Maximizing the Speech Ability of Children with Motor Speech Disorders

References and Resources


Ertmer, D. Short Periods of Prelinguistic Input – see http://www.vocaldevelopment.com/


**Treatment Resources Mentioned**

- **Carolyn Bowen’s website** [http://speech-language-therapy.com](http://speech-language-therapy.com) (Excellent resource for minimal pairs). The intervention resources include Singleton Consonant and Consonant Cluster pictures, Vowel pictures and vowel contrasts, Consonant Minimal Pair pictures, Near Minimal Pair pictures, and wordlists and worksheets based around facilitative articulatory contexts, nonlinear phonology, complexity principles and lexical properties. There are also Slide Shows about the assessment of, and evidence-based intervention for children's speech sound disorders.

- **Consonants** (singletons and clusters; all positions)

- **Vowels**
  - Parks, D., LaBroscciano, T. & Kolde, K. No Glamour Vowels (ages 4-12) [www.linguasystems.com](http://www.linguasystems.com)
• /r/

• **Multisyllabic words**
  - Also see [http://speech-language-therapy.com](http://speech-language-therapy.com)

• **Prosody**

• **Voice**
  - **Voice Apps**
    - **Voice-O-Meter** is a tool for anyone who speaks too softly, speaks too loudly or has difficulty modulating the volume of their speech.
    - **Magic Voice** By Synapse Apps, LLC. Free Allows children to initiate and move animated scenes using the power of their voice. Children can even record video of the scene as they talk and play it back to see and hear the scenes they have created.
    - **Ah Up** ($0.99) Shout “Ah…” and fly “… Up”! You need to prepare a glass of water before playing this game. Voice activated and iPhone accelerometer controlled.
    - **Up Planet Full** ($0.99) 9 planets are living in the galaxy. Mission of Rocket “AhUp” is to kick out all the challenges, difficulties under your command, and conquer 9 planets! Accelerometer is used for controlling the rocket -Various styles of challenges -Rockets awarded after passing a stage
    - **VoxTraining** - Balloons - Vocal Intensity ($14.99) In this game, three gas cylinders of different sizes are shown on the screen. Each cylinder represents a specific volume range that needs to be maintained during the phonation task (the smaller cylinders correspond to softer sounds and the larger ones to louder sounds). You can set up: - Minimum and maximum volume - Game length Wait for calibration before starting.
    - **Speak up Sensory Speak Up** - speech therapy simple game to encourage vocalizing or making sounds ($0.00) a visually stimulating simple game style app that responds to sounds. Can be used to encourage children to vocalize and make sounds, either through the internal microphone or via & external microphone. Designed to assist with speech therapy, the louder the voice sound, the bigger the shape or pattern becomes. Different activities either give a gross display of the volume or a short trail of volumes.
    - **Sonneta Voice Monitor** ($49.99) Monitor Vocal Pitch and Sound Level • Real-time meter display and moving chart provide you with feedback for singing or speech therapy exercises. • Record samples of your voice for later playback. • Speech therapists and voice coaches can record prompts for their clients to play back during practice. Voice-activated calibration allows you to measure absolute sound level no matter where you place your iPhone or iPad.
    - **Pocket Wavepad HD** ($0.00) free sound editor for recording, editing, adding effects, and sending audio, Pocket WavePad allows you to record voice or music, then edit the recording and add effects to achieve high quality audio recordings. Work within audio waveforms to make selections for quick editing, such as inserting recordings from other files, or apply effects like the high pass filter to clarify audio quality. Makes it easy to store or send recordings.

• **Training Opportunities:** [www.apraxia-kids.org](http://www.apraxia-kids.org)
  - The Apraxia Centre On-Demand Webinars
  - CAS Boot Camp

## Comparison of Characteristics by Diagnostic Category

**CASANA Website – [www.apraxia-kids.org](http://www.apraxia-kids.org) – David Hammer** (edited by M. Hodge)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Dysarthria</th>
<th>CAS</th>
<th>Severe Phonological Disorder</th>
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</thead>
<tbody>
<tr>
<td>Signs of neuromuscular impairment</td>
<td>Weakness, paresis-paralysis of speech muscles, abnormal muscle tone; decreased strength, speed, range of movement; imprecise speech production</td>
<td>No positive signs</td>
<td>No positive signs</td>
</tr>
<tr>
<td>Difficulties with involuntary control for chewing, swallowing, saliva control</td>
<td>Yes due to muscle weakness and incoordination</td>
<td>No, unless oral nonverbal apraxia also present</td>
<td>No</td>
</tr>
<tr>
<td>Inconsistencies in production of same word</td>
<td>No – generally consistent but imprecise</td>
<td>Yes</td>
<td>No – consistent errors that can usually be grouped into categories (fronting, etc.)</td>
</tr>
<tr>
<td>Error Types</td>
<td>Developmental errors and distortions; lingual sounds are often distorted; clusters are challenging; slurred articulation</td>
<td>Substitutions, omission (initial), additions, distortion, repetition errors; simplification of word forms; may see word initial consonant omissions</td>
<td>Substitution, omission (final), distortion errors;</td>
</tr>
<tr>
<td>Vowel Errors</td>
<td>Tendency to centralize vowels; reduced vowel space</td>
<td>May centralize vowels to “schwa”; diphthong reduction; may have a full vowel inventory but vowel accuracy may be inconsistent</td>
<td>Vowel distortions not as common</td>
</tr>
<tr>
<td>Effect of complexity and length</td>
<td>Typically less precise in connected speech than in words</td>
<td>Number of errors increase as length and complexity of words shapes in utterance increase</td>
<td>Errors are generally consistent as length of words/phrases increases</td>
</tr>
<tr>
<td>Differences in automatic, well-rehearsed speech vs. volitional , 'on command' speech</td>
<td>No difference in how easily speech is produced based on situation</td>
<td>Yes – automatic is clearer, easier to produce</td>
<td>No difference in how easily speech is produced based on situation</td>
</tr>
<tr>
<td>Vocal Pitch and Loudness Disturbances</td>
<td>Monotone voice; difficulty controlling pitch and loudness</td>
<td>Generally good control of pitch and loudness/may have limited inflectional range for speaking</td>
<td>Generally good control of pitch and loudness; not limited in inflectional range for speaking</td>
</tr>
<tr>
<td>Rate, Rhythm, Stress Disruptions</td>
<td>Yes</td>
<td>Yes; “choppy” speech, one-word-at-a-time production, groping for articulatory placements may occur</td>
<td>Typically no disruptions</td>
</tr>
<tr>
<td>Signs of Speech Auditory Processing Impairments (Syllable Repetition Task)</td>
<td>Unknown</td>
<td>Yes. Encoding, Memory and Transcoding Processes Affected – Transcoding more than for SSD-UNK</td>
<td>Yes. Encoding, Memory and Transcoding Processes Affected</td>
</tr>
<tr>
<td>Receptive vs. Expressive Language Performance</td>
<td>Typically no significant discrepancy once child has a functional communication system</td>
<td>At younger ages, receptive language skills are usually significantly higher</td>
<td>Sometimes differences</td>
</tr>
</tbody>
</table>