

VOWEL ERRORS:
THE LOST WORLD OF
SPEECH INTERVENTION

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The Journey to Vowelerra

- An adventure across familiar territory
 - child speech intervention
- leading to uncommon terrain
 - vowel errors

Preparation: Education

- The guidebook of Evidence-Based Practice
 - the research evidence
 - past clinical experiences
 - client/family preferences
- What do we do when the evidence isn't evident?
 - the research evidence is **diffuse**
 - past clinical experiences are **minimum**
 - client/family preferences are **vague**

Preparation: Education

- The native population
 - Typical development (Pollock, 2013; Stoel-Gammon & Pollock, 2008)
 - 0 – 6 months vocants
 - 6 – 12 months CV combinations
 - ~ 24 months all vowels producible
 - ~ 36 months all vowels accurate
 - corner vowels before others
 - stressed syllables before unstressed
 - monophthongs before diphthongs
 - non-rhotic before rhotic

Preparation: Education

- The native population
 - Children with disorders (Jacks, Marquardt, & Davis, 2013; Pollock, 2013; Rahilly, 2013)
 - Phonological Delays
 - ~ 10 – 30% errors on non-rhotics
 - backing, lowering, diphthong reduction
 - Childhood Apraxia of Speech
 - some consider vowel errors a marker of CAS
 - but data do not strongly support
 - consistency issues
 - > effects with length and complexity

Preparation: Education

- Deaf / Hard of Hearing
 - a common problem
 - age of loss
 - frequencies and severities
 - response to amplification
 - often clustered groups of vowels

Preparation: Education

- The native language
 - International Phonetic Alphabet
- Transcription reliability (Pollock & Berni, 2001)
 - vowels < consonants
 - more overlap between vowels
 - more dialect variations

Preparation: Education

Preparation: Education

Preparation: Expectations

- What are your expectations about the research on vowel intervention?
 - Think – Pair – Share
 - What aspects of speech have been addressed?
 - How were the studies done?

Vowelerra: Motor Shores

- Are interventions targeting motor skills successful?
 - No intervention studies found.

Vowelerra: Phonology Jungle

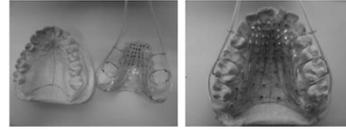
- Are interventions targeting linguistic knowledge successful?
 - Minimal Pairs (Stoel-Gammon & Pollock, 2008)
 - all showed improvements on target vowels
 - inconsistent transfer to other vowels
 - Written representations of vowels (Reid, 2003)
 - The Vowel House
 - 8 – 17 11-year-olds
 - Observational report of improved vowel production

Vowelerra: Visual Beach

- Are interventions targeting visual feedback successful?
 - Electropalatography (EPG) and Ultrasound (Bernhardt, Stemberger, & Bascfalvi, 2010)
 - 2 case studies
 - improvements reported in targeted vowels

Vowelerra: Visual Beach

- Electropalatography (McLeod, 2009)



62 electrode
Reading WIN/EPG
and portable training unit

Vowelerra: Visual Beach

- Ultrasound (Bernhardt, Gick, Bascfalvi, & Adler-Bock, 2005)

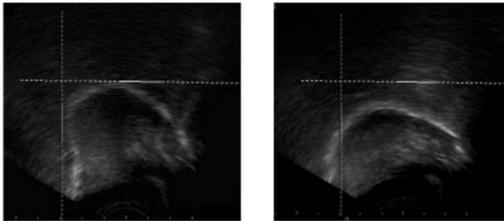


Figure 5. Sagittal displays of a typical adult tense vowel /u/ (left) showing a high tongue body and advanced tongue root position, and a typical adult lax vowel /ʊ/ (right), showing a retracted and lowered position compared with /u/.

Vowelerra: Entire Ecosystem

- Are interventions targeting multiple aspects of phonology successful?
 - Speake, Stackhouse, and Pascoe (2012)
 - Intervention addressing
 - discrimination / sorting
 - rhyming
 - articulatory drills
 - 2 10-year-olds
 - both increased % vowels correct and word intelligibility

Vowelerra: Population River

- Are interventions targeting specific populations successful?
- CAS
 - Motor learning therapy (Edeal & Gildersleeve-Newman, 2011)
 - Integral stimulation therapy with high and low intensities
 - Vowel errors reduced from ~ 55% to 35%
 - 2 preschoolers

Vowelerra: Population River

- Deaf / Hard of hearing
 - No intervention studies found.

Helping the children of Vowelerra

- Use the evidence that is available, as well as evidence for other speech intervention

(Brackenbury, 2014; Gibbon, 2013)

1. Collect and analyze detailed data (Pollock, 2002)
 - including helpful and harmful contexts
2. Assess and treat vowel perception, identification, and discrimination
3. Emphasize the linguistic importance of correct production

Helping the children of Vowelerra

4. Facilitate motoric aspects of production
5. Include visual referents and feedback
6. Keep detailed records on your vowel treatment and share with others

Helping the children of Vowelerra

- Emmet; 3-yr, 10-mo
 - Significant speech sound disorder
 - BBTOP standard scores all <65

- Vowel errors

- ~ 18% of the words
 - all vowels in his phonetic inventory
 - /ε, ɪ/ [æ]
 - /a, ɪ/ [aʊ]
 - /ɪ/ [ɑ, ai, ε]
 - /ʊ/ [o]

Helping the children of Vowelerra

- Emmet; 3-yr, 10-mo

Helping the children of Vowelerra

- What should we do?
 - Collect more data on the erred vowels
 - Assess and address perceptual issues
 - Treat within meaningful units
 - minimal pairs
 - consider Multiple Opposition approach
 - Facilitate motoric abilities
 - may not be necessary based on his phonetic inventory
 - Include visual references for the different vowels targets

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Key References

Overall Review

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Visual Feedback Interventions

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Treatments Based on Other Speech Interventions

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Images

- Lost World of Vowelerra
 ■ <http://mattepainting.org/vb/showthread.php?t=4943>
- Vowelerra National Anthem
 ■ <http://www.youtube.com/watch?v=OKEUAzzn-Ig>