The Effects of Listener Bias on the Perception of Accuracy in Children’s Speech
Marie K. Meyer and Benjamin Munson

INTRODUCTION

PHONETIC TRANSCRIPTION
• Phonetic transcription is a tool that has long been used by speech-language pathologists (SLPs) to record the accuracy of children’s productions of speech sounds. Transcription has generally been considered to be an objective method, and not subject to bias when used by speech-language clinicians with professional training.

TRANSCRIPTION CHALLENGES
• Children’s productions of speech sounds do not always fall into distinct categories that match adults’ productions. Sometimes children produce intermediate productions (productions that lie between two adult endpoints). Because adults tend to perceive speech categorically, these are generally labeled as one of the endpoints. A related phenomenon is Covert Contrast (cases where children produce a difference between two sounds, but adults perceive the children’s productions to be identical)

• A listener’s expectations can influence his or her rating and judgment of a child’s production.

• Previous work (Schellinger, Edwards, Munson, and Beckman, 2008a,b,c) suggested that listener’s expectations about a child’s age and developmental level can affect his or her rating and subsequent transcription of the child’s production. In their preliminary experiment, they presented productions of /s/ and /θ/ that were preceded by two types of carrier phrases, one type with correct productions and one with speech-sound errors. The carrier phrases were presented in random order, and Schellinger et al. found only a small biasing effect in their experiment.

RESEARCH QUESTIONS
1. Does bias due to listener expectations of a talker’s age and level of development affect accuracy rating of children’s productions of the sounds /s/ and /θ/?
2. How do different aspects of experimental design influence this apparent biasing?

EXPERIMENT 1

PURPOSE
• To investigate the strength of listener bias (found by Schellinger et al.) by presenting the different carrier phrase types in blocks

PARTICIPANTS
• 13 English-speaking adult listeners (6 males and 7 females)

STIMULI
• A 5-year-old boy produced carrier phrase types: a correct phrase, “I really like,” and a phrase containing errors, “I weawwy yike.” Each phrase type was then paired with 200 consonant-vowel (CV) syllables beginning with /s/ and /θ/ produced by 2- to 5-year-old children.

• There were six types of stimuli:
  1. Stimuli that had been transcribed by two experienced native-speaker transcribers as a CORRECT /s/ (i.e., the child produced the /s/ in sink correctly)
  2. Stimuli that were transcribed as an [s] for /θ/ SUBSTITUTION (i.e., the child produced the /θ/ in think as [s])
  3. Stimuli that were transcribed as an intermediate production that sounded more like /s/ than /θ/.
  4. Stimuli that were transcribed as an intermediate production that sounded more like /θ/ than /s/.
  5. Stimuli that were transcribed as a [θ] for /s/ SUBSTITUTION (i.e., the child produced the /s/ in sink as [θ]).
  6. Stimuli that were transcribed as a correct [θ] (i.e., the child produced the /θ/ as [θ]).

• A two-factor within-subjects ANOVA on proportion ‘yes’ responses showed a significant main effect of fricative type (F[5,70] = 33.5, p < 0.001, partial η² = 0.71). Bonferroni-correct post-hoc tests showed significant differences between all pairwise comparisons except the following: correct /s/ and the [s] for /θ/ substitution, the two intermediate productions, correct /θ/ and the [θ] for /s/ substitution.

CONCLUSION
• The results suggest that while the carrier phrase does not bias listeners to rate sounds differently, the presence of the word “lisp” in the directions does. Removing “lisp” from the directions dramatically increased listeners’ willingness to accept /θ/-like productions as correct.

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