Apr 22nd, 3:00 PM - 4:00 PM

Measuring Dose and Teaching Moment Cues in Speech Sound Disorder

Zoe G. Sullivan
University of Montana, Missoula, zs135795@umconnect.umt.edu

Abby Marshall
University of Montana, Missoula, abby.marshall@umontana.umt.edu

Measuring Dose and Teaching Moment Cues in Speech Sound Disorder

Abby Marshall, Zoe Sullivan, & Amy Glaspey, Ph.D., CCC-SLP   SPEAK Lab

UNIVERSITY OF MONTANA

THE SCHOOL OF
Speech, Language, Hearing, & Occupational Sciences
UNIVERSITY OF MONTANA

Introduction

Defining and clarifying intervention elements helps speech-language pathologists (SLPs) understand how to implement effective and efficient methods during therapy sessions. By evaluating modeling and dose in therapy, we can explore procedures that result in better outcomes (Baker et al., 2018).

Speech Sound Disorders: Occur when children have difficulties saying sounds appropriately and need specialized instruction by an SLP to be understood.

Dose: The "number of properly administered teaching episodes per session'' (Warren et al., 2007).
- High dose with low frequency has better overall outcome in children's ability to learn phonetically (McGinty et al., 2011).

Teaching Moment Cues: Modalities of modeling include spoken, visual, tactile/kinesthetic, and gestural cueing elements during a therapy session (Baker et al., 2018).
- A multimodal therapy approach directly improved articulation, literacy skills, and phonemic awareness (Pieretti et al., 2014).

Research Questions

How can we measure (a) dose and (b) modalities of cues in speech therapy?

What are the outcomes for individual sessions?

Methods

Participants included two boys aged 6;2 and 3;8 with SSD; observed via video recording during treatment. A coding scheme was developed to track dose and different types of cues used in therapy sessions; both were counted in one-minute increments.
- **Dose Coding Scheme:** tallied clinician's prompt, if there was a production from the child, and if that production was correct or incorrect.
- **Cues Coding Scheme**: tallied the cues given by the clinician: pause, verbal model, pointing, visual cue, prolongation/segmentation, tactile, instruction, and indirect cue.

The coding schemes were used to track one session of the /r/ sound for each child and one session of the /sp/ cluster target for each child.
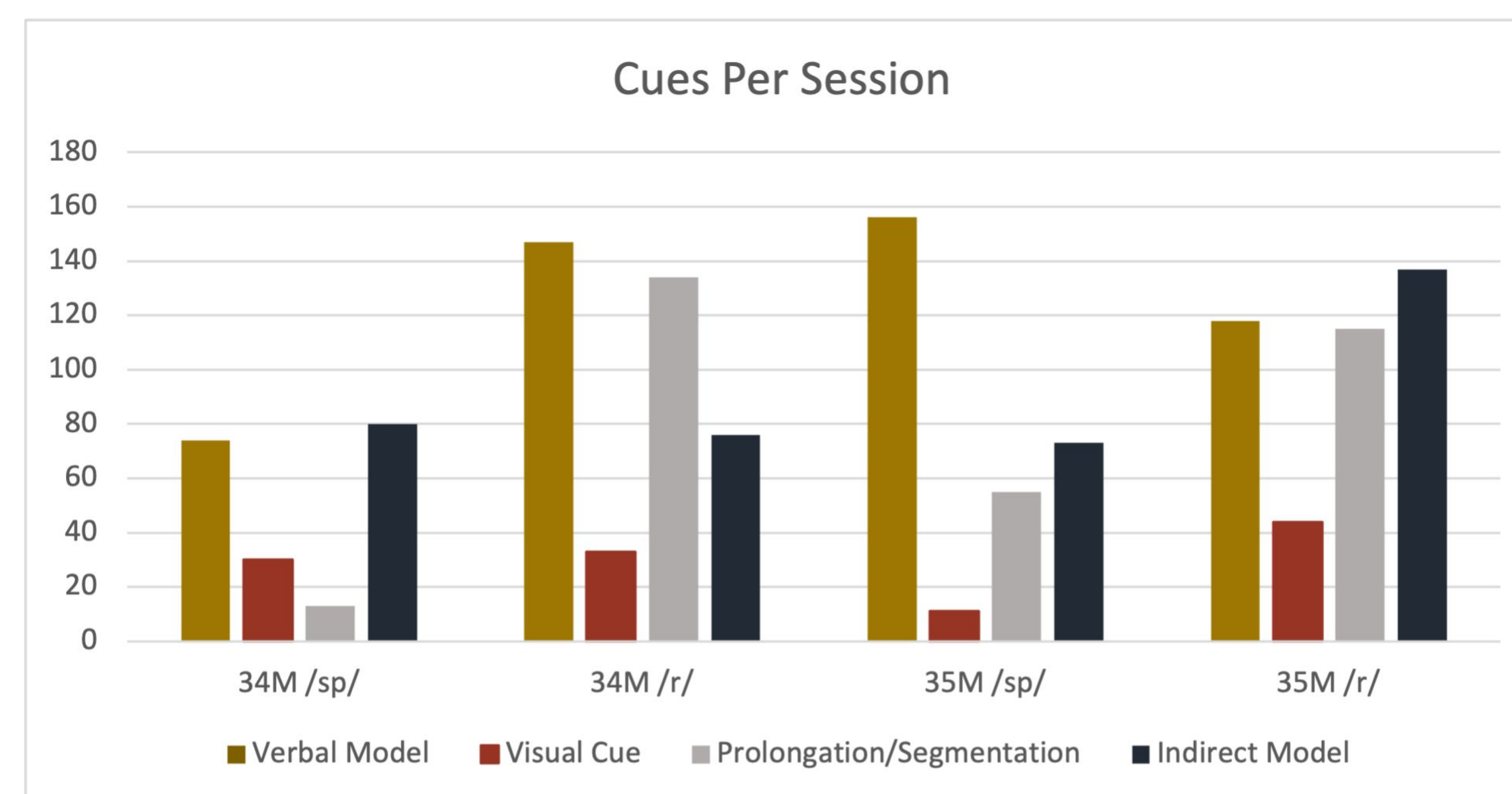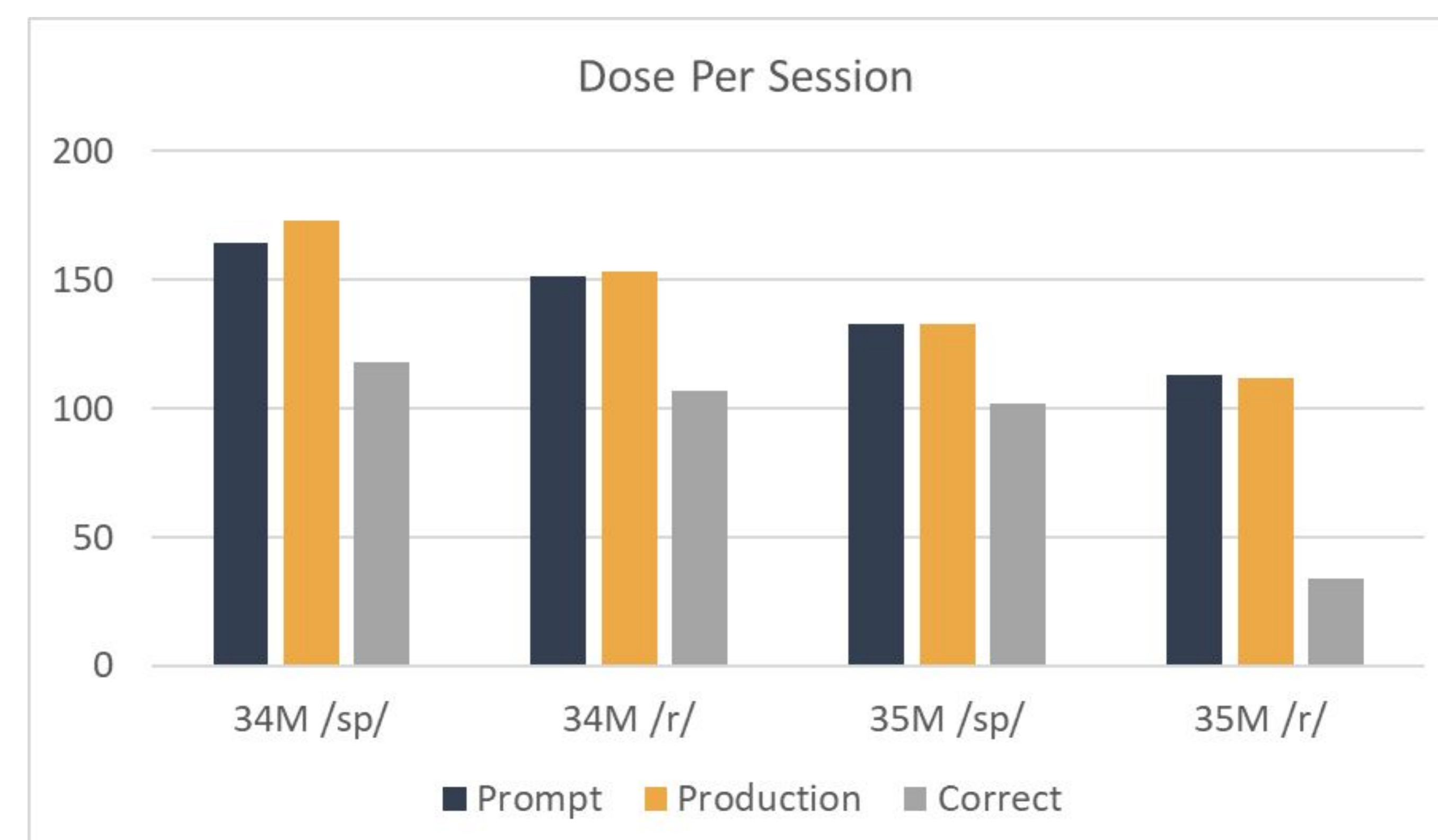
Coding

Dose Coding Scheme

Time	Prompt	Production	Correct	Incorrect
3:00-3:59	IIII	IIII	III	I
4:00-4:59	IIIII	IIIII	II	III

Teaching Moment Cues Coding Scheme

Time	Pause	Verbal Model	Pointing	Visual Cue	Prolongation/Segmentation	Tactile Cue	Instruction	Indirect Modeling
2:00-2:59		I		II	I	II		III
3:00-3:59		III		III	III	I		II

Results

Dose Per Session

Cues Per Session

Results Cont.

- Dose coding scheme: Allowed for total prompts, productions, and accuracy to be reliably tallied in one-minute increments.
- Teaching moment coding scheme: Allowed for tracking types of prompts and when prompts occur. Each cue was carefully defined for reliable coding.
- Dose Outcomes: more prompts and productions occurred with 34M and Certified Clinician; fewer prompts and productions occurred with 35M and graduate student clinician.
- Teaching Moment Outcomes: more variety of cueing methods occurred during /r/ production than /sp/ production. A verbal model was used most often by both certified clinician and graduate student clinician to prompt the child.

Discussion

- Dose was easier to code
- Cueing took longer to code because many cues occurred together, required careful viewing and listening.
- Clinician, child, and target variability affected dose, cues (more/less prompts, response to prompts etc.)
- Multiple sources were needed to measure accuracy, including clinician perception during the moment.
- Additional coders could be trained on the coding scheme so it can be used across clinicians.
- Dose required careful definition for reliability.
- Video observation approach created some challenges (distance from camera/microphone, loss sounds, etc.).
- Indirect models varied widely across sessions, which may or may not affect treatment outcomes.

Future Directions

- Conduct research across more participants and treatment approaches to better understand the effects of dose and cues.
- Apply the coding schemes to additional therapy sessions and children.
- Evaluate the amount of dose and cues that is beneficial for better outcomes.
- Establish optimal, yet individualized, amount of dose per session.

References

- Baker, E., Williams, L., McLeod, S., & McCauley, R. (2018). Elements of Phonological Interventions for Children with Speech Sound Disorders: The Development of a Taxonomy. *American Journal of Speech-Language Pathology, 27*, 906-935.
- McGinty, A. S., Breit-Smith, A., Fan, X., Justice, L. M., & Kaderavek, J. N. (2011, March 1). Does intensity matter? preschoolers' print knowledge development within a classroom-based intervention. *Early Childhood Research Quarterly, 26*, 255-267.
- Pieretti, R. A., Kaul, S. D., Zarchy, R. M., & O'Hanlon, L. M. (2014). Using a multimodal approach to facilitate articulation, phonemic awareness, and literacy in young children. *Communication Disorders Quarterly, 36*(3), 131–141. https://doi.org/10.1177/1525740114545360
- Warren S. F., Fey M. E., & Yoder P. J. (2007). Differential treatment intensity research: A missing link to creating optimally effective communication interventions. *Mental Retardation and Developmental Disabilities Research Reviews, 13*, 70–77.