

Phonological and phonetic assessments of multilingual children

The goal of this presentation is to discuss the phonological and phonetic assessment of multilingual children. Our understanding of “typical” phonological development is based on data from monolingual contexts; however, by using monolingual populations as the standard, or normative group, research fails to reflect the population and language-learning context relevant to multilingual environments. As a result, bilingual children are either over- or under-diagnosed with speech sound disorders, which may result in poorer educational outcomes for these children. Bilingual children necessarily receive less exposure to each of their languages than would monolingual children, and are exposed to a more diverse set of phonological structures than monolingual children. They are faced with the challenge of discovering the pattern in the continuous stream of sound to (a) distinguish between the two languages, (b) acquire the essential phonological contrasts of each language, and (c) develop finely tuned acoustic accuracy at the phonetic level.

This presentation will illustrate how phonological and phonetic measures can be used to describe phonological development and how they can be applied together using Phon. Within a multidimensional framework of phonological development (Munson, Edwards & Beckman, 2005; Pierrehumbert, 2003), children are thought to acquire different levels of representation through exposure and use of the language in the environment. These levels of representation include acoustic (perceptual) and articulatory characteristics of phonemes, identification of phonological categories based on these characteristics, and rules about how these phonemes can be combined, or phonotactics. To capture the development of phonology across multiple dimensions, clinical assessment should include measures of phonetic characteristics through acoustic analysis, and phonological categories measured by production accuracy.

To illustrate how these measures can be brought together, the presentation will focus on the voicing of obstruent stop consonants by children acquiring French as a second language in kindergarten. Stop consonants are among the first phonemes to be acquired, but their voicing varies across languages. In French, stop consonants in word initial position are contrasted using pre-voicing and short lag voicing. Children from three language backgrounds will be studied to understand their acquisition of the French voicing contrast at the phonetic-acoustic and phonological levels: Tagalog (pre-voiced and short lag obstruent stops), Mandarin (short lag and aspirated obstruent stops), and Tamil (no phonemic voicing contrast of obstruent stops). The children were measured in the spring of their kindergarten year and had approximately 20 months of exposure to French. They participated in a picture-naming task and their productions were audio recorded. The phonetic transcription and acoustic analyses were conducted within Phon, making use of the Phon-Praat interface. It is hypothesised that short lag stops will be accurate for all children, but that French pre-voiced stops will be produced most accurately by the children who speak Tagalog as their first language, followed by the Mandarin and Tamil speaking children. The discussion will focus on (a) suggestions as to how we could improve Phon for this type of work, and for research on multilingual learners more generally; and (b) suggestions for integrating this approach in clinical practice.

Munson, B., Edwards, J., & Beckman, M. E. (2005). Phonological knowledge in typical and atypical speech-sound development. *Topics in Language Disorders*, 25(3), 190.

Pierrehumbert, J. B. (2003). Phonetic diversity, statistical learning, and acquisition of phonology. *Language and speech*, 46(2-3), 115-154.