Introduction

- Accurate speech perception is at the core of an accurate and valid assessment of children’s speech production. Children’s speech contains considerable within-category variation. Normal speech sound development often does not proceed categorically; children gradually differentiate between target sounds and their errors during development. Continuous rating scales can be used to measure this gradual differentiation (Munson, Schellinger, & Urey-Carlson, 2012; Urey-Carlson & Munson, 2013).
- Munson, Johnson, and Edwards (2012) and Diamond and Munson (2013) showed that clinically trained listeners were superior to untrained ones in perceiving within-category detail in children’s speech in quiet and in background noise. 
- Both of those studies examined a relatively small (n=50) group of clinicians.

To expand these findings, we conducted a nationwide survey that included both a speech-perception component and a questionnaire about practice patterns.

Research Objectives

- To document clinical practice patterns regarding phonetic transcription and other perceptual assessments of children’s speech.
- To compare the performance of laypeople and clinicians on a Web-based experiment examining the perception of children’s speech.
- To examine relationships between practice patterns and speech perception.

Methods

Participants

- Clinicians (N=81) were recruited by email through speech-language-hearing state association listservs, social networking websites, and by word-of-mouth from colleagues and other participants.
- Laypeople (N=20) were recruited through social media and through word-of-mouth.

Speech Perception Experiment

- The stimuli were children’s productions of sound from four contrasts: /θ/, /s/, /θ/ and /s/. These contrasts were chosen because they are commonly neutralized by children during normal phonological development.
- The productions were taken from the multiword (paidologos) database of children’s speech. Monolingual English-speaking 2-through-5 year-old children were recorded during a picture prompted real word and non-word repetition task. Acoustic analysis and the results of previous perception experiments (Munson et al., 2012) showed the 15 stimuli in each set form a natural continuum between the endpoint sounds.
- The recordings were shortened to include only the initial consonant-vowel sequence (Boerma & Wernick, 2005). This ensured that listeners would not be lexically biased when judging consonant accuracy.
- Listeners judged the stimuli on a nine-point scale (Figure 1) after listening to it no more than twice. A pilot test with two groups of clinically untrained listeners found no significant differences between performance in the laboratory or in uncontrolled listening environments (Munson, 2013).

Survey

- The survey comprised two sections: demographic questions, and questions about attitudes and practice patterns.
- A focus group with six local experienced speech-language pathologists was conducted to develop the questions about attitudes and practice patterns (Table 1).
- Questions were answered on a six-point equally appearing interval scale (Munson, Schellinger, & Urberg-Carlson, 2012; Munson, Johnson, and Edwards, 2012; Diamond and Munson, 2013).

Analysis

- The 81 clinicians were divided into two groups, less-experienced clinicians (n=39, 1–10 years of experience) and more-experienced clinicians (n=42, 10+ years of experience).
- Factor analysis (principal components extraction, verimax rotation) was applied to their survey data. The responses to their questions are shown in Table 1, grouped into factors and separated by experience.
- For each set of speech perception stimuli, two measures were calculated: the percent of endpoint responses (an indication of the extent to which individuals perceived the endpoints of the natural continuum between the endpoint sounds).

Results

- Higher levels of clinical experience were associated with greater use of the less-experienced clinicians, separated by contrast type. Figure 5 shows perceptual acuity (R²) in regressions predicting ratings from acoustic measures ([θ/ʃ, /s/–/θ/]) by the less-experienced clinicians and the more-experienced clinicians, separated by contrast type.
- These measures were correlated with items from the survey (Table 3).

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References