

Generalization in Speech Sound Disorders: Research and Practice

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ABSTRACT

Purpose: This study explored generalization techniques for /l/ and /r/ with a 5-year-old boy with a speech sound disorder.
Method: In Fall 2020 the client received therapy sessions targeting initial /l/ in syllables and words, /r/ in isolation, and /l/ and /r/ clusters. Sessions employed drill play and focused stimulation. In Spring 2021 we reviewed articles and modified therapy based on evidence-based practice principles to promote continued generalization of targeted sounds. We modified therapy to develop self-monitoring skills and sound production in new environments. We probed generalization for /l/ and /r/ in all positions across semesters using untreated probe words.
Results: At baseline with probe words the client produced /l/ in the initial, medial, and final positions at 25%, 67%, and 50% respectively and /r/ in the initial position at 38%. At the end of Fall 2020 he demonstrated improvement for /l/ in all positions (100%) and /r/ in the initial position (63%); continued difficulty with /r/ was evident across positions.
Discussion: The combination of therapy techniques led to generalization to untreated probe words for /l/ and initial /r/.

RESEARCH QUESTIONS

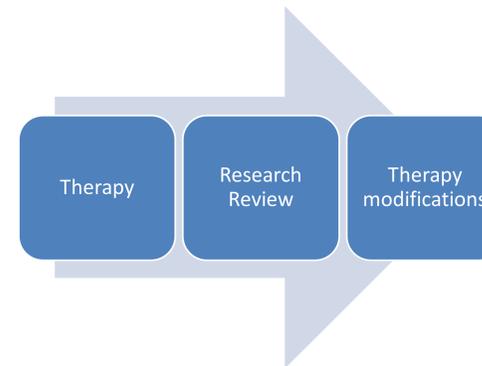
1. Does targeting /r/ in all words positions and isolation lead to generalization in untreated /r/ probe words?
2. Does targeting /l/ in all words positions and isolation lead to generalization in untreated /l/ probe words?
3. Based on a review of the literature what factors affect generalization?

METHOD: FALL 2020 THERAPY

- **Participant:** 5-year-old boy with typical language and a mild speech sound disorder.
- **Therapy:** Twice a week for 45 minutes for 12 weeks.
- **Therapy Techniques:** Drill play: Producing target sound during play. Focused stimulation: target sound emphasized in words.
- **Targets:** We initially targeted /l/ and /r/ in isolation. After six weeks, we began to target /l/ in clusters alongside /r/ in isolation. The client took a break from the phoneme /r/ due to frustration. The clinician reintroduced /r/ but focused on it lightly for the remainder of the semester. The clinician introduced 20 probe words to track progress during the semester.
- **Assessment techniques:** 20 probe words used in every session to monitor progress.

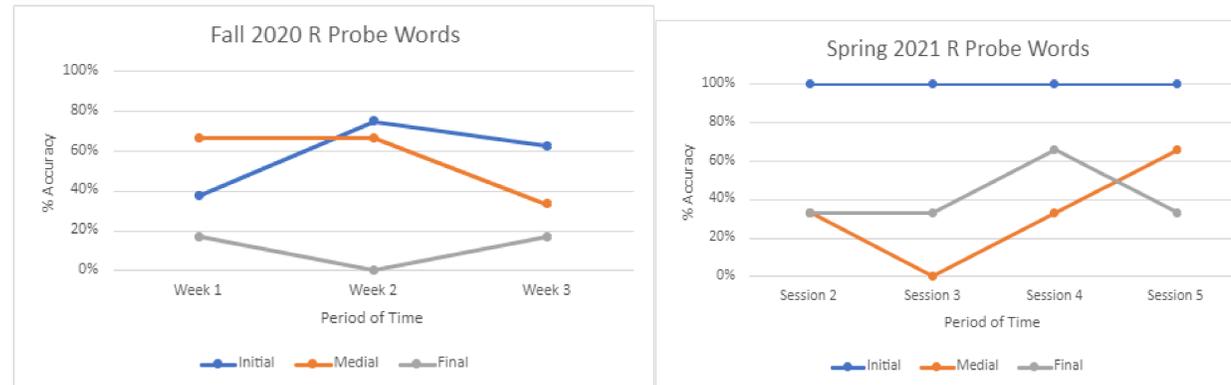
METHOD: SPRING 2021

- **Article Review:** Semester included reviewing research articles and taking key principles out of the articles.
- **Therapy:** Twice a month for 30 minutes.
- **Therapy Techniques:** Self-monitoring of correct productions. Clinician took over monitoring of correct productions. Client went around the clinic to have a conversation with other clinicians.
- **Assessment Techniques:** The 20 probe words were carried over from the Fall. The clinician introduced 20 words with the phoneme /r/ in all positions.

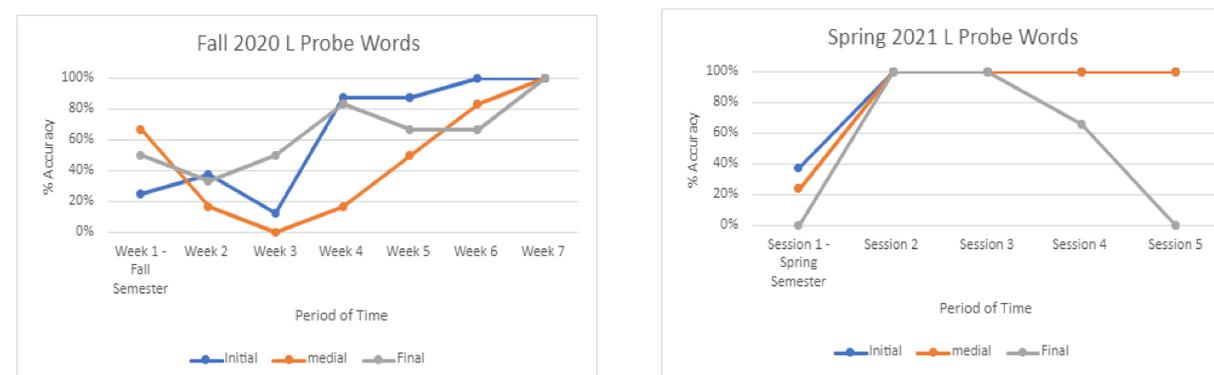


RESULTS

RQ1: Yes, an increase in percent accuracy for initial and final /r/ is evident over time.

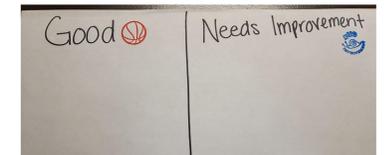


RQ2: Yes, an increase in percent accuracy for /l/ in all positions is evident over time.



RESULTS

- **Self-monitoring:**



- **Environment:**



DISCUSSION / IMPLICATIONS

During the study, we experienced intrathery and extrathery generalization. Intrathery generalization occurs within the therapy program and it is shown when training one phoneme promotes correct articulation of the phoneme across word positions. This mainly occurred when training /l/ clusters and having generalization occur across all positions of /l/ words.

Extrathery generalization is generalization that occurs outside the therapy room environment. We did extrathery here at the clinic. We took the client to the lobby area to have conversations with other clinicians. Even though this is not a natural environment, (e.g., home or school) it is still an unfamiliar environment to the client.

SELECTED REFERENCES

- Costello, J., & Bosler, S. (1976). Generalization and articulation instruction. *Journal of Speech and Hearing Disorders*, 41(3), 359-373. 10.1044/jshd.4103.359
- Koegel, L. K., Koegel, R. L., & Ingham, J. C. (1986). Programming rapid generalization of correct articulation through self-monitoring procedures. *Journal of Speech and Hearing Disorders*, 51(1), 24-32.
- Dunn, C. (1983). A framework for generalization in disordered phonology. *Journal of Childhood Communication Disorders*, 7(1), 46-58.

- In the Fall semester of 2020, the client produce the /l/ probe words in the initial, medial, and final positions at 25%, 67% and 50% respectively and /r/ in the initial position at 38%. At the end of the semester, he achieved generalization for /l/ in all positions (100%) and /r/ in the initial position (63%).
- 1. Will teaching /l/ and /r/ in one position help a child achieve generalization to all positions?

- Results from the Fall semester indicate that
- Teaching /r/ in one position helped the client achieve generalization in the initial position of words. The chart indicates when the client started to produce correct productions of /r/ in different positions in the probe words. For the spring semester we taught /r/ in isolation and in words, and according to the chart the client made a dramatic increase of correct productions from Sessions 3 to 4.

Results from the Fall semester indicate that teaching the phoneme /l/ in clusters helped the client achieve generalization across all positions. After the clinician introduced clusters in the Fall semester, the client quickly achieved generalization across all positions. The chart indicates exactly when the client achieved generalization. The client worked on a set of words for a period of time before being introduced to a new set of cluster words.

The clinician took over monitoring but would ask the client if his productions were correct or incorrect. The clinician would produce /l/ and /r/ and ask the client if her productions were correct or incorrect. At the end of the semester, the client started to become more efficient in self-monitoring.

- The literature stated that children are aware of what environments they need to produce correct productions in. By taking the client to unfamiliar environments, we were able to monitor the productions and see if the client was generalizing.
 - The client's mother reported that correct productions are being made in the home environment.

Major findings: Patience is key when monitoring generalization.

RQ1: When targeting /r/ in isolation, the client would need maximum cuing to achieve correct placement.

When targeting /r/ in position of words, the client only needed minimum to moderate cuing to achieve correct placement.

RQ2: While teaching the phoneme /l/ in syllables, the client became bored and making progress slowly. We introduced /l/ in clusters with age-appropriate words, and the client made progress quickly. After meeting goals for clusters, we introduced /l/ in the initial position of words. The client generalized correct placement of /l/ in the initial position.

RQ3: Our literature review suggested that 5-year-olds may