

Listening and Spoken Language Intervention and Why it Looks Different from Traditional Speech and Language Therapy.

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Disclosures

Financial

- I am employed at Marshall University and where I am an assistant professor and Program Director of The Luke Lee Listening, Language and Learning Lab (The L). The L has recently been accepted as an OPTION Program and is the only Listening and Spoken Language program in the state of West Virginia.

Non-financial

- I am the current President of the West Virginia AG Bell Chapter

Learning Objectives

1

The participants will identify how hearing loss specifically affects a child's auditory, speech and language skills and is able to distinguish their unique needs for auditory interventions from traditional speech therapy.

2

The participants will identify acoustic highlighting strategies, such as whispering and elongation and apply them to teaching speech sound development by enhancing auditory access rather than on visual cues.

3

The participants will identify three ways in which the auditory verbal approach supports language development by focusing on auditory input and access to language in daily life.

When you think
about Auditory
Verbal Therapy
(AVT) or Listening
and Spoken
Language
Intervention (LSL)
what comes to
mind first?



HOW ARE LSL INTERVENTION/AUDITORY VERBAL THERAPY AND SPEECH AND LANGUAGE THERAPY DIFFERENT?

What looks different in this picture?



Auditory Dominance

The Five Senses



(Estabrooks et.al., 2016)

Developing an Auditory Learning Environment

✓ Optimal Position

🎭 Audition First

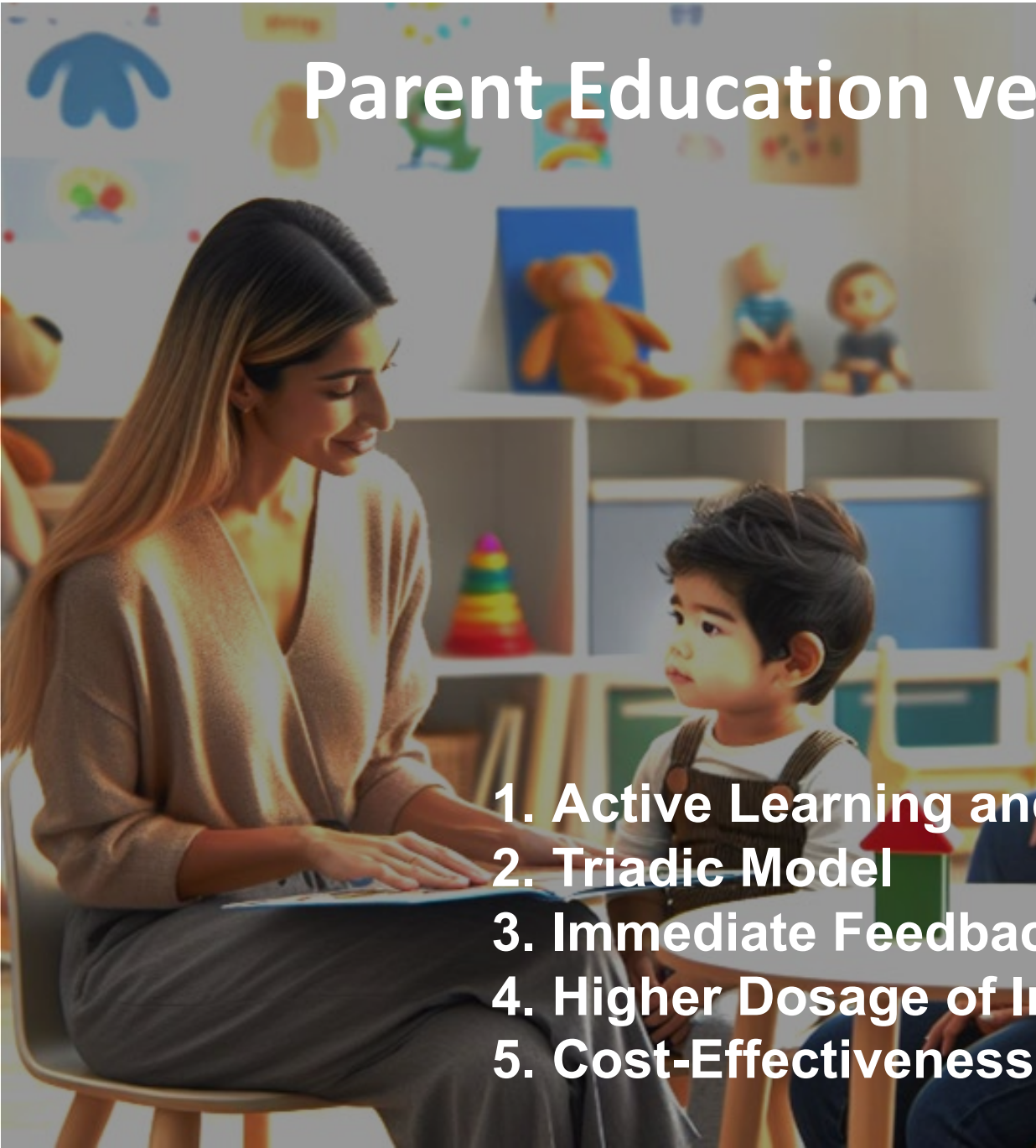

🎸 Acoustic Highlighting

🔊 Auditory Bombardment

🎧 Auditory Sandwich



Parent Education versus Parent Coaching

- 
- 
1. Active Learning and Engagement
 2. Triadic Model
 3. Immediate Feedback and Problem Solving
 4. Higher Dosage of Intervention
 5. Cost-Effectiveness and Accessibility

(Sone et.al., 2021)

Speech Acoustics

Difficulty hearing between 250-750 Hz

- Weak, high pitch or breathy voices
- Poor prosody
- Problems with nasalization
- Deletion of syllables/voice consonant deletion
- Confusion between nasal and plosive phonemes
- Confusion between voiced and voiceless consonants

Difficulty hearing between 1000-2000 Hz

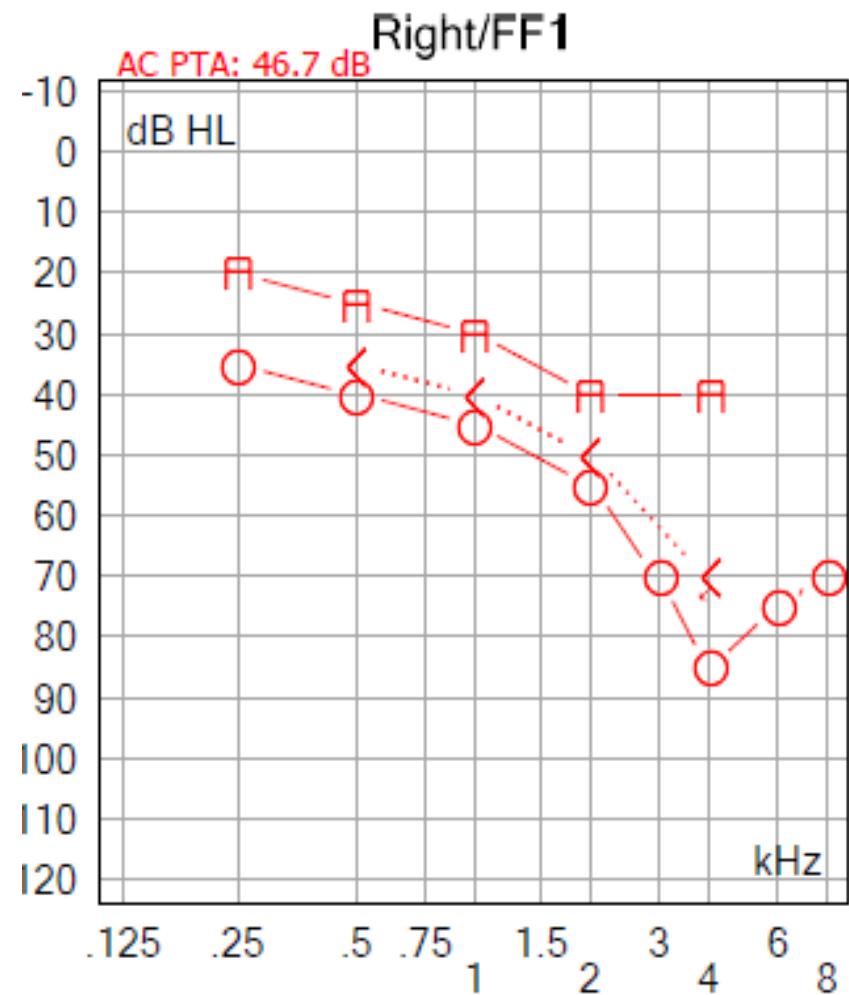
- Omission of unstressed vowels in words
- Omission of unstressed words in sentences
- Neutralization of vowels

Difficulty hearing above 2000 Hz

- Omission and/or distortion of fricatives
- Omission of final consonants
- Omission of markers for plurals, past tense

(Estabrooks, 2016, p.230-231)

Understanding the Audiogram and Speech Acoustics



English	Adapted from Ling et.al. (1996)			
Consonant	1st Formant	2nd Formant	3rd Formant	4th Formant
/p/			1,500 – 2,000	
/t/			2,500 – 3,000	
/k/	300 - 400		2,000 – 2,500	
/d/	300 - 400		2,500 – 3,000	
/b/	300 - 400		2,000 – 2,500	
/g/	200 - 300		1,500 – 2,500	
/m/	250 - 350	1,000 – 1,500	2,500 – 3,500	
/n/	250 - 350	1,000 – 1,500	2,000 – 3,000	
/ng/	250 - 350			
/f/				4,500 – 6,000
/s/				5,000 – 6,000
“sh”			1,500 – 2,000	4,500 – 5,500
“th” (think)				6,000
/h/			1,500 – 2,000	
/v/	300 - 400			3,500 – 4,500
/z/	200 - 300			4,000 – 5,000
“TH” (the)	250 - 400	1,000 – 1,500	2,000 – 3,000	
“ch”	200 – 300		1,500 – 2,000	4,000 – 5,000
/dg/ (jump)	200 – 300		2,000 – 3,000	
/l/	250 - 400		2,000 – 3,000	
“r”	600 - 800	1,000 – 1,500	1,800 – 2,400	

(Estabrooks, 2006, p.21)

Speech Acoustics- Review

- Children with hearing loss speak the way they hear.
- Speech errors are likely perceptual errors – enhance auditory discrimination before using traditional speech therapy strategies.
- Some speech errors can be attributed to visual emphasis and reliance on vision rather than auditory cues. e.g. B M P, imploded M.

(Rotfleisch & Martindale, 2023)



Acoustic Highlighting in LSL intervention

(making the message more audible)

- Reduce the level of background noise
- Move closer to the child's hearing technology
- Repetition – repeat the message (ie. Up up up)
- Increase the length (elongation)
- Sing song voice
- Whisper (/p/ or /h/)
- Position the targeted word or sound at the end
- Use a closed set (provide choices or use minimal pairs)
- Familiar voice

(Estabrooks, 2006, p.16)

Evaluation of DHH who use LSL

Close the language Gap

Provide adequate special education support.

(Carden et al., 2024)



Thank you!

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References

- Carden, K., Blaiser, K., Brooks, B., & McWilliam, R. (2024). Evidence-Based Practices for Evaluating Preschoolers Who Are Deaf/Hard of Hearing Using Listening and Spoken Language for Special Education Eligibility. *Perspectives of the ASHA Special Interest Groups*, 9, 1377-1397.
https://pubs.asha.org/doi/epdf/10.1044/2024_PERSP-24-00081
- Estabrooks, W. (2006) Auditory-Verbal Therapy and Practice. Alexander Graham Bell Association for the Deaf and Hard of Hearing, Inc.
- Estabrooks, W., MacIver-Lux, K., Rhodes, E.A. (2016) Auditory-Verbal Therapy: For Young Children with Hearing Loss and Their Families, and the Practitioners Who Guide Them. San Diego, CA: Plural Publishing, Inc.
- Rotfleisch, S. & Martindale, M. (2023) Listening and Spoken Language Therapy for Children with Hearing Loss. A Practical Auditory-Based Guide. San Diego, CA: Plural Publishing.
- Sone, B. J., Lee, J., & Roberts, M. Y. (2021). Comparing instructional approaches in caregiver-implemented intervention: An interdisciplinary systematic review and meta-analysis. *Journal of Early Intervention*, 43(4), 105381512198980. <https://doi.org/10.1177/1053815121989807>
- Sounds of speech. Advanced Bionics - Tools for School . (2015).
https://www.advancedbionics.com/content/dam/advancedbionics/Documents/libraries/Tools-for-Schools/Educational_Support/Tools-for-Learning-about-Hearing-loss-and-Cochlear-Implants/ToolsforSchools-Sounds-of-Speech-Flyer.pdf
- Suskind, D., Suskind, B., & Lewinter-Suskind, L. (2015). Thirty Million words: Building a child's brain. Penguin Random House.