INTRODUCTION

Transcription is the tool of choice of clinicians and researchers studying phonological development and disorder.

However, problems with transcription include:

- Listener judgments are influenced by their expectations.
- Children do not always progress directly from clear substitutions to correct productions.
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Listener expectations:

- Listener judgments are influenced by information about a talker, such as gender, dialect, age, and social class.
- For example, listeners hear the same diphthong differently depending on whether they believe the talker is from Canada or from the United States (Vehviläinen, 1999).
- Non-categorical nature of development:
  - Covariates (dysarthric differences that are not perceptible to adults)
  - Intermediate productions (productions that are in between two phoneme categories)

RESEARCH QUESTIONS

1. How do adults perceive children’s correct productions of /s/ and /θ/?
2. Do expectations about a child’s age and the presence (or absence) of a phonological disorder, as read by a carrier phrase, influence listeners’ accuracy judgments?
3. Do listeners with clinical experience perceive these productions any differently than listeners without clinical experience?

EXPERIMENT 1

PURPOSE

- To select the carrier phrases for Experiment 2

PARTICIPANTS

- 20 young adult listeners (English-speaking females)

STIMULI

- Productions of the carrier phrase “I really like” were elicted from a 5-year-old boy who was a native speaker of American English.

DISCUSSION

- There was no significant difference between the mean ratings for the two different orders, so data from both orders was combined.
- When judging the age of the child, listeners were influenced both by the F0 and formant values of the carrier phrase and by the presence or absence of phonological errors within the phrase.
- When judging how adult-like the child’s speech sounded, listeners were influenced only by the presence or absence of phonological errors.
- Listener ratings of age and of the presence/absence of a phonological disorder were highly correlated.

EXPERIMENT 2

PARTICIPANTS

- 15 Masters students in Communicative Disorders at UW-Madison
- 15 Undergraduate students in Communicative Disorders at UW-Madison
- Ages 18-21
- Limited or no clinical experience

STIMULI

- 20 word-initial consonant-vowel (CV) syllables beginning with /s/ and /θ/ were elicited from a larger study (Edwards & Beckman, 2008).
- All CV sequences were transcribed by the first author.

RESULTS

MEAN RATINGS FOR THE DISORDER-RATING TASK PLOTTED AGAINST THE MEAN RATINGS FOR THE AGE-RATING TASK

- Each CV sequence was paired with two different carrier phrases, one “younger-disordered” carrier phrase and one “older-optical” carrier phrase.

- Validates our original transcription categories.
- Non-categorical nature of development:
  - Significant difference between correct productions and clear substitutions.
  - Significant difference between “intermediate” and all other transcription categories.

TASK PLOTTED AGAINST THE MEAN RATINGS FOR THE DISORDER-RATING TASK

- Lowered F0 and formants
- Unchanged F0 and formant values
- “I really like” sounds less like an older adult when the CV was preceded by a “younger-disordered” carrier phrase.
- “I really like” sounds more like an older adult when the CV was preceded by an “older-typical” carrier phrase.

PROCEDURE

- Carriers/Phrases-VC pairs were randomly presented on a laptop computer through headphones.
- Listeners were told:
  - Each sentence would begin with the phrase, “I really like,” and end with a consonant-vowel sequence which would be labeled either a /s/ or /θ/.
  - Sometimes the “s” sound would be produced correctly and sometimes it would be produced incorrectly.
- Listeners were asked to judge whether the “s” sound was produced correctly.
- Listeners responded by pressing buttons on a serial response box.

RESULTS: LISTENER RESPONSES

- The mean % correct [s] responses were significantly different for each of the 5 transcription categories.
- There was no significant main effect of carrier phrase type.
- There was no significant main effect of listener group.
- Each sentence would begin with the phrase, “I really like,” and end with a consonant-vowel sequence which would be labeled either a /s/ or /θ/.
- Sometimes the “s” sound would be produced correctly and sometimes it would be produced incorrectly.
- Listeners were asked to judge whether the “s” sound was produced correctly.
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DISCUSSION AND CONCLUSIONS

- Native listeners’ responses to each of these five transcription categories were patterned differently.
- Validates our original transcription categories.
- Provides support for the existence of overt contrast.
- Significant difference between correct productions and clear substitutions.

FUTURE DIRECTIONS

- Elicit gradient judgments from individual listeners.
- Use rating systems, including Direct Magnitude Estimation and Visual Analog Scales.
- Perform acoustic analysis of consonants in different transcription categories.
- Analysis of spectral moments and relative amplitude of the formative noise.
- Compare /s/ and /θ/ for /s/.
- Compare /s/ and /θ/ for /θ/.
- Describe intermediate productions.
- Run a similar experiment with more systematic focus on examining listener experience factors.
- Tell listeners whether the child is suspected of having a phonological disorder.
- Use natural segments of CVs to synthesize carrier phrases that match the CVs in terms of vocal source qualities.
- Provide listeners with a case history for the child.

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http://www.ling.ohio-state.edu/~edwards/