


Bilinguals with CAS: You've Got This!

A 3-part training program to increase SLP skills in serving individuals with CAS with different language needs.

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Disclosures

- Relevant Financial Disclosures
 - Christina is employed as a professor at Portland State University
- Relevant Non-Financial Disclosures
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Modules

- 1 Overview, Myths, Bilingualism & CAS
- 2 Assessment of CAS in Bilinguals
- 3 CAS Treatment Approach for Bilinguals

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Overview,
Myths,
Bilingualism &
CAS



Module 1

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Learning Objectives

- Describe speech development in bilinguals
- Apply knowledge of CAS to children from bilingual environments
- Understand
 - functional language needs for bilingual children with CAS
 - how CAS needs are the same for bilinguals & monolinguals
 - how different language properties may affect external characteristics of CAS

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Most people in the
world are multilingual

YET OUR FIELD HAS APPROACHED CAS FROM A ONE-
LANGUAGE PERSPECTIVE

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Linguistic Diversity in the U.S.¹

46 million people

- Speak a language other than English

62 million Latinos in US

- From 50.5 million in 2010 (23% growth)

23% of kids in school

- Children of immigrants

By 2030s 40% of school population

- Will be English Language Learners
- Latino children largest ethnic minority in the U.S. today



Importance of Heritage Language in Bi/Multilingual

L1, NATIVE, OR HOME LANGUAGE(S)

Familial Implications

- Effect of Losing L1 on Family Relationships
 - Negative impact on child's maintenance of culture, religion, moral values, community, career opportunities.
- Loss of L1
 - creates a distinct communicative barrier between child and their parents and grandparents
 - difficulty in genuine connection building

Personal & Social Implications

- L1 proficiency intrinsically connected to self-identity
- Maintaining L1 helps child value their culture & heritage, contributing to a positive self-concept.
- Isolation & feeling of rejection can occur if L1 not maintained.
- Cognitive & academic benefits of retaining bilingualism.
- Greater scope of job opportunities for bilinguals

“As SLPs increasingly assess and treat children from varying linguistic backgrounds, knowledge of typical acquisition must expand beyond descriptions of developmental milestones based predominantly on studies of English...”²

Importance of L1 or Both Languages³

- Supporting first language in preschoolers helps rather than hinders English learning in typically-developing children.
 - Even more important for the bilingual child with CAS!
- If parents speaking their language to children
 - Children communicating at highest level cognitively with parents
 - Continuing to develop cognitive skills

Immigrant Children's Academic Success⁴

- Russian & Ethiopian immigrants in Israel
 - Bilinguals (Had to learn Hebrew)
 - Examined in 5th, 7th, 9th grades
 - Sampled **entire** population
- **Greatest predictor of success was SES**
- **Second** was whether **L1 kept alive at home**

U.S. Immigrant Children's Success⁵

- 6750 Asian American refugees
 - *Parents with limited educational backgrounds, LEP*
- Strongest predictor of academic success in English was whether L1 was kept alive at home
 - Reading books to kids
 - Retention of language & cultural values
 - Supportive home environment

Most Effective Bilingual Programs⁶

- Academic achievement in English of ~42,000 students in bilingual and ESL classes over 8-12 years
 - Students make similar gains in first 3 years of instruction
 - Students in Late-Exit Bilingual + Content ESL & 2-Way BE programs **reached & surpassed** grade level on English academic content by JHS.
 - Students in English-only programs level out & make least gains in long run.
- More L1 leads to higher academic achievement in English.

Risks of Losing L1

- Loss of cultural transmission
- Less successful in social-emotional development & education
- Increase in
 - riskier behaviors
 - school dropout rates
 - drug use

Bilingualism: A Functional Framework

A functional perspective to communication & bilingualism

Functional Bilingualism

- Applies to anyone who uses two languages
- Differs across individuals
- Differs across second language speakers
- Changes over time

Speech Development Research

- Focus on monolingual English (middle-class white kids)
 - Research critical to understanding speech
 - Applied to clinical practice
 - In-depth, multiple perspectives
 - Developed norms

How Bilinguals & Monolinguals Compared

- Middle-class tasks and expectations
 - Differences seen as speech, language, cognitive, cultural and familial deficits
- Differences must be defended in comparison to monolinguals
- Populations that speak English often tested monolingually

Bilingual Speech Research

- Primarily how different from monolinguals, not what is unique about bilinguals
 - Monolingual English tasks
 - Assume one type of typical bilingual
 - Normative tests used (but built on monolinguals)
 - Cultural/linguistic considerations of tasks not used
- Observed in structured or semi-structured monolingual situations
- Age group differences
 - Emphasis on continued differences
 - Often ignored changes over time

How Are Bilinguals & Monolinguals the Same?

- Have an underlying phonological system
 - Bilingual system is nonautonomous but for two languages
- Develop speech
 - But may develop two speech for two languages at different rates
- Reach developmental milestones at same time as monolinguals
 - Surface-level presentation differs based on cultural values
 - May look slower than monolingual peers

Bilinguals & Monolingual Differences

- Codeswitching
- Alternate use of two linguistic codes within a stretch of discourse (mixing, interference, borrowing)
- Social learning context is key
 - modeled for child

Unique to Bilingual Development

- Phonetic distinctions of same phone
- Pragmatic language use
- Situation-dependent
- Metatransfer

Importance of Not Having a One-Dimensional Framework^{8,9}

“There continues to be a dearth of research on bilingual speech sound development, despite multilinguals being more common than monolinguals worldwide”

Speech Development in a Dynamic System⁶

Language is a “dynamic system that emerges within a social context through interactions of cognitive, neurobiological, and environmental systems and subsystems across nested timescales.”⁷

No Two Bilinguals are Alike

Bilingual Considerations

- Elective vs. Circumstantial Bilingual
- Languages families speak
- **Current** language environment of child
- Who the family interacts with
 - Daily/Annually/Occasionally
- Value of language for
 - Family
 - Child
- Typical vs. Disordered

Need to Understand Bilinguals

- Limited knowledge of bilingual speech development
- Bilinguals typically compared to:
 - Monolingual children in one language
- But path to and goals for speech development are different!
 - Bilinguals often not differentiated by bilingual environment
 - Simultaneous vs. sequential

Types of Bilinguals¹⁰

- Simultaneous
 - Learning about language in both languages
 - Regular exposure to both languages before 18 months of age
 - Exposed to English for at least 2 years
- Sequential
 - Exposed to L1 first and L2 later
 - L2 gained after the establishment L1, typically after age 2
 - Use L1 language skills to learn L2

Bilingual Development Differs⁸

“When bilinguals are first exposed to each language their phonological systems will result in slightly different phonemic inventories and accuracy rates in each language.”⁹

Many US Bilingual Children Are

- Circumstantial bilinguals
- Sequential bilinguals (>50%)
- Home language not U.S. status language
- Home language needs differ from school needs
- Parents not of economic advantage, many with
 - Less time
 - Less education
 - Conflicting knowledge of importance and means of parent advocacy

Bilingual Considerations

- Educational Resources
- Language Biases
 - Power
 - Privilege
 - Peer and academic pressures
- Circumstantial vs. Elective bilingual

Multilingual Speech Development

- Same components as monolinguals
 - Phonological systems
 - Function & Constraints of sounds/word shapes
 - Articulatory aspects necessary
 - Motor Planning
 - Motor Execution

Child's language(s) superimposed on these components

Early Speech Development Similar in Simultaneous Bilinguals & Monolinguals^{8,9}

- Early babbling & first words similar regardless of language
 - Anterior sounds before posterior sounds
 - Oral and nasal stops before fricatives and liquids
- Why similar?
 - Emergence approach
 - Child's structure and abilities are immature
 - Articulation, motor movements, & perception skills are not developed

General Bilingual Comments

- First words and word combinations develop at same age
 - Same system
 - Same overall development
 - Different cultural emphases?
- If compared to monolingual
 - Slower single language vocabulary growth
 - But must look at sum ACROSS languages

Simultaneous Bilingual Development⁸

- Before 2, bilinguals do not develop the fine-grained articulatory differences of similar phonemes between both languages
 - For example, bilingual Spanish-English speakers may produce /t/ (English [t^h] and Spanish [t^ɰ]) the same

Bilingual Speech Development⁸

- From ages 2 to 5, children’s language environments start to influence their phonotactic and phonological development
 - For example, Spanish-English bilinguals produce /t/ correctly and differently in Spanish and

Bilingual Speech Development¹¹

- Interactions between both languages may occur
 - Spanish-English bilinguals producing Spanish phonemes and few consonant clusters in English
- May produce error patterns found in both languages and some atypical errors for monolingual speakers
 - Spanish-English bilinguals devoicing the final consonant

Translanguaging in Bilinguals¹²

- Functional and dynamic use of both languages to
 - Organize and mediate mental processes for
 - understanding, speaking, literacy, learning.
- Challenges idea that bilinguals are going from one language to another

Codeswitching is Normal¹³

- Bilinguals use elements of both languages in conversation
- Can occur between two languages that highly contrast each other (i.e., English and Vietnamese)
- Effective form of communication between bilinguals who speak the same languages
- Not a sign of a developmental language disorder in bilinguals

Translanguaging vs. Code-Switching¹⁴

Translanguaging

One fluid practice
 Centers language users
 Rooted in a speaker and community perspective of language practices
 Frames use of entire communication repertoire as an authentic, legitimate and rich practice
 Transcends boundaries of named languages
 Affirms bilingual identities and ways of knowing

Codeswitching

Two sets of monolingual norms
 Emphasizes languages systems
 Focused on a sociopolitical definition of named languages
 Suggests the mixing of different named languages is strategic, aberrant or erroneous
 Accepts social and political boundaries between language systems
 Can contribute to negative perceptions about bilingual people having broken or semi language

Mythbusting

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Myth: Learning two languages is harder than learning one

Reality:

- Bilingual and monolingual children develop speech skills at the same rate
- Most people speak two languages all the time
- Many speak 3+!

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Myth: Bilinguals just need academic language

Reality

- Value for home language and environment
- Language is culture
- Not only classroom language important for success
- Not every American should/can/wants to speak English fluently
- May not have access to English learning resources

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Myth: If child has a disorder, focus should be on English because SLP speaks it

Erroneous Framework because

- Dominant cultural bias
- Assumption that family - not SLP, school - must adapt
- Assumes families can adapt

Myths About Bilingualism and CAS

- Need to pick one language because it's CAS and too hard to be bilingual
- Parents can choose to speak a language they don't speak
- English is more important because:
 - The SLP can speak it
 - The child will need to speak it for school to be successful

Myths About Bilingualism and CAS

- A bilingual child is "choosing" English
 - Language choice or simpler structure?
 - (eg., "ba" for "ball" instead of "pelota")
 - Needs opportunities to practice in longer utterances
 - Needs help with generalization
- English is improving in therapy so don't need L1
 - That's just evidence your therapy works!

SLP needs to find ways to encourage bilingual growth.

Childhood Apraxia of Speech
A Type of Speech Sound Disorder

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CAS is Like Other SSDs

- Affects
 - Speech output
 - Intelligibility
 - Age-appropriate communication
 - Social emotional factors
- Simpler sounds & syllable shapes predominate in speech productions
 - “tah” for “socks”, “boo” for “spoon”

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CAS Differs from Other SSDs^{16, 17}

- Core deficit is motor planning & programming speech
- Inconsistency in phoneme production
 - Consonant, *Vowels, Tones
- Unusual breaks between sounds in syllables
- Increased difficulty as utterance gets longer
- Prosodic/Suprasegmental errors
 - Stress errors
 - Pitch, loudness, intonation, nasality

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Other Signs of CAS^{16, 17, 18}

- Difficulty moving from one sound to another
- Producing words inconsistently
- Difficulty imitating words
- Groping movements of the tongue, mouth or jaw
- Incorrect and/or excess equal stress on syllables and words
 - In stress-based languages or with lexical stress
- Tone production errors in languages with phonemic tone

CAS Deficits Affect

- Sequencing of motor movements
- Representation of sounds and syllables in the brain
- Speech, language, and literacy in children with CAS

Typical Signs of CAS¹⁷

- As children's speech develops more between 2 to 4 years of age, more apparent:
 - Vowel and consonant distortions
 - Separation of syllables in or between words
 - Voicing errors

“Bilingual didn’t cause disorder; monolingualism is not going to fix It”⁷

MOM: Understanding & Supporting Bilingualism in Children with CAS⁷

Means

- general language proficiency

Opportunities

- to learn, use & practice language/s in different contexts & with varying partners

Motivations

- preference to use one language over the another

Can a Child with CAS Learn to Speak More than One Language?

YES

Should a child with CAS learn two languages?

CHILD & FAMILY DECISION

SLP provides best evidence and appropriate supports

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A (weak) analogy:
Should my child with global apraxia learn to swim? Isn't walking enough?

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Which kid gets to swim?

- Live on a houseboat or an island or the ocean shore
- Live on a lake
- Visit extended family on a lake for weeks every summer
- Older siblings and friends at pool all summer
- Your family loves to swim
- Your child really wants to learn how to swim
- You don't swim but you really want your child to

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Bimodal Apraxia: What Decision Factors?

- Redefine “swim” so reflects difficulty
- Severity of apraxia? Maybe
- Family considerations?
- What impact will not swimming have on child?
- Child considerations?
- Present and future needs?

Bilinguals with CAS

- Same deficit in motor planning for speech as monolinguals
 - But affects both languages
- No effect on understanding two languages
- No effect on need to communicate in both languages

Bilingual CAS

- Need speech skills to communicate with their community
- Monolingualism will negatively impact their communication
- Beware the “Matthew Effect”
 - Those with access to therapy in their languages will improve their communication
 - Those who are deprived of opportunity to develop their L1 and likely will lose L1 and connection with others.

Bilinguals with CAS need

- Assessment in both languages
- Individualized treatment approach
- Plan for language(s) of intervention
 - Which
 - When
 - How

Understanding Bilingual

- Look at overall/composite development to understand whole phonology
 - May have different skills in each language
- Phonology of each language matters
 - If more complex consonant system, may take longer to master
 - Initially
 - Shorter words may be more intelligible
 - Simple syllable shapes may be more accurate
 - Vowels may be mastered sooner if language has few vowels

Intervention for Bilingual CAS

- Children with speech and/or language disorder
- Need as rich a communication environment as possible
 - Child has underlying difficulty with motor planning
 - Enriched environmental factors to support deficit
- Bilingual children with CAS need intense therapy in both languages.
 - At greatest risk of losing L1

Importance of Home Language in Intervention

- Can be used to strengthen English
- Learn new information
 - in a stronger language
 - then transfer to weaker language
- Better language choice if no English yet
 - Lots of opportunity for practice!

To understand challenges for bilinguals with CAS, need to understand motor planning needs for L1 and L2

Need to Consider L1 & L2 Motor Plans

- How is meaning contrasted?
 - Overall? In a developing speech system?
- Is meaning contrasted differently across languages?
- How might meaningful differences in L1 affect L2 speech?

Intervention for Bilingual CAS

- CAS motor planning disorder whether a bilingual or a monolingual
- Framework for CAS therapy doesn't change
- Need to consider specific language and socio-cultural needs,
- Need meta skills
- Transferring skills in two languages is generalization practice

Monolingual Lens of CAS

CAS “features and checklists were developed based on English speakers” and studies focused on English -speaking populations¹⁷

CAS Based on English Properties

- Strong-weak stress pattern
- High frequency of monosyllabic words
- Moderate number of consonants
- Many vowels

CAS Considerations in Other Languages

- Different stress patterns
- Multisyllabic words
- Fewer/more vowels or consonants
- Different word shapes and lengths
- Other ways of contrasting meaning
 - Ex: Airstream Source & Direction, Phonation, Tones, Length
- Differences affect assessment & treatment!

Comparison of Languages in the Bilingual

IMPLICATIONS FOR ASSESSMENT AND TREATMENT

Understanding Bilingual

- Look at overall/composite development to understand whole phonology
 - May have different skills in each language
- Phonology of each language matters
 - If more complex consonant system, may take longer to master
 - Initially
 - Shorter words may be more intelligible
 - Simple syllable shapes may be more accurate
 - Vowels may be mastered sooner if language has few vowels

Example: Spanish and English

- We need to consider:
 - # and type of vowels
 - # and type of consonants
 - Different stress patterns
 - Word lengths
 - Word shapes

Determine Phonological Differences

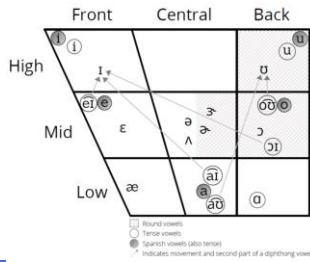
- Review phonological features of Spanish (or another language) and potential phonological variations of child/family's dialect:
- Compare shared vs. unshared phonemes
- Phonetic properties
- Word shapes, etc.

Vowel Comparison⁹

- | | |
|--|--|
| Spanish-Only <ul style="list-style-type: none"> ◦ 5 Phonemes: /i, e, a, o, u / ◦ Allophonic variance that can overlap with English vowels ◦ No tense/lax contrast <ul style="list-style-type: none"> ◦ Allophonic variation greater? | English-Only <ul style="list-style-type: none"> ◦ 14 monophthongs <ul style="list-style-type: none"> ◦ Stress/Unstressed versions of vowels ◦ Some phonemes can be allophonic in Spanish ◦ Phonemic/Nonphonemic diphthongs |
|--|--|

Spanish has fewer vowel contrasts when compared to English

English & Spanish Vowel Comparison



Consonant Phoneme Comparisons⁹

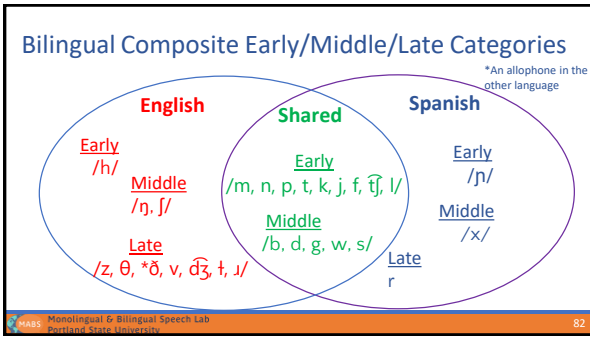
Spanish-Only

- Phonemes: /r, ʝ, x, r /
- Allophones: /β, ð, ɣ, R /
- No voiced spirants
- Phonetic Properties
- Unaspirated Voiceless Stops [p, t, k]
- Dental Stops & Nasals

English-Only

- Phonemes /ŋ, v, z, ʒ, θ, ʃ, dʒ, ʎ /
- Allophones
- Final [ʔ] for /t/
- Velar [ɰ] for /l/
- Phonetic Properties
- Aspirated [tʰ, pʰ, kʰ]
- Alveolar Stops/Nasals

	Bilabial	Labiodental	Interdental	Alveolar	Alveopalatal	Palatal	Velar	Glottal
(Oral) Stop	En p ^h Sp p b			t ^h k	d		k ^h g	[ʔ]
Nasal (Stop)	En Sp	m		n		ɲ	ŋ	
Tap / Flap	En Sp			[ɾ]	r			
Trill	En Sp			r				
Fricative	En Sp	f v	θ ð	s z		ʃ ʒ	x [χ]	h
Affricate	En Sp				tʃ dʒ			
Glide	En Sp	w				j		
Liquid	En Sp			l		ʎ	[ʎ]	



Word Shape Comparison

<p>English</p> <ul style="list-style-type: none"> • Predominantly monosyllabic words • 2+ syllable words less frequent • Within-syllable shape most meaningful contrast • Consonant sequencing • Final consonants 	<p>Spanish</p> <ul style="list-style-type: none"> • Predominantly multisyllabic words • Few final consonants permitted /l, n, s, r, d/ • Lesser reliance on within-syllable shape contrasts • Greater reliance on word length, syllable combinations
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Stress Pattern Comparison

<p>English</p> <ul style="list-style-type: none"> • Most words one syllable • Two-syllable words primarily trochaic • Stress patterns can change in longer utterances • Unstressed syllables show vowel reduction (schwa) 	<p>Spanish</p> <ul style="list-style-type: none"> • Most words 2 or more syllables • Few meaningful one syllable contrasts • Stress patterns dependent on final phoneme • Word's stress pattern does not change in longer utterances • No schwa
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Dialectal Considerations - Example

- Mexican & Puerto Rican Spanish
 - Sequences with /s/
 - *Escuela* = [es.kwe.la] vs. [eh.kwe.la] or [e_.kwe.la]
 - *Pescado* = [pes.ka.ðo] vs. [peh.ka.ðo] or [pe_.ka.ðo]
 - Final Consonants, e.g. /s/
 - *Dos* = /dos/ vs. /doh/ or [do_]
 - *Guantes* = [wan.tes] vs. [wan.teh]
 - Liquids
 - *Verde* = [ber.ðe] vs. [bel.ðe]



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Motor Planning Needs?

<p>In L1 (Spanish)</p> <ul style="list-style-type: none"> • Multisyllabic CV sequencing <ul style="list-style-type: none"> ◦ consonant closure? • Syllable-level stress • Trochaic CVCVs 	<p>In L2 (English)</p> <ul style="list-style-type: none"> • Single syllable contrasts • Vowel distinctions • Trochaic stress patterns
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Bilingual's Goal: Meet L1 and L2 motor planning needs

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Consider motor planning needs!

I need an orange ball
 /'aɪ nɪd æn 'ɔrɪndʒ bɑl/
 V CVC VC VCCC CVC
 =

Yo necesito una pelota anaranjada
 /jo ne.çe'si.to 'u.na pe.'lota a.na.ran.'xa.ðɑ/
 CV CV.CV.CV.CV V.CV CV.CV.CV V.CV.CVC.CV.CV

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Summary

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As a Culturally Competent SLP, We Must

- Provide services that are in best long-term interests of child with CAS
- Use a manner understood and accepted by those receiving services
- To do these, have knowledge of
 - Self
 - Others
 - Theories & empirical research on bilingual development, use & disorders
 - Child's language needs now and in the future

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Become Aware

- Clinicians learn to understand their culture
 - Identify their own culture
 - Reflecting on their own beliefs, values, & stereotypes
- Seek information on client's culture
 - Similarities and differences
- Use information in
 - Interviews
 - Assessment
 - Counseling
 - Treatment

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Final Thoughts

- Bilingual children have CAS
- CAS does not go away or get better if you are (or try to become) monolingual
- Monolingualism for a bilingual means you can't talk to a lot of people in your world
 - Isolating
 - Lack of generalization

THANK YOU!

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