



COLLEGE OF ARTS AND SCIENCES

A comparison of aided AAC and manual sign language as supplementary tools used in CAS therapy

Brenna Bushman, Christine Kluck, Molly Landers, Cami Rier, and Abbi Wright



Introduction

- **Childhood Apraxia of Speech (CAS):** motor speech disorder often characterized by poor intelligibility, imprecision, and inconsistent speech production
- Supplementary communication tools:
 - Aided augmentative/alternative communication (AAC)
 - General sign language
- Existing studies:
 - Small sample sizes
 - Do not compare treatments (Tx) for CAS
- **Study proposal:**
 - A parallel group, fixed size randomized control trial utilizing a pre- and post-test design



Hypotheses

1. Using **manual sign language or AAC** as supplementary communication tools will yield **overall improved expressive communicative abilities** from pre-Tx to post-Tx.
2. **Aided AAC** will likely promote **greater communicative effectiveness overall** at 1-week, 1-month, and 4-months **than manual signing.**

Background

- A **critical lack of research** exists in determining the best course of Tx for children with CAS.
- Both ASL and AAC are considered viable forms of supplemental communication, but **comparisons of effectiveness have not been conducted.**

Question

Is overall communication effectiveness increased when using aided AAC as compared to manual sign language as a supplementary communication tool for children with CAS?

Methods

Participants:

- 50 children aged 4- to 10-years with CAS
- **Exclusion criteria:** Coexisting speech, language, cognitive, or motor disabilities or significant vision or hearing impairments

Procedures:

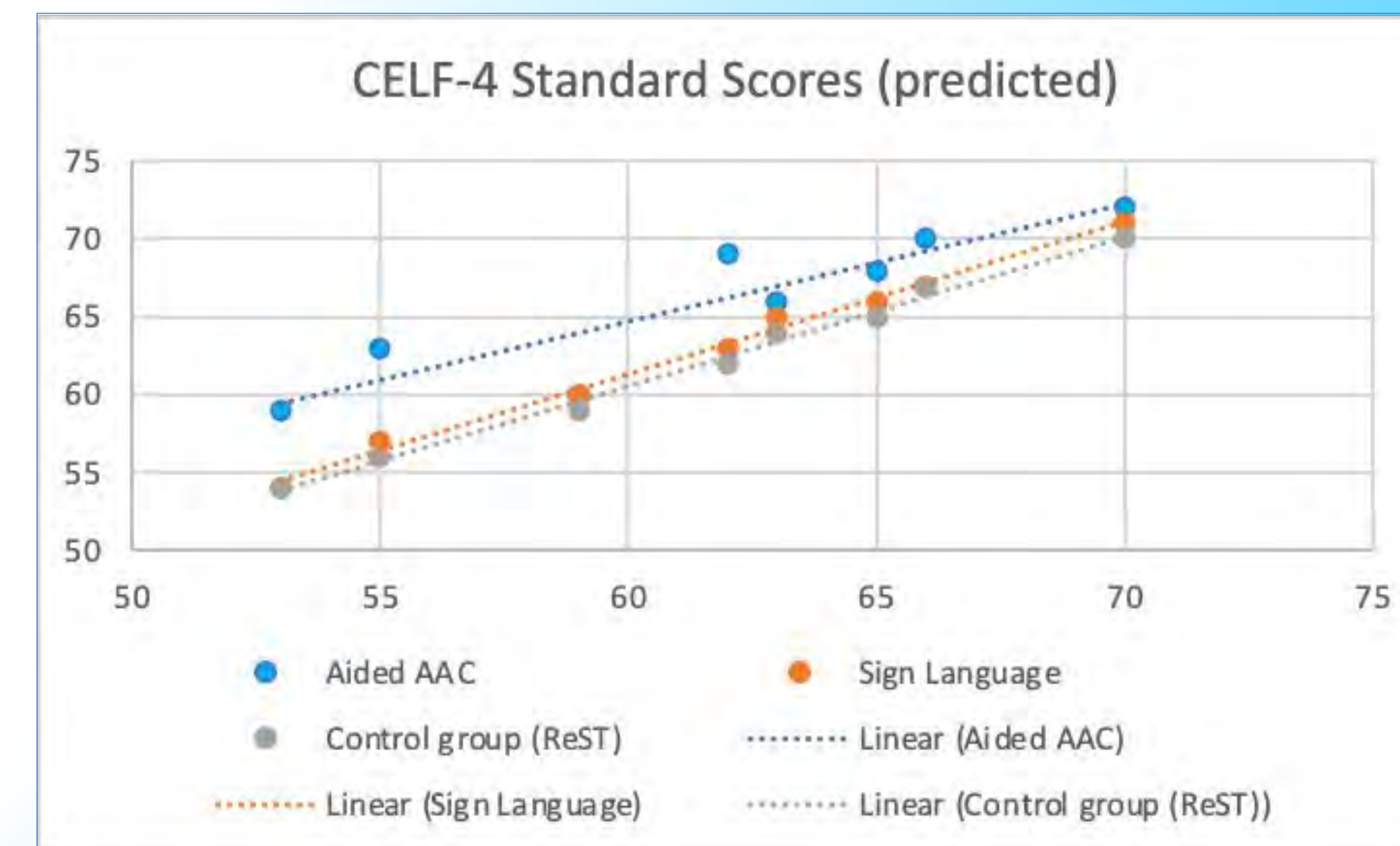
- All CAS therapy will include: *Rapid Syllable Transitions (ReST) program*
- **Group A:** Tx + aided AAC
- **Group B:** Tx + manual sign language
- **Group C:** Tx with NO supplemental Tx

Measures:

- Overall Communicative Effectiveness:
 - *Clinical Evaluation of Language Fundamentals: 5th Edition (CELF-5)* or *Clinical Evaluation of Language Fundamentals: Preschool (CELF-P)*
 - Mean Length of Utterance (MLU) and Percent Phonemes Produced Correctly (%PC)
 - Caregiver Report: questionnaire assessing overall satisfaction with child's communication output

Potential Results

- If results indicated supplementary Tx of aided AAC or manual signing led to **higher overall communication effectiveness**, this would provide a basis for Tx and future research endeavors.
- If aided AAC or signing **did not improve overall communication**, this study would support the idea that these Tx methods are null in regard to communicative improvements in children with CAS.



Potential Impact

- Identification of a gold standard of CAS Tx
- Education of parents/families of children with CAS on ways to generalize communication effectiveness in the home environment



Bibliography

American Speech-Language-Hearing Association. (2007). Childhood apraxia of speech. <https://www.asha.org/policy/TR2007-00278/>

McKeehnie, J., Ahmed, B., Gutierrez-Osuna, R., Murray, E., McCabe, P., & Ballard, K. J. (2020). The influence of type of feedback during tablet-based delivery of intensive treatment for childhood apraxia of speech. *Journal of communication disorders, 87*, 106026.

Morgan, A. T., & Vogel, A. P. (2009). A Cochrane review of treatment for childhood apraxia of speech. *European journal of physical and rehabilitation medicine, 45*(1), 103-110.

Oommen, E. R., & McCarthy, J. W. (2014). Natural speech and AAC intervention in childhood motor speech disorders: Not an either/or situation. *Perspectives on Augmentative and Alternative Communication, 23*(3), 117-123.

Romski, M., Sevcik, R. A., Barton-Hulsey, A., Whitmore, A. S. (2015) Early Intervention and AAC: What a Difference 30 Years Makes. *Augmentative and Alternative Communication 31*:3, pages 181-202.

Tierney, C. D., Pitterle, K., Kurtz, M., Nakha, M., & Todorow, C. (2016). Bridging the Gap Between Speech and Language: Using Multimodal Treatment in a Child with Apraxia. *Pediatrics, 138*(3), e20160007. <https://doi.org/10.1542/peds.2016-0007>

Comparing The Efficacy of Semantic Features Analysis & Gestural Facilitation of Naming in People with Aphasia



Kayleigh Canfield, Rylee Evans, Zack Ormsby, Sarah Rebban, Kristine Robles
Oklahoma State University

Introduction

Purpose

The purpose of the proposed study is to determine the effectiveness of Semantic Features Analysis (SFA) in comparison to Gestural Facilitation of Naming (GES) in reducing anomia in people with non-fluent aphasia.

Background

Anomia is a frequent symptom in individuals with aphasia (IWA) and impairs their ability and comfort level when communicating with others (Efstratiadou et al. 2018). SFA and GES are common treatments to improve word finding skills.

Important Terms

- *Aphasia* - loss of ability to express and understand speech due to brain damage.
- *Anomia* - is another word for word finding difficulties in individuals with aphasia.
- *SFA* - forming new words by explaining characteristics of target word (Volsch, 2021)
- *GES* - pairing iconic and non-iconic gestures with phonological or semantic cues or a repetition of a target word.

Participants

Total of 40 participants recruited via online aphasia support groups.

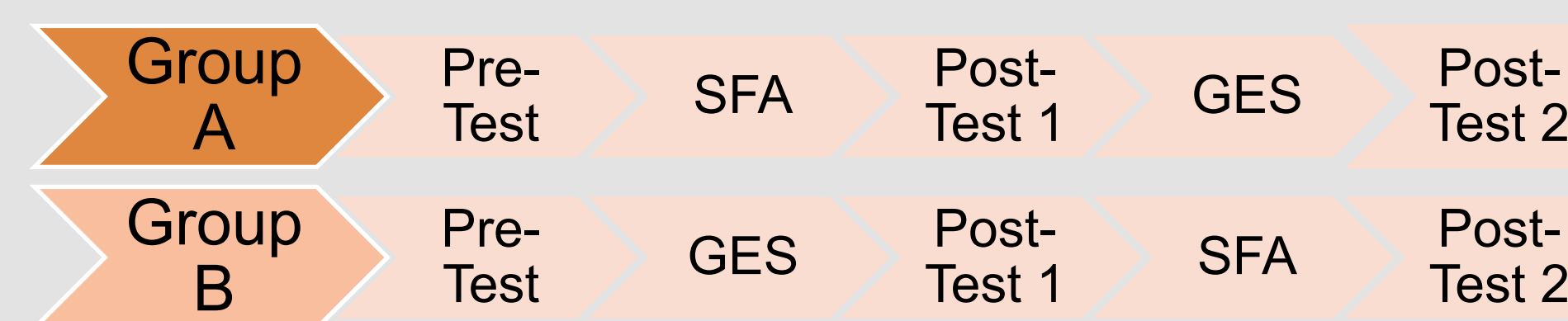
Requirements:

- Non-fluent aphasia
- Moderate-severe anomia as indicated on the verbal reasoning subtest of the *Delis-Kaplan Executive Function System (D-KEFS)*

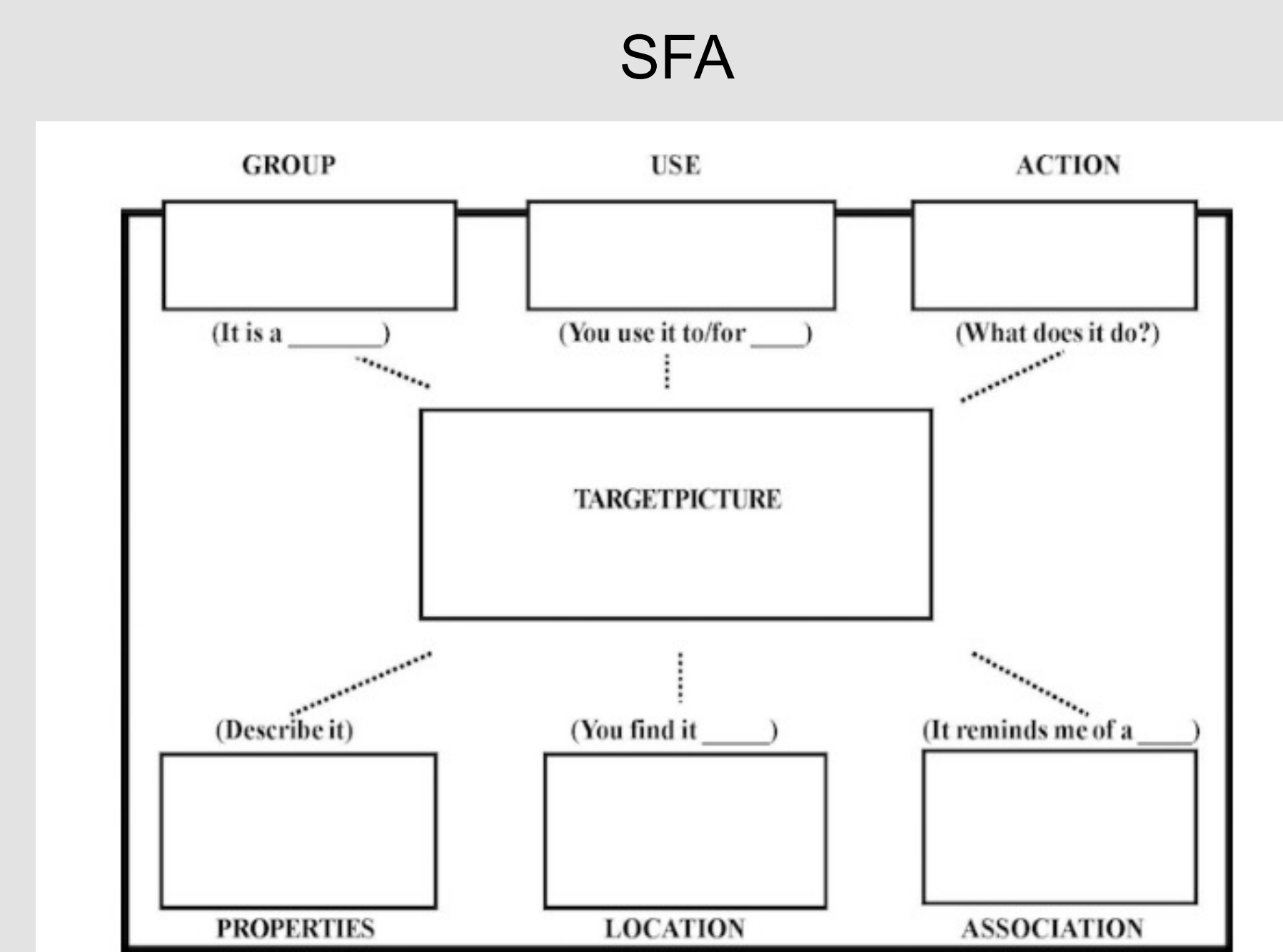
Methods

- SLP's provide intervention to participants for 15 weeks (60 min/day, 3 times a week via teletherapy)
- 20 participants randomly assigned to Group A & 20 participants randomly assigned to Group B
- Group A and group B participate in 7 weeks of treatment. The groups alternated between treatment and control conditions, with a one-week gap in between
- Post-tests were completed after each treatment period

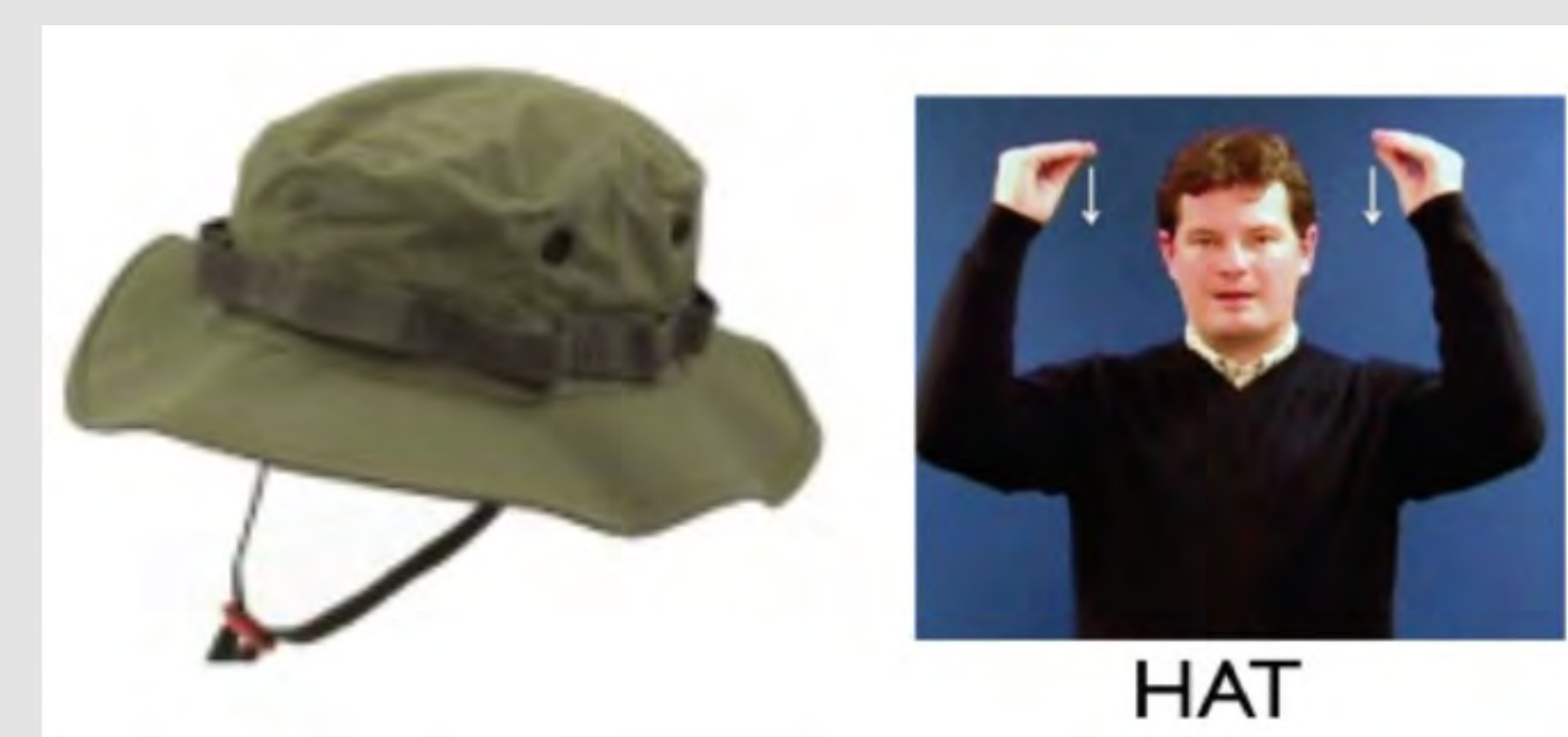
ABAC Design



Treatment Method Examples



GES



Data Analysis

- T-test will be used if our data is normally distributed to compare the groups because our study is within-subjects.
- Wilcoxon signed-rank test will be used if our data is not normally distributed.
- We will estimate the treatment's effect's size measure using 'Cohen's d' between group A and group B.

Hypothesis

Researchers believe that SFA will be more effective at increasing word finding skills than GES.

Interpretations

Results will be interpreted by examining the total number of words expressed before and after each treatment condition. The order of treatments will also be examined.

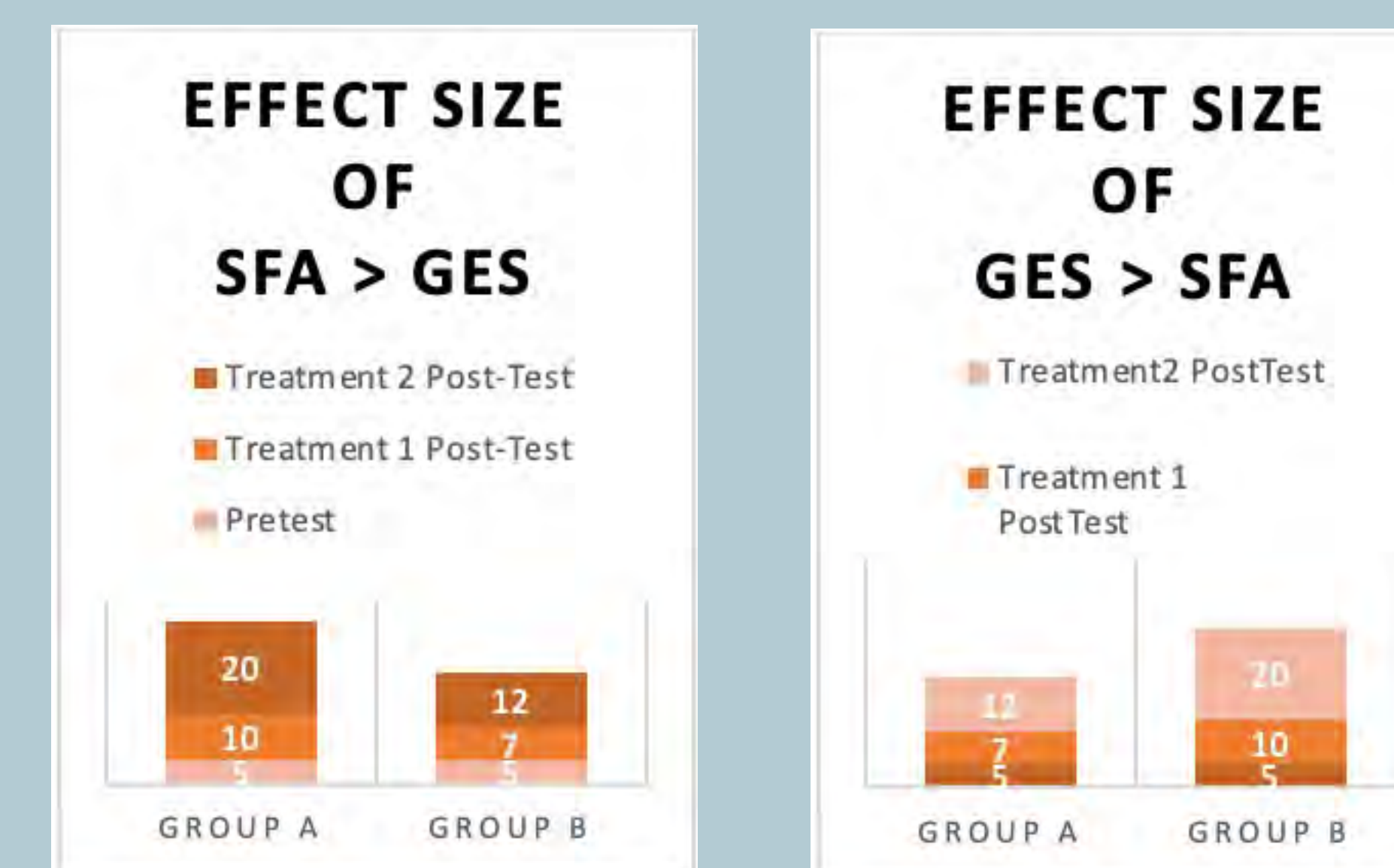
Within Group:

- Both post-tests will be compared to the pretest results within groups A and B.
- Both post-tests will be compared to each other within groups A and B.

Cross Group:

- Both post-tests 1 and 2 from A and B will be compared to each other.
- Post-Test 1 will be compared to Post-Test 2 of the opposite group.

Possible Results



Discussion

This study gives SLPs insight into which treatment may be better suited for non-fluent aphasia clients and implications of order of treatment on word finding skills.

Limitations

- Small sample size
- All participants non-fluent
- All participants moderate-severe anomia
- All participants via online support aphasia group
- Lack of management time post-stroke

References

- Efstratiadou, E.A., Papanasiou, I., Holland, R., Archonti, A., Hlari, K. (2018). A Systematic Review of Semantic Feature Analysis Therapy Studies for Aphasia. *Journal of Speech, Language, and Hearing Research*, 61(5), 1261-1278. https://doi.org/10.1044/2018_JSLHR-L16-0330.
- Gravier, M. L., Dickey, M. W., Hula, W. D., Evans, W. S., Owens, R. L., Winans-Mitrik, R. L., & Doyle, P. J. (2018). What matters in semantic feature analysis: Practice-related Predictors of treatment response in aphasia. *American Journal of Speech-Language Pathology*, 27(1), 438-453. https://doi.org/10.1044/2017_AJSLP-16-0196.
- Nicholas, L.E. and Brookshire R.H. (1993). A system for quantifying the informativeness and efficiency of the connected speech of adults with aphasia. *Journal of Speech and Hearing*, 36(338-350). Retrieved from <https://doi.org/10.1044/jshr.3602.338>
- Quique, Y.M., Evans, W.A., Dickey, M.W. (2019). Acquisition and Generalization Responses in Aphasia Naming Treatment: A Meta-Analysis of Semantic Feature Analysis Outcomes. *American Journal of Speech-Language Pathology*, 28(1S), 230-246. https://doi.org/10.1044/2018_AJSLP-17-0155.
- Sutton, M.S. *How To Semantic Feature Analysis (SFA) for Anomia*. Tactus Therapy. Retrieved September 20, 2021 from <https://tactustherapy.com/semantic-feature-analysis-sfa-anomia/>
- Volsch, J., Wartenburger, I. & Stadie, N. (2021). Do gestures have a hand in verb retrieval? Investigation of iconic and non-iconic gestures in aphasia. *Aphasiology*. <https://doi.org/10.1080/02687038.2021.1907293>.



Human-to-Human Imitation Vs. Video Imitation Effects on Prosody

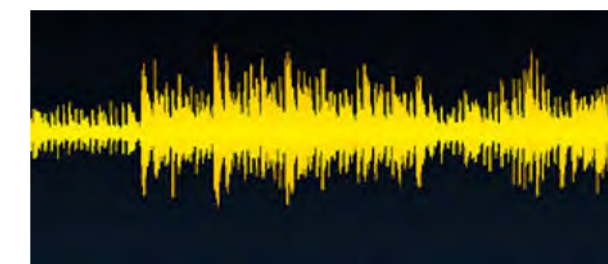
By: Burkhalter, Lauren., Curtis, Audrey., & Mora, Alyssa.

Purpose

Prosody refers to intonation, loudness variation, stress patterns, rhythm and pauses.



Individuals express prosody by varying their pitch, loudness, and duration.



Prosody is **important** to recognize a person's tone of voice or identify what emotion is being used.



Incorrect or inappropriate prosody can be misleading

Participants

- Randomized
- All age
- Enrolled in Speech Therapy for Prosody Deficits
- Native English Speakers
- No other disorders affecting understanding of the imitation therapy options.
- 8-12 participants

Design Type

A-B-A-C-A

A: Baseline collection

B: Human-To-Human Imitation

A: Baseline collection

C: Video Imitation

A: Baseline collection



Research Question

What prosody imitation strategies are most effective in voice clients of all ages with deficits in intonation and stress?

Methods

Measures

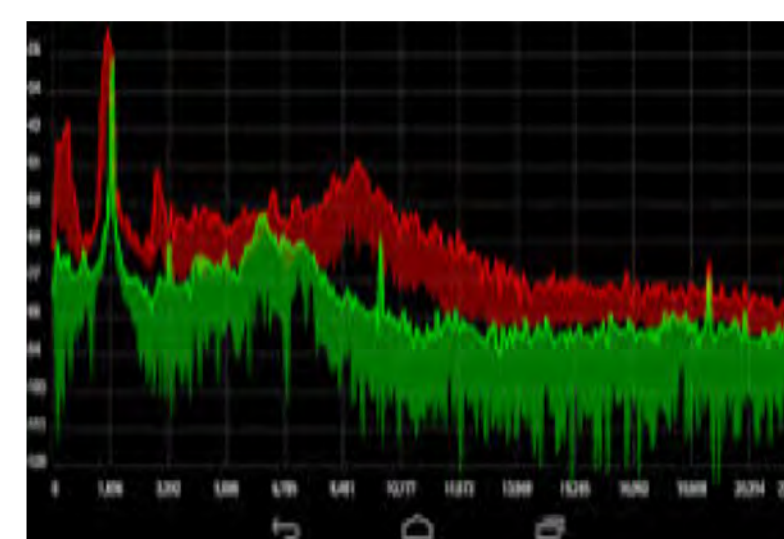
- Intonation/inflection
- Correct stress in words/appropriate stress for emotions/etc.
- Appropriate prosody for both speakers in conversation.
- Voice analyzer for inflection/change in volume/rhythm/etc.
- Prosody self-perception survey for before & after treatment
- 4 consecutive treatment sessions
- Treatment order will vary among participants

Treatment Task

- Baseline data; client's read a sentence strip to listen to their prosody
- Clinician; provide videos for video imitation treatment
- The same phrases will be used for both treatments

Data Collection

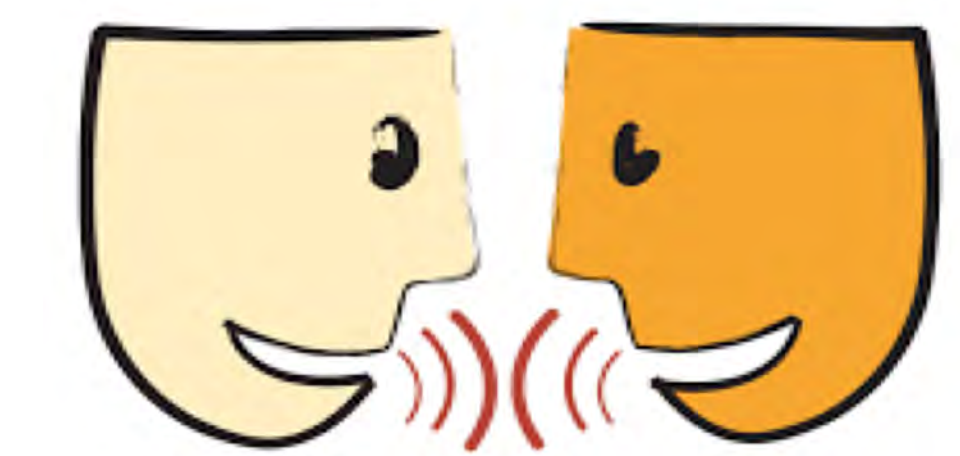
- Speed
- Pauses
- Inflection
- Loudness
- Rhythm
- Stress
- Voice Analyzer app
- Self-Perception Survey



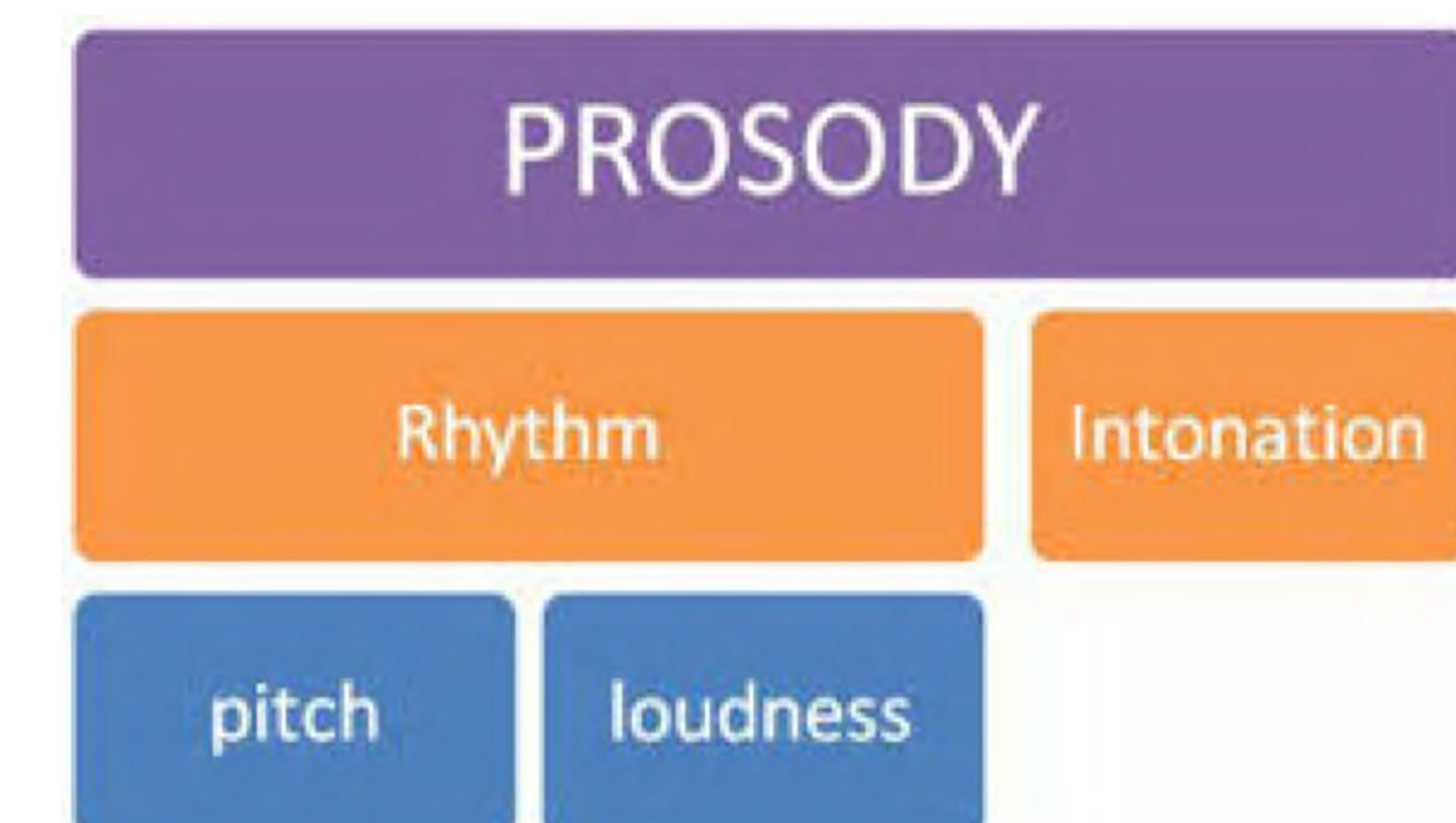
Meredith, Amy. (2019). Prosody and Articulation. Retrieved from <https://www.apraxia-kids.org/apraxiakidslibrary/prosody-and-articulation/>

Results

- We predict that participants in this study will benefit more from human-to-human imitation versus video imitation.



- Human-to-human imitation gives a more natural example to imitate
- Video imitation can be too big of a distraction to some younger clients.



- Prosody strategies are easier to teach and understand from direct human interaction versus a staged action in a video.

Discussion

- If this study were to be completed, some limitations include the small sample size and some results were based on self perception which leaves room for bias.
- For future studies it may be beneficial to increase sample size as well as limit the study to clients with specific disorders



Pediatric Dysphagia Prevalence

Research Question: Is pediatric dysphagia more prevalent in children who come from higher socioeconomic status (SES) homes or lower SES homes?

Erin Riley, Hope Radtke, Jaci Peoples, and Charish Rainwater

Background Terms

Dysphagia is an impairment occurring within the phases of swallowing that impact the safety and efficiency of nutritional intake (Dorill et al., 2015). **Socioeconomic Status** is the social standing/class of an individual/group. It is based off factors such as education, income, and occupation (American Psychological Association).



Background/Purpose of the Study

A national survey was conducted in 2012 that found an estimated 569 thousand children reported a swallowing problem (Bhattacharyya, 2015). According to Boyd (2007), **feeding difficulties** can lead to Failure to Thrive (FTT), which leads to malnutrition, susceptibility to chronic illness, attachment difficulties, infant irritability, reactive airway disease, and aspiration pneumonia. Social, emotional, and/or behavioral problems can arise later in childhood as well. Little research has been conducted to answer whether dysphagia is more prevalent in lower socioeconomic (SES) homes.

Hypothesis

Pediatric dysphagia will be more prevalent in lower SES homes.

Study Design and Procedures

This study is a quantitative design with a survey design. The researchers will gather information concerning pediatric dysphagia patients and their family's or caretaker's SES by analyzing and comparing the data obtained from a survey given to SLPs through ASHA asking them to estimate their client's income.



Past Studies

Little research has been conducted to answer the question presented above. However, a research article written in 2020 by Schie et al. found that, from a sample size of 1432 pediatric patients with dysphagia in South Africa, low SES was a factor in the prevalence of dysphagia.

Participants

200 Pediatrics with Dysphagia

200 Pediatrics w/o Dysphagia

Methods

- **Measures:**
 - Socioeconomic index to measure the family/caretaker's SES.
 - A cutoff range of the poverty level income of <\$25,000 annual income of a family of any size. (okpolicy.org)
- **Study Procedures:**
 - Send out a survey through ASHA to SLPs
 - The survey will be similar to a flow chart and will ask the SLP to estimate the yearly income of their clients with and without dysphagia.
 - Obtain at least 200 surveys from a group with and 200 without pediatric dysphagia.
 - Analyze the data from each group and then compare them to answer the research.

Data Analysis

- A Non-Parametric t-test will be used to analyze the data of the yearly income reported for all groups.

Discussion/Limitations

Results of this study will inform the researchers if there is a larger prevalence of dysphagia in lower SES or higher SES homes. Detection of where the larger prevalence is located among classes will aid in early intervention. Results of this study would also assist in the development of more applicable treatment methods for the class with the highest prevalence.

Limitations:

- Encouraging participation amongst SLPs throughout Oklahoma
- Collecting accurate and wide variety of cases amongst different levels of socioeconomic statuses

Conclusion

Reasons that the results are valuable.:

1) Aid in the process of early intervention.

2) Give evidence and support for providing financial aid to families so they could seek treatment.

3) Increase accessibility.

Sources

Bhattacharyya, N. (2015). The prevalence of pediatric voice and swallowing problems in the United States. *The Laryngoscope*, 125(3), 746-750. <https://doi.org/10.1002/lary.24931>

Boyd, K. L. (2007). The effectiveness of the sequential oral sensory approach group feeding program. *Colorado School of Professional Psychology*.

Dodrill P, Gosa M, M: Pediatric Dysphagia: Physiology, Assessment, and Management. *Ann Nutr Metab* 2015;66(suppl 5):24-31. doi: 10.1159/000381372

Schie, Kathryn E et al. "Paediatric Dysphagia Within the Context of South Africa's Quadruple Burden of Disease, Seen at a Tertiary Level Hospital." *International journal of speech language pathology* 22.4 (2020): 466-474. Web. <https://okpolicy.org/census-data-shows-oklahoma-still-lags-nation-in-poverty-rate/>

"Socioeconomic Status." *American Psychological Association*, American Psychological Association, <https://www.apa.org/topics/socioeconomic-status/>



Creating Copy Cats

Kiera Bolay, Annie Walker, Emily Theilen

Graduate Clinicians; Oklahoma State University Speech-Language-Hearing Clinic

Background

Joint attention: a dynamic skill that involves a social partner for conversation. It is an important tool for language development (Hahn et al., 2018)

Imitation: an important aspect of communication, especially in young children who have not yet acquired communication skills (Aguirre and Gutierrez, 2019)

Purpose & Research Questions

“What are the best practices for increasing imitation trials for motor and speech goals in preschoolers?”

Participants

2 groups of 50 preschool children (aged 2-6) who have speech and/or language delays

Predictions

Hypothesis: the group of children who receive the hierarchy-based treatment *will demonstrate increased imitation skills* at the end of treatment compared to those who only received traditional treatment.

Conclusions

- Imitation is an essential skill for successful speech and language therapy
- Clients must be able to imitate their clinician in order to begin practice of goals.
- For clients who struggle with imitation, improvement in therapy is difficult.
- It would be beneficial to clinicians to know how to increase both speech and motor imitation in their clients.

Methodology

Initial Baseline

- Baseline imitation skills will be measured.

Random Assignment

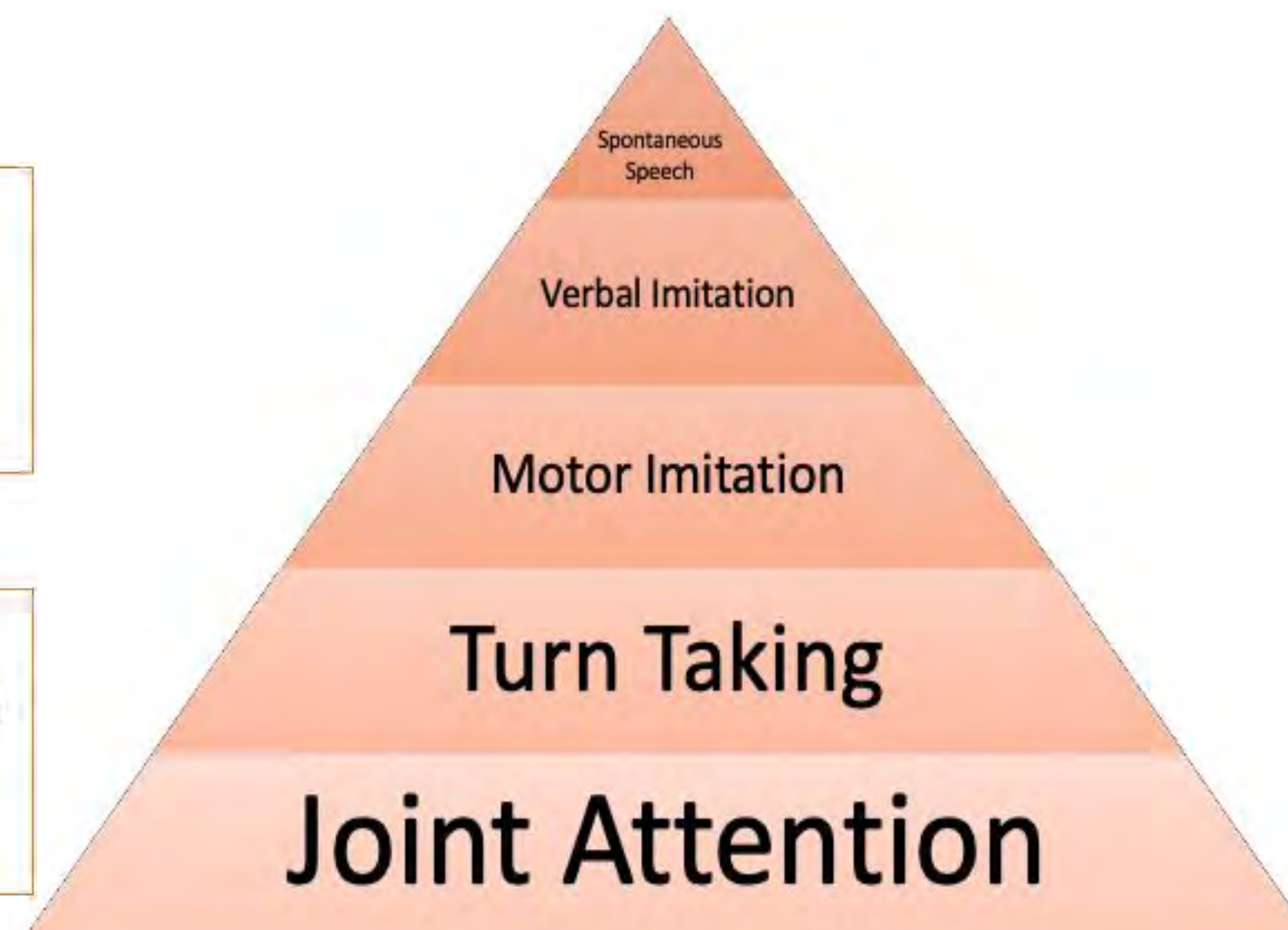
- Participants will be randomly assigned to a group for traditional treatment or hierarchical treatment.

Treatment

- Participants will receive two 30-minute sessions weekly for 12 weeks.

Final Data Collection

- Participants will be given a post-test to measure improvement in imitation skills.



References

- Aguirre, E. E., & Gutierrez, A. (2019). An Assessment and Instructional Guide for Motor and Vocal Imitation. *Journal of autism and developmental disorders*, 49(6), 2545-2558
- Hahn, L. J., Loveall, S. J., Savoy, M. T., Neumann, A. M., & Ikuta, T. (2018). Joint attention in Down syndrome: A meta-analysis. *Research in developmental disabilities*, 78, 89-102.