

**Multisensory Cue Treatment For Children With Apraxia**

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When I participated in my observations at Granger Elementary School, I was fortunate enough to observe a 6- year old boy with apraxia. The SLP (Mrs. Gagnon) had the boy work on articulating sounds. As I watched the session, I noticed that the boy had difficulty forming the sounds: he'd distort the sounds, and not produce enough stress to make the sound. However, when Mrs. Gagnon had him produce the sounds with a mirror, he eventually improved because she had him see what he was doing wrong. That way, she could prompt him on the correct way to articulate the sounds. Using multi-sensory cues such as simultaneous production, ultrasound feedback, and PROMPT with children with apraxia of speech can help the client slowly develop articulation movement.

As mentioned, the clinician I observed used constant prompting with the child. However, I felt like they could've done more with it. Simultaneous production starts with the clinician saying the first target word for the child to repeat. If the child is incorrect, the clinician will repeat the word slower but add a gestural cue, such as pointing or moving the lips. If the client messes up again, the clinician will move to the simultaneous production level. Then the clinician would help the child obtain the correct lip and jaw positions for the initial articulatory configuration. The SLP would instruct the child to stay in that position and then have them simultaneously produce the utterance slowly with only tactile and gestural cues if needed. However, there will be times when the client can't do the movement even in simultaneous production, so there are phonemic placement strategies that can help, like placing a straw in the client's mouth to achieve lip rounding. Another technique is to have the client imitate the articulatory movement for the target word, but not say it. It may take a couple of trials, but

studies have proved it works. Once the client can produce the word slowly with the clinician, you should continue with practice trials to slowly move toward the typical speech rate (Strand, 2020).

Children with apraxia often have difficulty with articulatory positions, especially tongue movement. The tongue is essential for speech production because it is involved in most consonants and vowels. With ultrasound biofeedback, you can train the articulatory patterns using a visual display of the tongue. It works by placing the ultrasound transducer beneath the chin and angled up towards the tongue. The visual graphics help the clinician as they can observe the child's exact tongue movements. Therefore, the clinician can implement more cueing with targets provided on the screen for children to match with their tongue. This method also helps the client because they can self-evaluate their movement and see what they must improve on. Treatment for this would begin at the syllable level and eventually progress into words and phrases (McCabe et al., 2023).

PROMPT touches upon movement in the speech subsystems like the jaw, lip, and tongue. PROMPT treatment usually includes respiratory and phonatory control for the organization of the supra-laryngeal articulatory systems. To determine what motor subsystems were used from the Motor Speech Hierarchy (MSH), a spontaneous video sample was obtained for scoring to select three motor subsystems from the seven in the MSH. Priorities for treatment usually include Stage 3 (mandibular control), Stage 4 (labial-facial control), and Stage 5 (lingual control). Once the priority stages were selected, phonemes associated with that treatment were chosen. Each production was scored using a 0-2 point scale. Auditory and visual aspects of production had to be free of error for a child's age for a 2; 1 point was for if one of the auditory or visual aspects were correct, and a 0 was given if the auditory and visual aspects were incorrect. If the child achieves 80% accuracy on the set of words over three consecutive sessions,

then a new speech subsystem stage is chosen from the MSH. After a 5-minute warm-up, there were three 15-minute treatment activities, including puzzles, games, imaginary play, social play, etc. Each activity gave the child 15-20 opportunities to produce each trained target word. Prompts for the child would change during each task. For example, for /o/, the middle three fingers are distributed to the top lip, while the thumb and little finger are on the bottom lip, slightly pulled forward. With PROMPT, all four children in the case study improved significantly on untrained probe words (Dale & Hayden, 2013).

These treatments could work for a child with apraxia, but you must consider their background/perspective. Although these treatments have been shown to be successful, it doesn't mean it's the best course of action for each child. The client I observed was an only child, and his parents are low socioeconomic status. I don't know what they do for a living, but his parents don't have much money. Mrs. Gagnon also said he's been absent about 40 days this year, which is insanely abnormal for a child in elementary school. When describing the IEP meetings with this child's parents, Mrs. Gagnon said they looked uninterested. However, with little money, the parents could have more critical life issues outside of their child's speech. For example, they could be in the process of losing their house. Simultaneous production, ultrasound biofeedback, and PROMPT are multi-step treatment approaches. Therefore, you have to use these treatment approaches over several sessions. Also, the sessions at Granger Elementary School are only thirty minutes, which isn't a lot of time, especially when other clients are in the group. If the child is consistently absent, you can't conduct these treatment approaches because all your progress will be start-stop, and the child will probably forget the strategies. With multi-step treatment approaches, you also risk the child getting frustrated. Children can be short-tempered, and a child with apraxia may struggle with jaw movement, so not getting the prompts from the

SLP may annoy them, and they may not want to continue. There's only so much the speech-language pathologist can do if the client is unwilling to participate in speech therapy. Concerning ultrasound biofeedback treatment, the client and parents may show concerns that must be taken seriously. From the parent's point of view, they might have trauma from hearing the word ultrasound, especially if they had a previous miscarriage. Therefore, they may refuse to have their child partake in that treatment. If a child has had a traumatizing hospital visit, they may get triggered to stick something in their mouth. Ultrasound technology is also expensive, which may be unaffordable for schools.

For these treatment approaches to be successful, speech-language pathologists will need resources/training to help them begin. To operate an ultrasound, you need training. If an SLP had no medical experience, they would need an associate's or bachelor's degree in sonography to conduct ultrasound treatment (What Are the Education Requirements for Ultrasound Technicians). For PROMPT treatment, there is a three-day workshop that you can find on Zoom. Once finished with the initial training, one can complete a prompt technique practicum project where the SLP will gain experience developing a PROMPT treatment plan with a patient. It is critical for speech-language pathologists to access these types of training to learn about the Motor-Speech Hierarchy. Once SLPs are confident with the Motor-Speech Hierarchy, they can implement treatment for the patient with the speech subsystems they need guidance in.

## References

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