

('parentese'), therapy discourse, style-shifting, speaker- and listener-oriented articulatory control, register, code switching, and for deepening cultural and linguistic sensitivity.

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Q45. Benjamin Munson: Sociophonetics and child speech practice

Quite inadvertently, Van Borsel, Van Rentergem, and Verhaeghe (2007) pointed to the importance of SLPs/SLTs having informed views of linguistic variation, enabling them to distinguish genuine pathology from natural non-standard variation, and this is clearly an area where sociophonetics can help. What are the methods of enquiry in this non-traditional area of study? Can you explore for the interested clinician or clinical researcher the likely impact of, and clinically relevant research areas in children's SSDs for, sociophonetics as its literature base mushrooms and interfaces with clinical phonology?

A45. Benjamin Munson: Pathology or social indexing?

As practicing SLPs/SLTs know, the articulatory and perceptual characteristics of speech sounds vary from talker to talker, and within talkers, from utterance to utterance. For instance, phonetic detail can vary across talkers due to anatomic and dialectal differences; and within talkers, as a function of ambient noise (Lane and Tranel 1971) or the presumed language abilities of the person being addressed (Bradlow 2002). Determining whether a variation reflects pathology, warranting treatment, or whether it is normal is a challenge faced whenever we differentiate between language impairment and first-language interference in children from culturally and linguistically diverse backgrounds. Understanding of, and sensitivity to, the sources of variation simplify the task of forming these judgments.

Imagine two girls growing up in North America who demonstrate *superficially* equivalent pronunciation patterns, apparently omitting within word /r/ as in *every*, substituting /f/ for /θ/ word finally as in *bath*, and omitting final /t/ and /d/ as in *hat* and *bad*, respectively. One girl has these errors because of a problem in phonological acquisition and requires intervention. The other does not have errors per se, but rather, sound patterns that indicate successful acquisition of a variant of English, African American English, in which these are the speech community's pronunciations (for a review, see Thomas 2007). The second girl requires no intervention, except perhaps to say that, if she were to interact with people in dialectally diverse speech communities, she might benefit from explicit instruction in appropriate code-switching.

Assessing whether variation is pathological or not can be complex, and certainly not always as straightforward, for US clinicians at least, as the comparison above suggests.

Take for example the labiodental variants of /r/, transcribed as [ʋ], in some dialects of English in the UK. Superficially, they sound like /r/ misarticulations that occur in typical acquisition. An improbable interpretation of this variant is that it represents a widespread, persistent speech error, but as Foulkes and Docherty (2000) show, rates of use of [ʋ] are highly linked to social stratification. Indeed, its use might signal, intentionally or unintentionally, membership of different social groups, rather than social-group differences in the incidence of misarticulation.

Sociophonetics

Sociophonetics melds methodologies and theoretical constructs from several disciplines, including experimental phonetics, psycholinguistics, and sociolinguistics. Foulkes (2005) summarises how sociophoneticians catalogue variation in the sound structure of language echoing social-group membership, in production and perception, and how this interacts with other linguistically based phonetic variation: segmental and prosodic. Perceptual studies in this sub-field reveal that listeners readily associate different pronunciation variants with social categories, often in ways contrary to the actual use of these variants in a population. Niedzielski (1999) illustrates this in an influential study of vowel perception by people in Detroit, Michigan. Participants were presented with synthesised vowels in a speaker identification task, and told that the vowels were modelled on the productions of either Detroiters, or residents of nearby Windsor, Ontario, who speak a different English dialect. Labelling of the Windsor vowels, by the Detroit participants, showed tacit knowledge of the ways that people within that dialect region speak. Interestingly, the labels listeners gave for vowels presumed to be produced by Detroiters exposed social stereotypes of the speech of Detroiters that did not match their actual vowel productions.

A qualitatively similar case comes from Munson and Zimmerman (2006). They examined listeners' perception of men's sexual orientation according to how /s/-initial words were produced. A popular-culture stereotype in North America and in much of the Commonwealth of Nations holds that gay men lisp. Although the term 'lisp' has fallen out of scientific use among SLPs/SLTs, it clearly connotes a misarticulation. Published studies on /s/ variation and sexual orientation in men show that individuals' production of /s/ is associated with both actual and perceived sexual orientation (Linville 1998; Munson, McDonald, DeBoe, et al. 2006). The distinctive /s/ associated with gay- and gay-sounding men's speech, however, is arguably a hyper-correct /s/, and not a lisp, as its acoustic characteristics serve to better differentiate it from the acoustically similar sounds /ʃ/ and /θ/ than the heterosexual and heterosexual-sounding men's /s/ (Jongman, Wayland, and Wong 2000). Munson and Zimmerman found that listeners label a talker as gayer-sounding when presented with stimuli containing a hyper-correct /s/ than when presented with stimuli containing /s/ with average acoustic characteristics. Nearly identical scores were elicited when listeners rated tokens containing a frontally misarticulated /s/, even though its acoustic characteristics differed markedly from those of hyper-correct /s/.

Other research demonstrating that listeners' expectations affect speech perception complements these findings. For example, expectations about talker gender and social class affect the categorisation of speech sounds (Hay, Warren, and Drager 2006; Strand and Johnson 1996). Strand and Johnson showed that acoustically equivalent American-English

lingual fricatives are labelled differently depending whether listeners believed they are listening to a man (favouring a /s/ response) or to a woman (favouring a /ʃ/ response), perhaps signifying tacit knowledge of sex differences in production of these sounds. Hay, Warren, and Drager showed that listeners in New Zealand label the acoustically ambiguous diphthongs in *hair* and *here* differently depending on whether they are led to believe they are produced by a woman or a man and by a working-class or a middle-class person.

The cases of sexual orientation and /s/ and /r/ variation in the UK, are particularly interesting, illustrating that considerable variation in pronunciation can occur *within* a speech community, without appearing to be due to obvious anatomic or physiologic differences. Moreover, their origins appear to be different from those for regional dialects, the formation of which may be related to factors such as migration and language contact (Trudgill 2004). But surely labiodental /r/ ([v]), hyper-articulated /s/, and very local phonetic variants within high school cliques (Eckert 2000b; Mendoza-Denton 2007) cannot result from such factors. Rather, they appear to be instances of groups of individuals exploiting permissible variation in speech to convey social categories, *alongside* propositional linguistic information.

Consequences of variation

In addition to understanding the *causes* of variation, SLPs/SLTs must understand its *consequences*. Consider the fairly robust finding that English-speaking women are more articulate than men (Bradlow, Toretta, and Pisoni 1996). Perceptual studies reviewed in Munson and Babel (2007) show that many listeners make tacit associations between hyperarticulation and sex typicality of speech. What if children held these stereotypes, too? If they did, they might judge less-articulate male peers as more masculine sounding, and more-articulate female peers as more feminine sounding. This in turn might promote a powerful social motivation for some children, particularly young boys, to resist speech and language therapy aimed at improving intelligibility, because 'success' might manifest as a boy sounding less boy-like! Then again, imagine a child with a [t] for /s/ substitution being taught /s/ in therapy. One likely and reasonable instructional strategy would be for the clinician to model a hyper-articulate /s/. The social meaning associated with that phonetic variant in some English-speaking contexts might make boys in particular averse to learning it.

A child who is taught only one variant of /s/ in therapy is ill-equipped to manipulate its characteristics to convey different social registers, unless therapy promotes spontaneous learning of the full range of /s/ variants through encoding and emulation of different models in the population. To this end, peer-modelling might be incorporated into therapy.

Implications for practice

When clinical SLPs/SLTs are proactive in incorporating ethnographic analysis into their practice, especially with culturally and linguistically diverse populations, they examine the range of phonetic variation throughout the communities in which a child communicates. They develop both taxonomies of phonetic variants and observations of the communicative functions of these variants, much as Eckert (2000b) and Mendoza-Denton (2007) did when researching sociophonetic variation in high school students' speech. Ethnographic analysis

holds promise for a rich and detailed picture, more complex, more informative, and more culturally apt than traditional descriptive approaches to child speech, a suggestion that is consistent with many of the works assembled by Müller (2006).

Ethnographic analysis was not employed when Van Borsel, Van Rentergem, and Verhaeghe (2007) examined an almost 23% incidence of what they characterised as dentally misarticulated /s/ in Belgian university students aged 18 to 22, reported to be 'native speakers of Dutch'. Their incidence fluctuated as a function of some variables rarely cited as being associated with misarticulation rates, such as university field of study. The lowest rates of interdental /s/ were among humanities students, with higher values for natural sciences and social sciences students, and a significant majority of those identified as lisping were unaware that they were assessed as such. Carefully indicating that their finding might not be new, they cite a palatographic study (Dart 1991) that revealed dental articulation of /s/ and /z/ by French-speaking (42.1%, p. 48) and English-speaking (22.8%, p. 50) adults with no obvious speech, language, or hearing impairments. Moreover, Van Borsel and colleagues concede that no definitive interpretation of their findings exists. They speculate, however, that they might reflect increased social tolerance to imprecision in articulation, or to the influence, on Dutch pronunciation, of English in which /θ/ and /s/ and their voiced cognates are phonemic.

How might these authors have incorporated insights from sociophonetics into their study? First, by examining more incisively the distribution of variants relative to actual or perceived social categories, especially in view of their intriguing finding that these categories differed as a function of university course. Were the students marking their affiliation to humanities or the sciences with distinctive patterns of phonetic variation? Then, analysis of listener perceptions of the participants' /s/ production might have yielded surprising insights. For example, the dental sound might have been associated more strongly with affiliation with a particular social group than with a judgment that the person produced speech less accurately. It is interesting to reflect on how such a finding might help explain why the variant is present. Consider, for example, that this research took place in Belgium, where many languages, including Belgian French and Flemish (the Belgian variant of Dutch), are spoken. As shown by Dart, French has a higher rate of dental fricative productions than English. Perhaps the higher use of dental fricative in certain groups relates to their exposure to or social identification with the French-speaking population in that country. That, of course, is mere speculation on this author's part, but it shows how sociophonetic methods could have been used to flesh out Van Borstel and colleague's findings. If, in the analysis, these variants actually indicated pathology, then it might be reasonable to suggest that Belgian logopedistes consider treating them more aggressively in children and adolescents.

But, if these are indeed normal sociophonetic variants, then they do not warrant treatment in the traditional sense, although they might legitimately be the subject of a regimen to increase talkers' linguistic flexibility. That is, SLPs/SLTs should not be blind to the fact that non-pathological variation may be associated with negative judgments by some listeners, especially where they index membership in a group that is itself stigmatised. In this regard, Van Borstel and colleagues cite references in support of their argument that frontal lisping can be associated with negative evaluative judgments.

An individual's communicative effectiveness, broadly speaking, resides in part on their ability to fluently switch among different phonetic variants in socially appropriate contexts,

and SLPs/SLTs are best positioned, in terms of their knowledge and skill bases, to help people who find this problematic. But it must be emphasised that a population that speaks a non-standard variant is *not* a disordered population, and their presenting 'condition' is not a disorder. By carefully assessing whether productions are deviant, as opposed to normal, socially stratified variants, SLPs/SLTs can ensure that they do not improperly treat normal variation as pathology.

SLPs/SLTs should also be aware that a variant perceived negatively in one context or by one group may be perceived positively in another context or by another group. The association between /s/ and men's sexuality in the many English-speaking countries is a case in point. Whereas this variant is associated with both actual and perceived sexual orientation, it is also associated with hyper-articulate speech. A man whose habitual /s/ demonstrates these characteristics would be ill-advised to change his /s/ characteristics in all communicative contexts, as doing so would prevent him from projecting the positive characteristics that are associated with clear-sounding speech.

The doctoral shortage in higher education

It seems that clinicians who do research, or 'hands on scientists', are an endangered species. ASHA has identified both a critical shortage and a continuing attrition of PhD and other doctoral level faculty in the US whose magnitude will affect the professional preparation of SLPs and the conduct of research in communication sciences and disorders. In a highly publicised focused initiative, ASHA is working to increase the number of doctoral teacher-scholars and students who choose higher education as a career option. The aim is to fill academic faculty/researcher vacancies in human communication sciences and disorders over the next decade at least, to achieve a balance between supply and demand. Part of this initiative manifests as Web content specifically promoting PhD education and teacher-researcher careers. The advertising highlights the lack of overt encouragement for clinicians, including experienced ones, to step outside traditional roles and pursue doctoral studies.

Chapter 1 includes discussion of the research-practice gap and the culture of separation that can exist between theorists, researchers, and practitioners. But heartening signs of constructive alliances between lab and clinic, within the higher degree process, are also revealed. It was with this in mind that Q46 was put to Dr. John Bernthal, an ASHA past president, professor and chair of the Department of Special Education and Communication Disorders, and director in the Barkley Memorial Center at the University of Nebraska-Lincoln. Famously and indispensably for the readers of and contributors to this book, he is co-author with Dr. Nicholas Bankson of five editions of *Articulation and Phonological Disorders*, and with Bankson and Peter Flipsen, Jr. of the sixth edition (Bernthal, Bankson, and Flipsen 2009). Bernthal's co-author here is Dr. Megan Overby, an Assistant Professor at The College of St. Rose in Albany, NY. After working as a public school SLP for nearly two decades, she returned to academia, receiving her PhD from the University of Nebraska-Lincoln in 2007. Her teaching and research interests include phonology, language, and literacy. She is assisting The College of St. Rose to prepare to launch a PhD program in Communication Sciences and Disorders.

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Children's Speech Sound Disorders

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