement does not necessarily entail any perceptible "reduction" in foreign accentedness [8, 12]. Paradoxically, these empirical findings are fully in line with ideas expressed by Abercrombie [4], when he wrote that "…pronunciation teaching should have, not a goal which must of necessity be normally an unrealised ideal, but a *limited* purpose which will be completely fulfilled; the attainment of intelligibility" (p. 120).

3.2. Learner variability

In the practical (as opposed to academic) teaching of languages there is no excuse for confusing a pronunciation course with a course in phonetics. Yet, a surprising number of texts and software publications treat the pronunciation component of teaching as a fixed curriculum of study, in which learners are taken on a tedious tour of the entire sound system of the L2 in which all learners are expected to study and practice the same content. There is no sound basis for this "one size fits all" approach; nor is there good evidence favouring selection of instructional foci in advance, on the basis of a comparison of L1 and L2 phonological inventories. The latter is based on overly-optimistic assumptions about the accuracy and value of contrastive phonetic analysis. Teachers have at times called for lists of segments and other linguistic features that differ between L1 and L2, in the hope that anticipating learner's difficulties will obviate the need for individual student evaluations. And textbook authors have been happy to oblige, (e.g., [13]). However, Contrastive Analysis (a theoretical construct that arose from behaviourist psychology) was found unsatisfactory by many researchers in the 1970s.

More recent evidence of learner variability comes from a 10-year longitudinal study of ESL learners in Canada by Derwing and colleagues [14, 15, 16, 17]. These investigators observed high inter-learner variability in the production of English segments. With respect to vowels, for instance, some categories were produced intelligibly by most learners (from Mandarin and Slavic language backgrounds) right from the earliest stages of acquisition; other vowels were readily acquired after a short time by some but not other learners, even in the case of a shared L1. These inter-learner differences were most likely attributable to the interplay of socio-cultural and cognitive variables, such as amount and type of interactional experience, aptitude, and motivational factors. Even if it is possible to correctly determine, for instance, that Russian learners of English are more likely than Mandarin learners to have difficulty producing initial aspirated stops, it is simply not possible to predict whether any particular learner will encounter the problem, or, if so, whether it will persist throughout the acquisition process. Taken together, studies of inter-learner variability point unmistakably to a need for instruction that is tailored to individual needs. While identifying specific learners' difficulties and addressing them may seem daunting, it is here that technological advances in digital recording and visual representations of speech, and in automatic speech recognition are likely to be especially valuable.

3.3. Effective pedagogical intervention

Since a foreign accent does not necessarily compromise intelligibility or comprehensibility, it follows that not all non-native phenomena in L2 pronunciation merit equal attention during instruction. The theoretical concept of functional load, in fact, provides a basis for prioritizing some difficulties over others. For instance, segmental contrasts that distinguish large numbers of frequently-encountered, confusable words can be expected to be more critical for speech intelligibility and comprehensibility than contrasts that distinguish only a few, uncommon words. At present, this proposal has not received much attention from researchers, though one study by Munro and Derwing [18] has yielded limited evidence in its favour. In particular, that study indicated that high

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functional load errors led to a greater decrement in comprehensibility, an effect that was additive. Lower functional load confusions not only had a weaker impact, but were non-additive. Although such findings are enticing, additional research is required to test theoretical predictions at the segmental level.

With respect to prosodic features, there seems little question of their importance in intelligible speech, though addressing prosodic concerns also needs more attention in research. Particularly promising are findings from several studies [12] pointing to improvements in intelligibility and comprehensibility when prosodically-focused instruction was provided.

4. Conclusions

In the early to mid 1900s, pronunciation teaching was generally viewed as "phonetics applied." As such, it entailed providing learners with articulatory descriptions, analyzing the segmental and prosodic features of their speech, and attempting to make a priori predictions of their errors. The achievement of native-like pronunciation was the chief desideratum.

With the demise of audio-lingual language teaching came the pessimistic view that adult pronunciation is a particular difficult aspect of L2 acquisition that cannot be facilitated by instruction and is likely to be less successful than other aspects of L2 learning [8]. For the most part, these misunderstandings arose from a misplaced focus on the nativeness principle. When "success" in pronunciation learning is not defined in this way, but is instead understood in terms of intelligibility and comprehensibility, the majority of learners do "succeed" at least moderately well. However, some continue to have serious communication difficulties that result from inadequate pronunciation, and even those with less severe problems might well benefit from strategically-focused instruction.

At present, the research literature on L2 pronunciation is growing rapidly. The focus of this work, however, is taking new directions. Many specialists now understand effective pronunciation teaching to entail the judicious application of phonetic facts using evidence-based instructional approaches aimed at achievable goals. They seek to distinguish phonetic structures that are readily acquired without instruction from those that need and are amenable to pedagogical intervention; at identifying aspects of pronunciation that are actually important for communication, as opposed to those that are merely shibboleths; and at evaluating the efficiency and effectiveness of particular instructional techniques.

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