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2018 Nancy McKinley Lecture Series:
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Guest Editor: Linda R. Schreiber, M.S., CCC-SLP,
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Phonological Assessment and
Intervention of Bilingual Children with
Highly Unintelligible Speech

Raul F. Prezas, PhD, CCC-SLP

Moderated by:
Amy Natho, MS, CCC-SLP, CEU Administrator, SpeechPathology.com

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Phonological Assessment and Intervention of Bilingual Children with Highly Unintelligible Speech

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continued



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Disclosure

- Financial
 - Received financial compensation from Speechpathology.com for this presentation
- Nonfinancial
 - Developed and tested unpublished assessment instrument and intervention model being presented



Learning Outcomes

- Identify at least 3 important assessment considerations for Spanish-speaking individuals.
- Identify at least 3 important dialectal considerations for Spanish-speaking individuals.
- Identify at least 3 considerations for bilingual phonological intervention for children with highly unintelligible speech.

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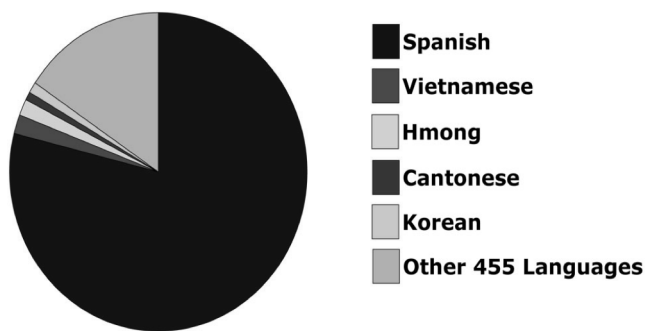
English Language Learners

- English Language Learners (ELLs) have more than doubled in recent years and are increasing (Shin & Kominski, 2010)
- 75% of reported ELL students native Spanish-speaking bilingual children (Shatz & Wilkinson, 2010; Swanson, 2009)
- Often over or under identified for services (Goldstein, 2004)
- Practitioners more often use informal measures or assess in English only (Skahan, Watson, & Lof, 2007)

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Languages of ELLs



http://account.education.wisc.edu/browse_languages.php

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“We have to think different.”



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Understanding ELLs and Phonological Assessment Practices

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Speech and Language Concerns?

(Goldstein, 2004; Prezas, 2014)

- Case history and preliminary information
 - Family Concerns
 - Dialect(s)/Language use (e.g., home)
 - Proficiency and
 - Age
 - Program – (English immersion, dual-language)
- Assessment of skills in both languages
 - Support personnel, if needed (e.g., interpreters)
 - Scores low in one language or both?

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Federal Mandates and Best Practices

(Arias & Friberg, 2017; ASHA, 2010; IDEA, 2006)

- Public agencies are required to have trained and knowledgeable professionals conduct evaluations
- Both native and second language (i.e., English) should be assessed
- Assessment in native language “unless it is clearly not feasible to so provide or administer” **Does not apply to Intervention**
- “Best practice” for bilingual assessment
 - Bilingually trained clinician
 - Trained Interpreter (interpreters speak, translators write)

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Assessment practices

(Arias & Friberg, 2017)

Results	Caesar & Kohler (2007)	Arias & Friberg (2017)
Combination of formal and informal measures at least “sometimes”	98%	91%
Complete Assessments in the child’s native language and English	53%	77%
Use of Interpreters	70%	52%
Use of dynamic assessment at least sometimes	n/a	56%
Use or dynamic assessment rarely or never	n/a	43%
<u>Positive perceptions of graduate program preparation</u>	<u>28%</u>	<u>38%</u>

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Consonants and Vowels

(Goldstein, 2001)

Sound class	Spanish						English							
Stops	p	b	t	d	k	g	p	b	t	d	k	g		
Nasals	m	n	ɲ				m	n	ŋ					
Fricatives	f	s	x				f	v	s	z	θ	ð	ʃ	ʒ
Glides	w	j					w	j						
Affricate	tʃ						tʃ	dʒ						
Liquid	l						l	ɹ						
Flap	ɾ													
Trill	r ^a													
Vowels	i	e	u	o	a		i	e	æ	ʊ	o	ɑ	ɔʊ	oɪ
							ɪ	ɛ	ə	ʊ	ɔ	ə	ʌ	ɔɪ

^aThe phonetic symbol /r/ represents the Spanish trill in the IPA system. The American English prevocalic "r" is represented by the IPA symbol /ɹ/.

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Dialectal Considerations

(Goldstein, 2004; Prezas, 2012)

- Most prevalent dialects in US – Mexican & Puerto Rican (consonant differences)
- Children from Mexican descent with adult-like speech vs. other dialects:
 - Sequences with /s/
 - Escuela = /eskwela/ vs. /e^hkwela/ or /e_kwela/
 - Pescado = /peskaðo/ vs. /pe^hkaðo/ or /pe_ka_o/
 - Final Consonants (e.g., /s/)
 - Dos = /dos/ vs. /doh/ or /do_/
 - Guantes = /wantes/ vs. /wante^h/
 - Liquids (i.e., /l/ and /r/)
 - Verde = /berðe/ vs. /belðe/

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Typically Developing Children

(e.g., Fabiano, 2006; Fabiano-Smith & Goldstein, 2010; Gildersleeve-Neumann, Kester, Davis, & Peña, 2008; Prezas, Hodson, Schommer-Aikins, 2014)

- **Monolingual** Spanish-speakers:
 - consonant sequence/cluster reduction
 - stridency deletion (dialect dependent)
 - deviations of liquids (i.e., flap /r/ and trill /r/)
- Additionally in **Bilinguals** (Spanish-English):
 - Similar phonological PATTERNS in both languages
 - Speech sound development of bilingual children:
 - Less than 4-years-old
 - Dissimilar and more errors initially than monolingual peers
 - Still within normal range
 - Greater than 4-years-old
 - more similar to monolingual peers

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Children with SSD

(Dodd, Holm, & Wei, 1997; Holm & Dodd, 1999; Goldstein, 2000; Prezas, 2012)

- Monolingual Spanish speakers:
 - Low intelligibility to individuals outside of immediate family
- Additionally in Bilinguals:
 - Low intelligibility in BOTH languages
- “Red Flags”:
 - Initial consonant deletion
 - Fronting/backing
 - Cluster/sequence reduction
 - liquids/stridency (e.g., /r/)
 - Monosyllables

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Common productions of Spanish-speaking children who are highly unintelligible (Prezas, 2015)*

<u>Word</u>	<u>English</u>	<u>Target</u>	\Rightarrow	<u>Production</u>
▪ Chicle	(gum)	/tʃikle/		[tite]
▪ Cuchara	(spoon)	/kutʃara/		[taja]
▪ Escuela	(school)	/eskwela/		[weja]
▪ Estrella	(star)	/estreja/		[teja]
▪ Lápiz	(pencil)	/lapis/		[api]
▪ Pescado	(fish)	/peskaðo/		[aho]
▪ Sombrero	(hat)	/sombbrero/		[bejo]
▪ Negro	(black)	/negro/		[nego]

- Words versus continuous speech sample
- No “consistent” omissions (disordered) by age 4 (generalization – OK)
- Difficulty with trilled/flapped “r” only = case by case (age/motivation)

*Note: Example productions from children with Mexican dialect

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Severity Continuum

(OMISSIONS/SUBSTITUTIONS/DISORTIONS; Hodson 2010)

Profound

EXTENSIVE Omissions
Many Substitutions

Severe

Many Omissions
EXTENSIVE
Substitutions

Moderate

Some Omissions
Some Substitutions

Mild

Omissions Rare
Few Substitutions

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Speech Sound Evaluation

(Prezas & Hodson, 2007)

- Evaluation of Hearing
- Oral mechanism screening
- Child's phonological strengths and weaknesses
 - Severity level (i.e., mild, moderate, severe, profound)
 - Percentage of intelligible/understandable words
 - Stimulability information
- Language assessment (expressive and receptive)
- Metaphonological assessment
- Direction for intervention

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Narrative Speech Sample

(Rojas & Iglesias, 2009)

- Short speech sample
- PCC
- Percent Intelligible words
- MLR
- Percentage of improvement
 - Progress Reports
 - Benchmarks

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Disorder or Difference?

- Audio Examples
- 5-year-olds
- Predominantly Spanish

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Stimulability

(Hodson, 2010; Miccio, Elbert, & Forrest, 1999; Prezas, 2015; Rvachew, 2005)

- Child's ability to correctly imitate a given phoneme with instruction/cues
- Results provide clear prognostic indications
- Accuracy for unmastered phoneme more likely to occur over given time when child is stimutable, rather than unstimulable.
- Help with treatment planning and target selection

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Understanding ELLs and Phonological Assessment Practices

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Bilingual Intervention*

(Fabiano, 2012; Goldstein & Fabiano, 2007; Kohnert et al., 2005;
Kohnert & Derr, 2004)

▪ Bilingual Approach

- Treat constructs common to both languages
- Common Phonological deviations (Spanish and English)

▪ Cross-Linguistic Approach

- Focus on skills unique to each language
- Language-specific errors/sounds
- Language of Treatment based on history, use, proficiency and environment.
- Intervention in one language may generalize to the other language (Paradis, 2001)

*Emphasis on children with highly unintelligible speech

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Treatment Approaches

(Fey, 1992; Hodson, 2010)

- **Phoneme-Oriented “Vertical” Approach**
 - One goal taught until criterion is reached
 - Children with few speech sound errors
- **“Horizontal” Approach**
 - More than one goal addressed in each session
 - Targeting one goal in Language 1 and another in language 2 during the same session
- **Pattern-Oriented “Cyclical” Approach**
 - Goals addressed in cyclical fashion
 - Goals recycled in subsequent cycles
 - Languages also rotated based on client needs

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Stimulable vs. Non-Stimulable Sounds

- Studies have found that outcomes are generally better when stimulable targets were treated (Rvachew, 2005).
- Outcomes for unstimulable targets show improvement with combination of:
 - Phonemic perception training
 - Phonetic placement procedures
- **Recommendation:** a balance of complexity within a child's Zone of Proximal Development, beginning with stimulable sounds and targeting appropriate complexity as well.

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Intervention and Bilinguals

(Prezas, 2012)

- **Pattern Oriented Approach**
 - Target consistent, stimuable deviations
 - Stimulate non-stimulable sounds
- Therapy in **Spanish First** preferred (if possible)
 - Children who primarily speak Spanish in the home
 - Prior to Pre-K (limited English exposure)
 - Typically “Walk-in” students (prior to Pre-K program)
- Therapy in **both languages**
 - Once second language established (e.g., English)
 - Consider English input/environment (learning English in school setting)

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Potential Optimal “Primary” Spanish Target Patterns – Word Structures and Anterior/Posterior Contrasts

- **Word Structures (Omitted Segments)**
 - > “Syllableness” – if needed
 - 2-syllable word combinations
 - Vowel sequences (e.g., [a-a] - /kasa/, /mapa/; [o-o] - /oso/, /foko/)
 - 3-syllable/word combinations (e.g., /kamisa/)
 - > Singleton consonants
 - CV – word-initial /p,b,m,w/ if lacking/omitted
 - VC – final /n/ if lacking (to facilitate final sounds)
- **Anterior/posterior contrasts (when stimuable)**
 - > Velars (fronting) – word initial /k/ and /g/
 - > Alveolars (backing) – word initial /t/ and /d/

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Potential Optimal “Primary” Spanish Target Patterns - /s/ Sequences and English /s/ Clusters

- **/s/ sequences with omissions** (not substitutions or distortions)
 - Word-initial (i.e., /esp/, /est/, /esk/)*
 - Short, two syllable when possible
 - (e.g., *ésto*; *ésta*; *esqui*)
 - *Do not target if substitution/omission of /s/ is acceptable in child's Spanish dialect
 - Substitute /s/ clusters in English for bilingual speakers of other dialects of Spanish
 - Also may substitute weak syllable deletion here using sequences listed (e.g., *espero*; *escoba*)
 - Incorporate phrase: “Es un/una” _ - (/s/ sequence word) after child demonstrates facility producing /s/ sequence in production-practice words.

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Potential Optimal “Primary” Spanish Target Patterns - Liquids

- **Facilitate liquids /l/ and tapped /ɾ/** (even if not stimulable)
 - > Word-initial /l/ [preceded by week of tongue-tip clicking]
 - > Flap (tapped) /r/
 - (dependent on dialect)
 - [e.g., Puerto Rican dialect - /l/ substituted for /r/ in coda position]
 - > /l/ clusters and tapped /r/ clusters
 - Do not blend initially
 - Only for children who already produce singletons
 - Word-initial /pl, bl, kl, pr, tr, kr/ if lacking

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Potential Secondary Target Patterns

- Singleton consonants
 - Palatals /j, ɟ/; Trilled /r/
 - Other singleton stridents /f, s/
- All Other Consonant Clusters/Sequences
 - Word-initial CC (e.g., /fl/, /fr/)
 - Word-medial CC (e.g., /busko/, /caldo/); CCC (e.g., /kontra/)
- Other considerations
 - Voicing Contrasts (prevocalic only) and Phonemic Vowel Deviations
 - Assimilations and other idiosyncratic deviations (if needed)

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Treatment Session – Basic Structure

- **Review** last session's practice words
- **Listening** activity [approximately 30 seconds]
 - Words containing target [15-20 NOT carefully selected] (child must NOT repeat these words)
 - Slight amplification
 - Have child say a couple potential practice words using amplifier
- **Production**-practice words [5-6 **carefully selected**]
- Activities for eliciting productions
 - use cues/assists/models as needed [Goal is as close to 100%]
 - child "takes turn" after saying "target" correctly in production-practice word [change activities every 7 or 8 minutes]
- **Metaphonological** Activity [e.g., rhyming]
- **Probe** for next session's target
- Repeat **listening** activity [with slight amplification]
- **Home** practice [2 minutes per day]

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Don't forget...

- Keep the child's **level of bilingualism** in mind at all times.
- Incorporate **phonological awareness** activities in assessment.
- **Send home** information with child for families.
- **Monolingual SLPs** should be familiar with “best practice” for **bilingual assessment!**

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Therapy Reminders

- Use slight amplification (e.g., amplifier)
- Goal is “**consistent**” accuracy each time
 - Choose target words carefully
 - Elicit a correct response (Remember – as close to 100%)
 - Real words that are short in length
 - Find child's “level” for target (hierarchy)
 - Use cues/assists/models as needed to reach goal
- **Avoid** selecting words containing consonant at same place of articulation as error:
 - English: Dog (/d/ for /g/)
 - Spanish: Gato (/g/ for /t/)

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Targeting /r/

- Help! Student (child) substitutes American “r” for Spanish tapped/trilled “r”!
- Help! Student (child) substitutes tapped “r” for American “r” !
- Question: Is it a cross-linguistic difference or are all liquids problematic?
- Question: Does the child produce a version of the “r” correctly?

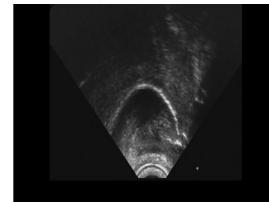
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Persistent Speech Sound Errors

(Preston, McCabe, Rivera-Campos, Whittle, Landry & Mass, 2014)

- Highly unintelligible children
 - May receive Tx for years
 - Likely become Persistent SSD Cases
- Generalization of liquids
- Motor-based treatment
- Ultrasound visual feedback treatment
- Spanish liquids and visual biofeedback (Ahmed Rivera-Campos)



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Tips for Monolingual SLPs

- Find a bilingual (trained) SLP to consult with
- Find an interpreter (for treatment as well!)
 - Other speech students who are bilingual (groupings)
 - General ed students (job posting – resume)
 - People in the community
- Adapt Materials
 - Use “ESL strategies” in reverse: label everything in your room in Spanish for you
 - Ask colleagues for things they have that have been translated
 - Use online free translation (with extreme caution) to translate single words

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Parent Involvement

(Prezas, 2015)

- Keep all parents informed.
 - “What would I want shared with me as a parent?”
 - “How can I make sure I do that for my parents who speak other languages?”
- Find ways to **communicate with speakers** of other languages
- **Encourage family** to continue speaking to child in native (dominant) language – even children with impairment!

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continued



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