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Overview of GFTA-3 Spanish Administration, Scoring, and Interpretation, presented in partnership with Pearson Clinical Assessment

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Moderated by:
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Overview of the Goldman-Fristoe Test of Articulation-3 Spanish Edition (GFTA-3 Spanish)

June 22, 2017

Marie Sepúlveda, MA CCC-SLP
Research Director, Speech and Language

Disclosures

Marie Sepulveda is the Research Director for the GFTA-3 Spanish. She is employed by Pearson Clinical Assessment.

There are no relevant non-financial relationships to disclose.

The Pearson Assessment Division, the sponsor of this webinar, develops and distributes assessment and intervention tools for speech-language pathologists. Course information will only cover information that pertains to the effective and appropriate use of GFTA-3 Spanish, which was developed by Pearson Clinical Assessment. No other assessments will be discussed.

Agenda

All times shown are U.S. Eastern.

12:00 to 12:05 pm	Introduction and Overview
12:05 to 12:25 pm	GFTA-3 Spanish Administration and Scoring Overview
12:25 to 12:40 pm	GFTA-3 Spanish Interpretation
12:40 to 12:55 pm	GFTA-3 Spanish Technical Information
12:55 to 1:00 pm	Q&A

Learning Objectives

1. List two ways that the GFTA-3 Spanish was developed to specifically address the developmental patterns of Spanish-speaking individuals.
2. Discuss one example of a case when dialect-sensitive scoring would be appropriate.
3. List at least two factors to consider when evaluating an examinee's error patterns on GFTA-3 Spanish.

GFTA-3 Spanish Overview

GFTA-3 Spanish: Overview

- Assess consonants in multiple contexts-every consonant error is scored
- Age appropriate art for ages 2:0 – 6:11 and 7:0 – 21:11
- Norm referenced scores
- Data about the emergence and mastery of speech sounds based on productions of Spanish speaking individuals
- Dialect-sensitive scoring for a wide range of Spanish dialects
- Rate intelligibility of connected speech
- Digital administration and scoring options

Art Examples

Unique to GFTA-3 Spanish


fruta


sopa


foto

Art Shared by English and Spanish Editions


pato


mesa

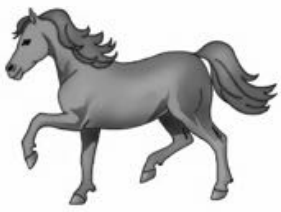

dientes

Two sets of test stimuli

2:0 – 6:11 yrs.

7:0 + yrs.

Two sets of test stimuli: Example



2:0 – 6:11 yrs.

7:0 – 21:11 yrs.

GFTA-3 Spanish

Phoneme production is tested in multiple contexts

Examples of words testing prevocalic /m/

- mesa
- manzana
- durmiendo

Examples of words testing postvocalic /s/

- nariz
- llaves
- tijeras

GFTA-3 Spanish Administration and Scoring Overview

Who can administer this test?

Bilingual SLP

- Native or near native proficiency in Spanish
- Trained and experienced in administering and interpreting articulation tests
- Knowledgeable of speech sound disorders in the Spanish-speaking population
- Knowledgeable of Spanish phonological development and transcription using the International Phonetic Alphabet (IPA)
- Knowledgeable of pronunciation differences among speakers of Spanish dialects

Who can administer this test?

SLP collaborating with a bilingual professional

SLP without native or near native proficiency in Spanish,

- The SLP is responsible for being familiar with
  - speech sound disorders in the Spanish speaking population
  - Spanish phonological development
  - transcription of the individual's production of target words using the International Phonetic Alphabet (IPA)
  - dialectal differences
  - cultural considerations
- Collaborating with a bilingual speech-language pathology assistant (SLP-A) or other bilingual professional (e.g., psychologist, occupational or physical therapist, diagnostician, or teacher)
- The bilingual professional is trained on test administration, and administers the question prompts and suggested cues.
- For resources for working with bilingual professionals, see ASHA.org.

Sonidos-en-palabras

- 50 words
- Two sets of art stimuli
- Contents examined in prevocalic, intervocalic, and postvocalic contexts
- Measures 17 consonants (including 3 allophones), 11 R & L clusters
- Question Prompts and Suggested Cues
- Phonetic Error Analysis

Sonidos-en-palabras administration format

Present words and the examinee names the picture.

If a child doesn't label a picture spontaneously, we provide a suggested cue

You can provide a different cue that follows the format provided. If that doesn't work, the child can imitate the target word

GFTA 3 GOLDMAN-FRISTOE TEST OF ARTICULATION Spanish

Sonidos-en-palabras
Score *all* consonants

Item	Target Word	IPA Transcription	Response	Prevocalic	Intervocalic	Postvocalic
1	pato	pato		p	t	
2	mesa	mesa		m	s	
3	nariz	naris		n	r	s
4	vaca	baka		b	k	
5	cama	kama		k	m	
6	leche	letʃe		l	tʃ	
				b	n	

GFTA 3 GOLDMAN-FRISTOE TEST OF ARTICULATION Spanish

Phonetic Error Analysis:
Common Error Patterns: Place

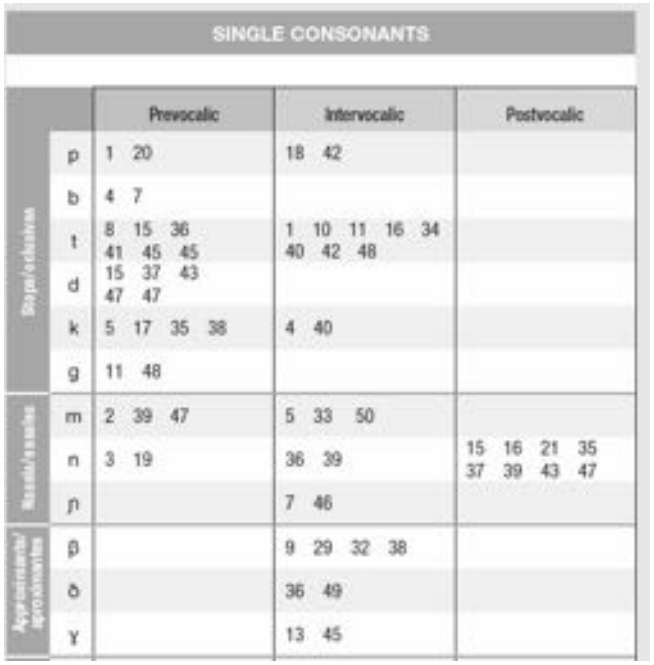
Sonidos-en-palabras Phonetic Error Analysis

SINGLE CONSONANTS

	Prevocalic	Intervocalic	Postvocalic
p	1 20	18 42	
b	4 7		
t	8 15 36 41 45 45	1 10 11 16 34 40 42 48	
d	15 37 43 47 47		
k	5 17 35 38	4 40	

***R* AND *L* CLUSTERS**

	Prevocalic	Intervocalic	Postvocalic
bl	35		
br	30		
fl	26		
fr	28 31		
gl	32		
gr	37		



SINGLE CONSONANTS

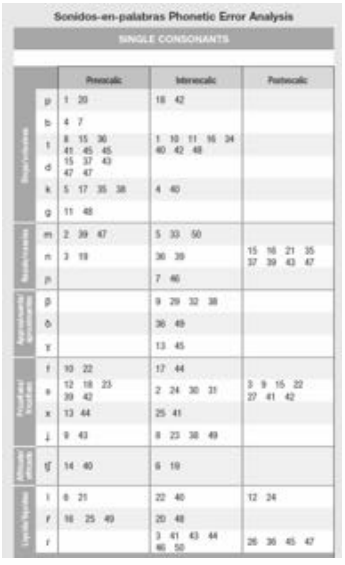
		Prevocalic	Intervocalic	Postvocalic
Stops/plosives	p	1 20	18 42	
	b	4 7		
	t	8 15 36 41 45 45	1 10 11 16 34 40 42 48	
	d	15 37 43 47 47		
	k	5 17 35 38	4 40	
	g	11 48		
Nasals/nasales	m	2 39 47	5 33 50	
	n	3 19	36 39	15 16 21 35 37 39 43 47
	ɲ		7 46	
Approximants/aproximantes	β		9 29 32 38	
	ð		36 49	
	ɣ		13 45	

GFTA-3 Goldman-Fristoe Test of Articulation Spanish

Common Error Patterns: Manner

Phonetic Error Analysis lists phonemes arranged by

- stops
- nasals
- approximants
- fricatives
- affricates
- liquids



Sonidos-en-palabras Phonetic Error Analysis

SINGLE CONSONANTS

		Prevocalic	Intervocalic	Postvocalic
Stops/plosives	p	1 20	18 42	
	b	4 7		
	t	8 15 36 41 45 45	1 10 11 16 34 40 42 48	
	d	15 37 43 47 47		
	k	5 17 35 38	4 40	
	g	11 48		
Nasals/nasales	m	2 39 47	5 33 50	
	n	3 19	36 39	15 16 21 35 37 39 43 47
	ɲ		7 46	
Approximants/aproximantes	β		9 29 32 38	
	ð		36 49	
	ɣ		13 45	
Fricatives/fricativas	f	10 22	17 44	
	s	12 18 23 39 42	2 24 30 31	3 9 15 22 27 41 42
	x	13 44	25 41	
	ɟ	9 43	8 23 38 49	
Affricates/africadas	ʧ	14 40	6 19	
Liquids/líquidas	l	6 21	22 40	12 24
	ɾ	16 25 49	20 48	
	r		3 41 43 44 46 50	26 36 45 47

Sonidos-en-palabras scores

- Standard scores
- Percentile ranks
- Age equivalents
- Growth scale values

Sonidos-en-oraciones

- Sentence imitation task
- One story for ages 4:0 to 6:11; the other for ages 7+
- Intelligibility score
- Report normative scores, including standard scores, percentile ranks, and age equivalents

Story for Ages 4:0 through 6:11
Una visita al parque

Story for Ages 7:0 to 21:11
No puedo abrir mis ojos

Sonidos-en-oraciones
Score *all* consonants in target words only

Story 2: No puedo abrir mis ojos

	Story Text	Item	Target Word	IPA Transcription	Response	Pre-vocalic	Inter-vocalic	Post-vocalic
Picture 1	Pedro trata de abrir los ojos, pero no puede. Intelligibility Rating: 1 2 3 4	1	ojos	oxos			x	s
	Cuando abre sus ojos un poco, ve que está durmiendo al revés en su cama. Intelligibility Rating: 1 2 3 4	2	ojos	oxos			x	s
	El sol brilla fuertemente y lo obliga a cerrarlos otra vez.	3	sol	sol		s		l
	Intelligibility Rating: 1 2 3 4	4	brilla	brija		br	j	

El sol brilla fuertemente y lo obliga a cerrarlos otra vez. — 3 sol sol; 4 brilla brija

Intelligibility Rating: 1 2 3 4

Sonidos-en-oraciones
Phonetic Error Analysis

Sonidos-en-oraciones Story 1 Phonetic Error Analysis

		SINGLE CONSONANTS		
		Prevocalic	Intervocalic	Postvocalic
Stops/ oclusivas	p	7 9 10	5	
	b	13 15		
	t	8 8	5 9 18	
	d	2		
	k	6 11 21	1	
	g	18		

- Organized by stops, nasals, approximants, fricatives, affricates, liquids
- Not all phonemes are represented

Sonidos-en-oraciones Intelligibility rating

Sonidos-en-oraciones Intelligibility rating

Intelligibility Rating Subtotals

1 Good	2 Fair	3 Poor	4 NR
5	7	3	0

GFTA–3 Spanish Intelligibility Rating Summary

Total of Good Ratings (1)		Total of All Ratings (1–4)		Overall Intelligibility Rating	Intelligibility Percentage
5	÷	15	=	13 %	40 < 90% 60 ≥ 90%

Table C.1 Intelligibility Ratings of the Normative Sample by A

Intelligibility rating	4:0–4:5	4:6–4:11	5:0–5:11	6:0–6:11
< 90%	51.1	51.0	40.0	26.8
≥ 90%	48.9	49.0	60.0	73.2

GFTA 3 GOLDMAN-FRISTOE TEST OF ARTICULATION Spanish

Dialect sensitive scoring

APPENDIX D

Examples of Dialectal Variations

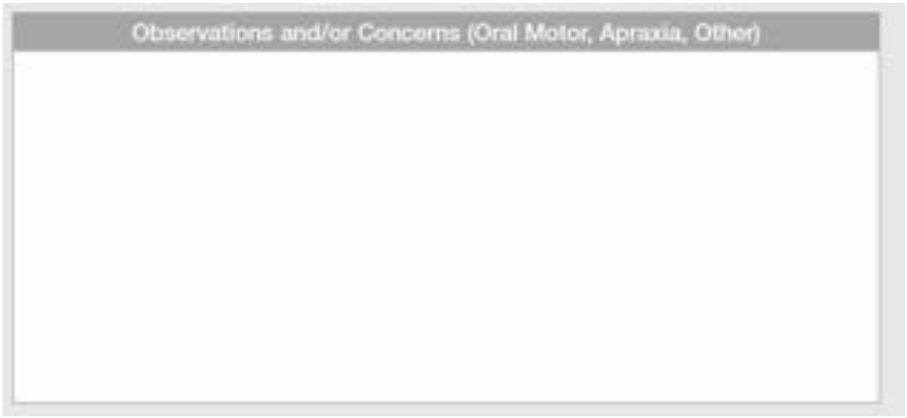
Phoneme	Allophones	Dialectal variations
/b/	[b] after pause or nasal [β] intervocalic, all other places	[v] [vaka] → /baka/
/ʧ/	[ʧ], [ʃ]	[ʃ] [ʃokolate] → /ʧokolate/, [noʃe] → /noʧe/
/f/	[f], [ɸ]	[ɸ] [ɸoto] → /foto/ [kaɸe] → /kafe/
/s/	[s]	Ø postvocalic [djente] → /djentes/ h or aspirated [djenteh] → /djentes/ [θ] (ceceo) [θol] → /sol/

GFTA 3 GOLDMAN-FRISTOE TEST OF ARTICULATION Spanish

Vowels

Vowel Errors Observations	
a	
e	
i	
o	
u	

Observations and/or Concerns



Sonidos-en-oraciones results

- Standard scores
- Percentile ranks
- Age equivalents
- Growth scale values
- Intelligibility measure

GFTA3 Spanish

Assess Stimulability

- Option of checking stimulability on error phonemes

Estimulación de consonantes y sínfones

SINGLE CONSONANTS	Syllable			Word			Sentence		
	Pre-vocalic	Inter-vocalic	Post-vocalic	Pre-vocalic	Inter-vocalic	Post-vocalic	Pre-vocalic	Inter-vocalic	Post-vocalic
p									
b									
t									
d									
k									
g									

GFTA3 Spanish

Administration and Scoring Options

Q-interactive®

Q-global®

Print Kit

Interpreting GFTA-3 Spanish Results

Gender differences

- Separate norms for females and males through the entire age range (2:0 through 21:11)
- Mastery for all phonemes exhibited in singleton and cluster productions:
  - Females
    - Most sounds developed by 6:0 to 6:11
    - Late developing sounds (7:0 to 8:0+): x, ð, tapped *r* and trilled *r, pr*)
  - Males
    - Most sounds developed by 7:0 to 7:11
    - Late developing sounds (8:0+): tapped *r* and trilled *r*)

Emergence and Mastery Data

- **GFTA-3 Premise [English and Spanish editions]:**
  Phonemes should be tested in multiple contexts because productions can be affected by surrounding vowels and consonants and the complexity of the word structure. Children begin to correctly produce phonemes at different ages, with a time period between emergence and mastery of sounds.

Low standard scores indicate that a child's speech is not comparable to age/sex peers.

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All sound productions are not created equal

Even in single word productions, accurate production of the target phoneme is influenced by context

- simple vs. complex syllable shapes
- production changes when the target is next to other consonants, vowels or blends

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Has speech sound developmental data really changed?

Emergence

- Age at which a phoneme is present (one or more correct productions) in the child's repertoire.

- Reported as the ages at which 50%, 75% and 90% of children spontaneously produced a phoneme correctly *one or more times* on GFTA-3 Spanish, based on age and sex.

Mastery

- Ages at which 85% of the GFTA-3 Spanish normative sample (by sex) produced the phoneme with at least 85% accuracy.

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GFTA 3 GOLDMAN-FRISTOE TEST OF ARTICULATION Spanish

Emergence and Mastery Data (Females)

Emergence and Mastery of Phonemes by Age and Sex

Table PR1 Ages at Which Phonemes Were Present in percentages of Normative Sample (Female)

		Produced by 50% of children	Produced by 75% of children	Produced by 90% of children
FEMALE	2:0-2:5	/g/ /b/ /y/	/s/ /d/ /k/ /t/ /f/ /s/	/p/ /t/ /m/ /n/ /s/ /t/ /b/ /g/ /k/ /y/
	2:6-2:11	/t/ /b/ /f/ /k/ /p/	/b/	/b/ /d/ /k/ /t/ /f/ /y/
	3:0-3:5	/g/	/g/ /f/ /p/	/r/
	3:6-3:11	/ts/ /s/ /g/ /ks/ /s/	/r/	/g/
	4:0-4:5		/ts/ /s/ /g/	/b/ /ks/
	4:6-4:11	/p/	/ts/ /g/ /ks/ /s/	/ts/ /f/ /p/
	5:0-5:11			/r/ /s/
	6:0-6:11			/ts/ /g/ /g/ /ks/ /s/
	7:0-7:11		/p/	
	8:0-8:11			
	>8:11			/p/

Table PR2 Ages at Which 85% of the Normative Sample Correctly Produced Consonants by Prevocalic, Intervocalic, and Postvocalic Position (Female)

		Prevocalic	Intervocalic	Postvocalic
FEMALE	2:0-2:5			
	2:6-2:11			
	3:0-3:5	/p/ /b/ /m/ /y/	/p/ /t/ /k/ /n/	
	3:6-3:11		/g/	
	4:0-4:5	/t/ /k/ /n/ /t/ /g/ /l/ /ts/ /f/ /p/	/n/ /f/ /l/ /p/ /y/ /s/ /s/	/n/ /l/
	4:6-4:11	/s/	/m/ /y/	
	5:0-5:11	/s/	/s/	/s/
	6:0-6:11	/d/ /g/ /ts/ /t/ /g/ /g/ /ks/ /s/		
	7:0-7:11	/s/	/b/ /s/	
	8:0-8:11	/t/ /p/		/r/
	>8:11		/r/	

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Emergence Data: When should a child be able to say a sound one or more times on GFTA-3 Spanish? Table PR1: "Present" in the Normative sample (Females)

Table PR1 Ages at Which Phonemes Were Present in percentages of Normative Sample (Female)

	Produced by 50% of children	Produced by 75% of children	Produced by 90% of children
2:0–2:5	/g/ /b/ /y/	/b/ /d/ /k/ /f/ /tʃ/ /s/	/p/ /t/ /m/ /n/ /s/ /l/ /θ/ /j/ /x/ /ɲ/
2:6–2:11	/t/ /b/ /f/ /d/ /p/	/θ/	/b/ /d/ /k/ /l/ /tʃ/ /ɣ/
3:0–3:5	/g/	/g/ /f/ /p/	/r/
3:6–3:11	/b/ /b/ /g/ /x/ /s/	/t/	/g/
4:0–4:5		/b/ /b/ /g/	/b/ /x/
4:6–4:11	/p/	/b/ /g/ /x/ /s/	/b/ /f/ /j/
5:0–5:11			/r/ /b/
6:0–6:11			/b/ /g/ /g/ /d/ /s/
7:0–7:11		/p/	
8:0–8:11			
>8:11			/p/

Table PR2 Ages at Which 85% of the Normative Sample Correctly Produced Consonants by Prevocalic, Intervocalic, and Postvocalic Position (Female)

	Prevocalic	Intervocalic	Postvocalic
2:0–2:5			

GFTA-3: Emergence Data: % of girls producing the phoneme one or more times correctly (multiple opportunities)

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Mastery Data: When should a child be able to say a sound correctly with at least 85% accuracy on GFTA-3 Spanish? Mastery (Females)

Table PR2 Ages at Which 85% of the Normative Sample Correctly Produced Consonants by Prevocalic, Intervocalic, and Postvocalic Position (Female)

	Prevocalic	Intervocalic	Postvocalic
2:0–2:5			
2:6–2:11			
3:0–3:5	/p/ /b/ /m/ /j/	/p/ /t/ /k/ /n/	
3:6–3:11		/tʃ/	
4:0–4:5	/t/ /k/ /n/ /f/ /tʃ/ /l/ /b/ /f/ /p/	/n/ /f/ /l/ /θ/ /j/ /x/ /d/	/n/ /l/
4:6–4:11	/d/	/m/ /ɣ/	
5:0–5:11	/s/	/s/	/s/
6:0–6:11	/d/ /g/ /b/ /b/ /g/ /g/ /k/ /s/		
7:0–7:11	/s/	/b/ /r/	
8:0–8:11	/f/ /p/		/r/
>8:11		/f/	

GFTA-3: Mastery data: 85% of girls producing the phoneme 85% or more correctly (multiple opportunities)

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Spanish Sound Development Chart

Age at which 90% of children have acquired each phoneme

Phoneme	3:0 yrs:mo	3:3	3:7	4:0	4:3	4:7	5:0	5:3	5:7	6:0	6:3	6:7	7:0	7:3
p														
b														
t														
m														
w (hu)														
m														

Excerpt from "Spanish Sound Developmental Chart." The complete chart is available from FirstYears.org at http://firstyears.org/c4/u6/spanish.pdf

Developmental data on this chart show the range of ages of sound acquisition beginning with emergence of consonant and blends to mastery (90% correct productions. Syllable sound position data is collapsed.

GFTA-3 Spanish data show a similar pattern using emergence at one or more correct productions (50% for most phonemes tested*) and an 85% criterion for mastery.

GFTA-3 Spanish data indicate that it is *NOT* common for children to go from not producing a phoneme to spontaneously producing a phoneme accurately 85% or more of the time.

Most children produce phonemes correctly in certain contexts (e.g., when produced in specific vowel or consonant combinations) before exhibiting mastery (85%+ correct productions).

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Ana, age 2:2

Type of /r/	Raw Score	Standard Score	Percentile Rank
All /r/ productions and R clusters	30	109	72.6
All /r/ productions, and R clusters	23	113	80.7
4 errors	4	136	99.2
2 errors	2	138	99.4

Ana, age 4:2

Type of /r/	Raw Score	Standard Score	Percentile Rank
All /r/ productions and R clusters	30	91	27.4
All /r/ productions and R clusters	23	94	34.5
4 errors	4	119	89.7
2 errors	2	122	92.9

Ana, age 6:2

Type of /r/	Raw Score	Standard Score	Percentile Rank
All /r/ productions and R clusters	30	76	5.5
Only /r/ products and R clusters	23	79	8.1
4 errors	4	99	55.3
2 errors	2	102	47.3

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What we know to be best practice

- The GFTA-3 Spanish score should never be the sole determiner for eligibility for services.
- The GFTA-3 Spanish score ≠ a comprehensive assessment.
  - The GFTA-3 Spanish score indicates how a child compares to same age/same gender peers.
  - The clinician determines appropriate next steps.
- GFTA-3 Spanish standard scores provide one part of the evidence you report as part of the comprehensive assessment.

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Interpreting assessment results-- what we know to be best practice

- Examine standard scores to determine how an individual functions relative to peers
- Examine emergence and mastery data to identify phonemes that
  - should be emerging in the individual's repertoire
  - should be mastered by individuals at the same age

in addition to….

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...qualitative GFTA-3 Spanish data

Based on child's age/gender, note performance and/or improvements

- Phoneme inventory
- Correct/incorrect phoneme productions in different syllable shapes and word contexts
- Developmental patterns
- Stimulability
- Productions in connected speech
- Intelligibility in words and sentences

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In addition to the GFTA-3 Spanish results, obtain data from any of the following

- Spontaneous connected speech sample
- Parent interview (behavior at home, concerns, priorities)
- Preschool teacher interview (academic/social emotional impact; participation in classroom)
- Observations with adults and peers
- Dynamic assessment to identify techniques that elicit correct productions

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What should my recommendations be?

What are the recommendation options?

Parents and teachers want to know that their concerns about a child's speech are being addressed. But that doesn't necessarily mean that enrollment in therapy is the next step.

- Monitor the child's speech in the classroom
- Do a re-check in six months
  - Improvement?
  - New facilitating context(s) acquired independently?
  - Implications
- Classroom Articulation lab
- Parent strategies
- Placement in Speech and Language services

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Technical Information

Standardization Sample

- 860 individuals and additional samples for reliability and validity studies.
  - For each 12-month age group from 2:0–7:11, the normative sample included a minimum of 100 individuals.
  - For each 24-month age group from 8:0–12:11, the normative sample included a minimum of 100 individuals.
  - For the oldest age band (13:0–21:11), the normative sample included 91 individuals.

Standardization Sample

The sample included individuals from a variety of socioeconomic groups and geographical regions.

In order to represent a wide variety of individuals who speak a wide variety of Spanish dialects, the sample included individuals *who live in*

- the United States (71%)
- Puerto Rico (13.6%), and
- Mexico (4.7%).

Standardization Sample

Individuals tested in the US were from families whose country of origin was one or more countries in Central and South America, the Caribbean, and Spain--17 countries in all.

Argentina
Colombia
Cuba
Dominican Republic
Ecuador
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
Spain
Uruguay
Venezuela

Evidence of Reliability

- Internal Consistency (Total sample)
  - Sonidos en palabras
    - Females: .93
    - Males: .93
  - Sonidos en oraciones
    - Females: .90
    - Males: .92
- Test-Retest (corrected *r*)
  - Sonidos en palabras (Ages 2:6 to 7:11) .93
  - Sonidos en oraciones (Ages 4:0 to 7:11) .85

Evidence of Validity

Correlation with PLS-5 Spanish Articulation Screening

- Ages 2:6 to 7:11
- Corrected *r* .70

Speech Sound Disorder (SSD) Compared to Matched Control

- Ages 4:0 to 8:11

GFTA-3 Spanish	SSD Mean	SD	Matched Control Mean	SD	Difference	Standard Difference (effect size) *.80 and above are considered large
Sonidos-en-palabras	76.6	9.4	104.4	13.8	27.8	2.35
Sonidoes-en-oraciones	76.0	15.6	100.3	18.4	24.29	1.42

Evidence of Validity

Sensitivity and Specificity

- Ages 2:6 to 7:11
- Optimal cut score: -1 SD (85)
- Sensitivity .88
  - Probability that individuals who identified with a speech sound disorder* have a speech sound disorder
- Specificity .91
  - Probability that individuals who do not have a speech sound disorder were correctly classified

*Based on a pool of 30 bilingual SLPs' determination of a speech sound disorder based on criteria they use in their practice:

- standardized test results
- language sample
- observations
- informal assessment

Questions?