Assessment of Articulation and Phonological Processing Using the GFTA-3 and KLPA-3

Gloria Maccow, Ph.D., Assessment Training Consultant

Disclosures

• Gloria Maccow, Ph.D. is employed by Pearson Clinical Assessment, publisher of the GFTA-3 and KLPA-3.
• This presentation will focus on administration, scoring, and interpretation of the GFTA-3 and KLPA-3. No other articulation or phonological assessments will be discussed during this session.

Learning Objectives

• Describe at least three features new to the GFTA-3 and KLPA-3.
• Identify at least two changes to the scoring procedures for the GFTA-3.
• List at least two factors to consider when evaluating an examinee’s error patterns on the GFTA-3 and KLPA-3.
How are Speech Sound Disorders Diagnosed?

- Listen to Person Speak
- Use Formal Articulation Test
- Conduct Oral Mechanism Exam
- Evaluate Language Development

Assess speech sound disorders using the new GFTA-3 & KLPA-3.

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**Articulation**
- Goldman-Fristoe Test of Articulation-3
  - Provides diagnostic information about individual's ability to articulate consonant sounds in single words and connected speech.

**Phonology**
- Khan-Lewis Phonological Analysis-3
  - Provides a comprehensive analysis of speech sound patterns so you can determine if use of phonological processes is contributing to an individual's speech sound disorder.

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**GFTA-3**

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**Features of GFTA-3**
- Administered individually.
- Assesses speech sound abilities in the area of articulation.
- Used with children, adolescents, and young adults (ages 2:0 through 21:11).
- Administered by SLPs.
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Test Materials

Comparing GFTA-3 and GFTA-2
See handout

GFTA-3
What’s New?
**GFTA-3 Updates**

- Multiple opportunities to produce consonant and consonant cluster sounds in different word positions.
- Standard scores for articulation at word level and connected speech level.
- Compare intelligibility in connected speech with that of same-age peers.

**What’s New? GFTA-3 Sounds-in-Words**

- Assess consonants in multiple contexts.
- New error analyses for vowels and R productions.
- Dialect-sensitive scoring for a wide range of American English dialects.
- Two new sets of picture stimuli.

**What’s New? GFTA-3 Sounds-in-Sentences**

- Easy-to-elicit connected speech measure with a new sentence imitation task.
- Standard scores for speech sound productions in connected speech.
- New stories.
- New intelligibility rating.
Dialect-Sensitive Scoring

If a response to a GFTA-3 item is a variation from SAE that is appropriate for the individual’s speech and language background, score it as correct.

See Appendix E: Common Phonemic Contrasts between Standard American English and 
Table E.1 African-American English 
Table E.2 Spanish-Influenced English 
Table E.3 Asian-Influenced English

Features of KLPA-3

Companion tool for GFTA-3.
Norm-referenced in-depth analysis of phonological process usage.
Used with children, adolescents, and young adults (ages 2:0 through 21:11).
SLP analyzes responses on GFTA-3 to obtain further diagnostic information about speech sound abilities.
When to Complete Phonological Analysis of GFTA-3 Results

| No | Speech is reasonably intelligible and contains few misarticulated phonemes. |
| Yes | Speech is reasonably intelligible and contains many misarticulated phonemes. |
| Yes | Examinee is very young or has moderately to severely unintelligible speech. |

Materials Needed

Comparing KLPA-3 and KLPA-2

See handout
**KLPA-3 What’s New?**

### New Features!
- More efficient and accurate scoring.
- Identify phonological processes for each sound error.
- Calculate percent of occurrence for each phonological process.

### New to KLPA-3
- "Core" (Developmental processes) vs. "Supplemental" (Atypical) Processes
- Core Phonological Process Analysis
- Percent of Occurrence of Supplemental Processes
- Phonological Processes per Word (PPW)
- Intelligibility rating
- Vowel analyses
  - Phonetic inventory
  - Vowel phonological process usage
12 Core Processes

Core Processes: frequently occurring phonological processes that are developmental in nature

<table>
<thead>
<tr>
<th>Manner</th>
<th>Place</th>
<th>Reduction</th>
<th>Voicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaffrication</td>
<td>Palatal</td>
<td>Cluster simplification</td>
<td>Final devoicing</td>
</tr>
<tr>
<td>Gliding of Liquids</td>
<td>Velar</td>
<td>Deletion of final consonant</td>
<td>Initial devoicing</td>
</tr>
<tr>
<td>Stopping of fricatives and affricates</td>
<td>Velar</td>
<td>Syllable reduction</td>
<td></td>
</tr>
<tr>
<td>Strenuosity deletion</td>
<td></td>
<td>Syllable reduction</td>
<td></td>
</tr>
<tr>
<td>Vocalization</td>
<td></td>
<td>Syllable reduction</td>
<td></td>
</tr>
</tbody>
</table>

New normative data. Obtain standard scores and percentile ranks by age and gender.

12 Supplemental Processes

Data-driven determination of the phonological processes that are more clinical in nature (less frequently occurring; atypical)

<table>
<thead>
<tr>
<th>Manner</th>
<th>Place</th>
<th>Reduction</th>
<th>Voicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affrication</td>
<td>Backing to velars or /h/</td>
<td>Deletion of initial consonant</td>
<td>Initial devoicing</td>
</tr>
<tr>
<td>Frication</td>
<td></td>
<td>Deletion of medial consonant</td>
<td>Medial devoicing</td>
</tr>
<tr>
<td>Gliding (Other than liquids)</td>
<td></td>
<td>Medial voicing</td>
<td></td>
</tr>
<tr>
<td>Glottal replacement</td>
<td></td>
<td>Medial voicing</td>
<td></td>
</tr>
<tr>
<td>Liquidization</td>
<td></td>
<td>Medial voicing</td>
<td></td>
</tr>
<tr>
<td>Stopping (Other than Fricatives/Affricates)</td>
<td></td>
<td>Medial voicing</td>
<td></td>
</tr>
</tbody>
</table>
Supplemental Processes

- The 12 Supplemental Phonological Processes are recorded, tallied and converted to a Percent of Occurrence.
- Generally, Supplemental Phonological Processes occur less frequently in typical development.
- Clinical signs that could be diagnostic or prognostic and may be red flags for further consideration.
- Contribute to the Processes per Word (PPW).

Supplemental Phonological Processes Summary

<table>
<thead>
<tr>
<th>Phonological Process</th>
<th>Number of Occurrences</th>
<th>Total Possible Occurrences</th>
<th>Percent of Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affrication</td>
<td>0</td>
<td>of 151 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Frication</td>
<td>0</td>
<td>of 111 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Gisting (other)</td>
<td>0</td>
<td>of 81 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Glottal replacement</td>
<td>0</td>
<td>of 159 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Liquidation</td>
<td>0</td>
<td>of 124 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Stopping (other)</td>
<td>0</td>
<td>of 59 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Place</td>
<td>0</td>
<td>of 134 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Reduction</td>
<td>0</td>
<td>of 56 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Deletion of initial consonant</td>
<td>1</td>
<td>of 27 = 4%</td>
<td></td>
</tr>
<tr>
<td>Deletion of medial consonant</td>
<td>0</td>
<td>of 41 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Voicing</td>
<td>0</td>
<td>of 22 = 0%</td>
<td>0%</td>
</tr>
<tr>
<td>Medial devoicing</td>
<td>0</td>
<td>of 11 = 0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Definitions
Phonological Processes Per Word (PPW)

Processes Per Word (PPW) Summary

<table>
<thead>
<tr>
<th>Item</th>
<th>Target Word</th>
<th>Core Processes per Word</th>
<th>Supplemental Processes per Word</th>
<th>Total Processes per Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Other Phonological Processes and Sound Change Booklet

- Individuals may use phonological processes that are not included in the Core or Supplemental Processes.
- The KLPA-3 Sound Change Booklet, just like KLPA-2, aids scoring by providing you with phonological processes for many possible sound changes for each target consonant.
- Other Phonological Processes may be recorded on the KLPA-3 Analysis Form and may contribute to the PPW.

Consonant Analysis

Phonetic Inventory for Consonants and Consonant Clusters.

Core Phonological Process Analysis.

Summary of Consonant Analysis
Vowel Analysis

- Eight Phonological Processes that impact vowel production.
- Vowel Phonetic Inventory.
- Vowel Usage Section.
- Summary of Vowel Analysis.

Vowel Analysis: Definitions

Interpretation
Interpretation and Treatment Planning

GFTA-3 and KLPA-3 provide quantitative data and qualitative data. Both are used to develop treatment plans.

Quantitative Scores

Norm-referenced scores that enable you to compare examinee’s performance to others of same gender and age.

- Standard Score
- Percentile Rank
- Test-age equivalent

<table>
<thead>
<tr>
<th>Test Score</th>
<th>Classification</th>
<th>Relationship to Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 and above</td>
<td>Above average</td>
<td>±1 SD and above</td>
</tr>
<tr>
<td>86 to 114</td>
<td>Average</td>
<td>Within ± or − 1 SD</td>
</tr>
<tr>
<td>78 to 85</td>
<td>Borderline/Marginal/At-Risk</td>
<td>Within -1 to -1.5 SD</td>
</tr>
<tr>
<td>71 to 77</td>
<td>Low/Moderate</td>
<td>Within -1.5 to -2 SD</td>
</tr>
<tr>
<td>70 and below</td>
<td>Very Low/Severe</td>
<td>-2 SD and below</td>
</tr>
</tbody>
</table>

Growth Scale Values

Growth scale values provide an objective score for measuring changes in GFTA-3 performance over time. They can be used to:

- Track an individual’s skill development on specific tests (e.g., Sounds-in-Words and Sounds-in-Sentences).
- Determine if the individual has gained additional speech sound skills since a previous administration of the GFTA-3, and
- Measure the efficacy of an intervention protocol that has been implemented for the individual.
Interpret Growth Scale Values Relative to Standard Scores

Growth Scale Value
Provides information on gains made since last assessment.

Standard Score
Compares individual's performance to that of same-age peers.

Evaluating Error Patterns

Factors to Consider When Evaluating Error Patterns on GFTA-3

Review the age/gender data specific to the child
• Normative score
• Age of emergence of phonemes
• Age of mastery

Is the child’s speech related to a dialectal variation or influence from learning a second language?
Factors to Consider When Evaluating Error Patterns on GFTA-3

• Are errors in single words or sentences?
• Are the errors consistent?
• Is the child stimulable for phonemes produced in error? Are there facilitating contexts?
• Is the child’s speech intelligible? How does intelligibility compare to that of peers?

Factors to Consider When Evaluating Error Patterns on KLPA-3

Review the age/gender data specific to the child (normative scores)

If phonological processes are present,
• Are the processes developmental or atypical?
• Are they processes that should have been suppressed?
• If atypical, are the processes common in a clinical population?

Factors to Consider When Evaluating Error Patterns on KLPA-3

• Are the errors consistent?
• Are there multiple error patterns or are they confined to one or two patterns?
• Are there some contexts where the phonological process is demonstrated?
• Is the child’s speech intelligible? How does intelligibility compare to that of peers?
Male, B., Age 6:3

- Referred by first grade teacher
- Difficult to understand in single word production and in conversational speech
- Also struggling with sound decoding in reading
- Mostly drawings and little or no text in daily writing journal
- Plays alone
- Kindergarten teacher reported no academic concerns
- Referred to Child Study Team for speech and literacy concerns

Referral Questions

1. Does B. have a speech sound disorder in the area of phonology?
2. If a speech sound disorder in the area of phonology is present, what is B.’s profile of strengths and weaknesses?
3. What intervention recommendations can be derived from B.’s profile?

### GFTA-3 Sounds-in-Words Score Summary

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Std. Score</th>
<th>Confidence Interval</th>
<th>%ile Rank</th>
<th>Test Age Equiv</th>
<th>GSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>27</td>
<td>79-43</td>
<td>0</td>
<td>3.10-3.11</td>
<td>555</td>
</tr>
</tbody>
</table>

Some sound changes on early developing sounds (e.g., /k/, /g/, but mostly on later developing sounds (e.g., /r/, /l/, clusters).
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<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Std. Score</th>
<th>Confidence Interval</th>
<th>%ile Rank</th>
<th>Test Age Equiv.</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>77</td>
<td>73-83</td>
<td>6</td>
<td>3:6-3:7</td>
</tr>
</tbody>
</table>

Core Phonological Processes:
- Cluster Simplification
- Gliding of Liquids
- Velar Fronting
- Deletion of Final Consonant

Supplemental Phonological Processes:
- Initial Devoicing
- Deletion of Medial Consonant

Phonetic Inventory for Consonants in Single Words:
- Lack of consonants in word-final position
- Liquids changing to glides in consonant clusters in initial position
- Few liquids or velars produced

Recommendations

- Speech Sound Disorder in area of phonology.
- Would benefit from intervention focused on the following goals:
  - Suppression of deletion of final consonant
  - Expansion of consonant cluster usage
  - Suppression of velar fronting
  - Suppression of initial devoicing
- Refer for comprehensive psychoeducational evaluation due to difficulties in reading and writing.

Questions

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