Making Speech Targets Salient, Classic Auditory Training, Tools for Amplifying Speech

Pam Marshalla, MA, CCC-SLP, September 2011

Making Speech Targets Salient

One of the most important things we do in articulation therapy is to make speech units stand out so the client can focus on them. Our most important tool for making speech units salient is our own speech model. We use our own speech to exaggerate speech in specific ways so that clients can pay attention to the individual sounds/syllables/words we are trying to help them produce better, or to produce for the first time. There are countless ways to help clients pay attention to our modeled utterances. This paper describes many.

Techniques

1. Model: Demonstrate how to say a phoneme, syllable, word, phrase, sentence, and so forth. Modeling the target is the foundation of all speech skill training. Van Riper called it the *stimulation method*.
2. Alliteration: Repeat the same sound or word multiple times within the same sentence or phrase. Examples:
    a. Young children: Use alliteration while rolling a ball back and forth. Stimulate /b/ by saying, "Bye-bye ball. Bye-bye."
    b. Older children and adults: Use alliteration while stimulating stridents /s/ and /ʃ/ with a tongue-twister — "She sells seashells by the sea shore. Does she sell seashells by the seashore? If she sells seashells by the seashore, how many sea shells does she sell?"
3. Amplification: Make speech models louder. Amplification is one of the most direct ways to make a target salient. We can amplify for short periods of time or we can amplify specific targets. There are many ways to do this. See "Tools for Amplifying Speech" below for ideas.
4. Aspiration: Add an extra measure of exhaled air to the modeled phoneme. This is an effective method of calling attention to a phoneme, especially the voiceless stops /p/, /t/ and /k/ in the final position. Keep in mind that some clients perceive excessive aspiration on a final phoneme as an additional syllable, and they will say it

with a vowel. This is called *epenthesis*. Example: *Hat* pronounced *Ha—tuh.* Think of this as a step between no final C, and correct production of the final C. It's a step forward. The child is progressing from CV to CV-CV to CVC.

5. Auditory Bombardment: Read a list of words that contain the target while the client plays quietly and listens. Van Riper said we should make a target sound "ring" in the client's ear. For example, if the target is /ʃ/, and the position is pre-vocalic, the client might be read the following words: *Shoe, shop, shake, shower, shampoo, shine, shark, sharp, shove, shut, shoot, shave, sheep, shin,* and *show*. The client's job is simply to listen to the words as he plays quietly.
6. Baby Talk: Present models with prolongation of sound (cooing), developmental consonant substitutions, and infantile pitch and intonation. The use of baby talk has always caused controversy. But there is no doubt that baby talk and cooing call attention to one's speech. "Oooooooo, dat puppy-doggie is soooooo cuuuuuuute! And wook at dat titty-tat. Mewwwwwwwww!"
7. Cease Production: Produce a target many times in sequence, and then suddenly stop or produce a different sound. Berry and Eisenson (1956) described the process of ceasing production of a target in a delightful game they called *Sound Chairs* which is played like *Musical Chairs*: "The children walk around the chairs as long as they hear a certain sound. When the teacher stops making the sound, the children sit down in the nearest chair. The child left without a chair is left out of the game." Continue play until there is a winner. (p. 137).
8. Chaining: Teach one phoneme or syllable of a word at a time, and then bring them together in sequence. For example, teach the word *goat* like this: "Say, /g/… Say, /o/… Say, /t/… Now say, /got/." Another variation of chaining is to model phonemes or syllables in sequence as the word unfolds. This can be done forward or backward. Here are examples of chaining by syllables in the word *telephone*:
    a. Forward chaining: "Say, /te/… Say, /tele/… Say, /telefon/ ."
    b. Backward chaining. "Say, /fon/… Say, /lefon/… Say, /telefon/."
9. Classifying: Classify sounds or words by place, manner, voice, or distinctive feature. This is a cognitive activity that makes our clients listen carefully. It is a technique that has been used for decades. For example, Nemoy and Davis wrote that clients should work on "reclassification of words according to whether they begin with a vowel or a consonant [and] according to whether they begin with a voiced or voiceless consonant" (Nemoy and Davis, 1937, p. 26).
10. Creative Imagery: Van Riper said that we should assign "personalities" to target phonemes in order to pique the client's auditory imagination. Here are classic examples that can be found in numerous old textbooks:

    /p/ - Popping popcorn sound

/b/ - Bubbles bursting sound

/t/ - Timer/clock sound

/d/ - Stalled motor sound

/k/ - Crashing sound

/g/ - Frog sound

/w/ - Crying baby sound, "Wah-wah-wah…"

/l/ - Singing syllables sound, "La-la-la."

/j/ - Yes sound/Agreement sound, "Yea-Yea-Yea."

/r/ - Growling lion/bear/dog sound

"th" (voiceless) - Angry goose sound

"th" (voiced)- Smooth motor sound

/f/ - Angry cat's sound

/v/ - Vacuum cleaner sound

/s/ - Snake sound

/z/ - Bumblebee sound

/ʃ/ - Quiet sound/Sleeping baby sound

"zh" (as in the word *beige*) – Airplane motor sound

/tʃ/ - Choo-choo train sound or sneezing sound, "Ahhh-chooo!"

"J" – Jumping sound, "Juh-juh-juh."

/h/ - Panting dog sound

11. Dampen: Deaden, muffle, or stifle a target. Dampening sound almost always piques a client's general auditory attention. Plug the ears, or speak through physical mediums like the hands, fingers, blankets, pillows, or stuffed animals. Also have the client plug his ears with his fingers or place his hands over his ears to muffle incoming sound.
12. Dramatic Flair: Create a mini dramatic scene that underlies the articulation work. Examples:
    a. Act astonished as you produce a final /p/.
    b. Be sinister as you produce the snake sound— "Ssssss!"
    c. Giggle as you produce a wildly exaggerated intonation pattern.

d. *Boo-hoo* as you produce a target sound incorrectly.

e. Act like producing a target phoneme causes you to cough, laugh, sneeze, fall over, or fall asleep.

f. Express relief as you say a sound correctly.

g. Choke on a sound you are making in the back of the mouth.

h. Pout as you pretend to be unable to produce a certain phoneme.

13. Exaggeration: Exaggeration is an old-time method of making speech sounds, words, and prosodic features salient. Speak louder/softer, longer/shorter, smoothly/with stacatto, with high or low pitch, and so forth. Exaggerate to teach new sounds. Exaggerate the client's incorrect utterance to make it stand out to him.

14. Language Arts: Use stories, jingles, poems, songs, and so forth, to highlight a phoneme, syllable, word, or phrase. Today we call this *literacy* and we think this is a new idea. However virtually all the old time articulation therapy books recommended these ideas. For example, *Sing Your Way to Better Speech* (Gertrude Walsh, 1939) is an entire articulation curriculum that revolves around songs for speech improvement. Literacy satisfies the call to awaken a child's awareness of a particular sound unit.

15. Homophones: Use words that sound the same but have different meaning. For example: *Which–witch*; *Some–sum*; *There–they're–their*. Children really enjoy working with homophones once they understand what is so interesting about them. The drive to understand homophones causes children to listen hard. They are trying to reconcile the concept of same-sound-yet-different-meaning.

16. Imitate the Client: Say the same sound or word that the child does to help him discover what he can do and is doing. This is an old idea from the language literature, but I have yet to find the source for it. There are four types:

    a. Echo: The immediate and exact imitation of a client's utterance, whether correct or not.

    b. Delayed echo: The exact imitation of a client's utterance after a momentary pause.

    c. Echo correction: The immediate imitation of a client's utterance with correction of pronunciation.

    d. Echo expansion: The immediate imitation of a client's utterance with grammatical additions.

17. Intone: Add specific intonation to a target. Many therapists use the method called *Melodic Intonation Therapy*. This technique initially was developed as a method to stimulate expressive speech in adults with acquired aphasia (Albert, Sparks, & Helm, 1973). Music specialists say that the ^{high}-$_{low}$ pattern of the "Na-Na Sound" is the first way tone is organized in a child's brain. (I learned this from personal acquaintances

that are music teachers and vocal coaches.) The "Na-Na" pattern is especially useful to highlight the individual auditory signals of syllables with children. For example, say the word *baby* with high pitch on the first syllable and a lower pitch on the second syllable.

18. Isolate: Model phonemes, syllables, words, or phrases in isolation. Train the client to hear the target in isolation, then train him to hear it amid other more complex speech stimuli. For example:
    a. Syllable: To teach the word *telephone*, model the isolated syllable "phone" and then model the whole word "telephone."
    b. Phoneme: To teach the word *soap*, model the isolated phoneme /s/ and then model the word "soap."
19. Omit: Leave out a target. We omit a target to call attention to it. For example, to draw attention to the /r/ of the word *car*, we can model "ca…." The client's ear is drawn to the missing phoneme. This causes him to listen hard for it in our next production. It also causes him to listen to it in his own next production. This is the skill of *auditory closure* at work.
20. Pantomime: Produce a target without breath or voice. Mouthing a phoneme, syllable, or word is a stimulation technique found in many old-time articulation therapy textbooks. This method captures a client's visual and auditory attention. The client watches and listens harder because the acoustic signal is absent.
21. Pause: Hesitate or pause before or after a speech target. Pause before a target to engage the client's *anticipatory listening*. Pause after a target to extend the time during which the client's auditory system rings with the model sound.
22. Prolong: Say a target longer. Prolongation makes a target stand out, and it gives the client more time to listen to it. This is a good method to use with clients who take a moment to direct their auditory attention to our models. Prolongation can be used with any [+continuant] phoneme. This also is an excellent method for clients who are having difficulty with phoneme transition sequences. For example, prolong the vowel in the word *car* in order to give the client time to hear the transition movements from the vowel to /r/.
23. Remove: Remove distracting elements from around a target. For example, do the following when a client substitutes f/pl in the word *please*— Remove the /l/ and model *please* as "pease." This allows the client to hear and produce the /p/. Put the /l/ back in later.
24. Repeat: Modeling a target many times in sequence. Examples:
    a. Repeat phonemes alone: "F… F… F…"
    b. Repeat phonemes in words: "P… P… Pie"

c. Repeat syllables alone: "Or… Or… Or…"

d. Repeat syllables in words: "Or… Or… Organize"

e. Repeat words alone: "Shoe… shoe… shoe…"

f. Repeat words in phrases or sentences: That shoe… shoe… shoe… is mine."

25. Rhyme: Use rhyming words for fun and focused attention. For example, make up lists of words that rhyme and that contain the client's target— *car, bar, far, jar, star, par*. Also use rhyming children's storybooks such as those written by Dr. Seuss.

26. Schwa: Add a schwa after a target. This is called *epenthesis*. Most therapists consider it a deviant phonological pattern, but I consider it a step toward mature productions.

    a. Final consonants: Add a schwa to draw attention to a final consonant. For example, model the word *ball* as "baw-luh."

    b. Clusters: Add a schwa after the first phoneme of a cluster so the client can hear both consonants. For example, model *blue* as "buh-lue."

27. Separate: Separate the phonemes of a word. This allows the client to hear the individual phoneme units. Example: *duck* pronounced "d---u---ck". This is a very old method, for example, "It is well to break up the words into single sounds or groups" (Ward, 1923, p. 29).

28. Shorten: Truncate the production of a target, and/or speak in a clipped, choppy, or staccato-like manner. Shortening a sound punctuates it. Speaking in a choppy manner helps draw the client's attention to certain features. It is especially good for emphasizing syllables.

29. Silence: Don't say anything after the client produces a target. Remain quiet for your turn in the therapy dialogue. This causes the client's own utterance to resound in his ear. It causes the client to reflect back on his own production, a skill we call *auditory self-monitoring*.

30. Slow Down: Slow down all aspects of speech production in therapy. We can't talk quickly and expect clients to talk slowly. Slowing the pace of everything said by you in therapy has an overall positive effect on slowing the client. We slow rate by over-emphasizing syllables. Traditional articulation therapy texts recommend slowing as a critical aspect of speech training. Motor speech disorders texts almost always recommend slowing rate of speech as a critical aspect improving intelligibility, especially in dysarthria.

31. Speak Simultaneously: Speak the same sound at the same time with the client. This is a way to train children to listen very carefully. Both the therapists and the client say a sound, for example, /m/. The sound is prolonged so that both parties are saying it simultaneously. As the child alters the prosodic features of the sound (the voice, loudness, stress, pitch, etc), the therapist follows his lead so that they are always

intoning the same sound together. Likewise, the therapist can make subtle changes in her own place, manner, or voice characteristics that the child must follow. This is an especially good method for teaching new vowels. Teach the client to prolong his error vowel. Then the therapist simultaneously produces a prolongation of the client's incorrect vowel. Then the therapist slowly alters her own vowel so that it begins to sound like other vowels, including the target. More time is spent lingering over the target gradually. These subtle alterations help the client move toward the new vowel. If this is done simultaneously with prolongation of voice, the client will have enough time to process the changes with his ear as he makes the changes with his voice.

32. Stress: Placing emphasis on a target. Examples for the sentence *I live in Colorado*."
    a. Stress a target phoneme: "I live in ColoRRRRado."
    b. Stress a target syllable: "I live in ColoRAdo."
    c. Stress a target word: "I live in COLORADO."
    d. Stress a target phrase: "I live IN COLORADO."
    e. Stress a target sentence: "Didn't you hear me? I LIVE IN COLORADO!"
33. Substitute: Speak another phoneme in place of the target. Purposeful substitutions motivate clients to listen harder in order to catch us making errors. Example: Say "Woggie" for "Doggie" to highlight the initial /d/. Play with these variations. Young children love this!
34. Whisper: Produce a target with a breathy whisper. Whispering almost always piques a client's general auditory attention. Whispering is an especially good tool to highlight voiceless-ness and frication. Whisper into a tube, box, or bowl to amplify the whisper and to make the target really stand out. See "Tools for Amplifying Speech" below.
35. Word Pairs: Produce words in pairs that are different by one phoneme. The single change causes the target to stand out. Presenting words in pairs generally considered a new idea traced back to 1974 when *minimal pairs contrast training* was proposed [LaRiviere et al, 1974]. But the idea goes way back. For example: "Drill in pairs: once/one, any/many, fought/fit…" (Blanton & Blanton, 1919, p. 245).

Classic Auditory Training

Traditional articulation therapy books stress the importance of *auditory training*, or *ear training*, in the development of speech. The ear is the primary feedback mechanism and the fine tuner of speech. It is the main system used to monitor adjustments to respiration, phonation, resonation, and articulation for speech improvement. The vast majority of clients with articulation deficit do not have hearing deficit. But these clients usually are not listening well to themselves or others, and they are not making comparisons between the two. Therapy is designed to develop these skills specific to the phonemes being taught.

Techniques

1. Anticipatory Listening: Getting ready to listen. We say all kinds of things to help clients get ready to listen: "Ready… Get your ears ready… Here it comes… Listen… Oh-oh. Wait…" Van Riper and Irwin described anticipatory listening beautifully in the following analogy—

   > "The foot racer, crouched for the start, tenses certain muscles in anticipation of the signal to go. He also 'sharpens his ears' and anticipates with a kind of inner rehearsal the sound of the pistol. He is doing some advanced listening. This experience of pre-hearing, of auditory alertness to an expected signal, is what we mean by anticipatory listening" (Van Riper and Irwin, 1958, p. 130).

2. Auditory Association: Recognizing the similarities between two sound units. This is the basis for Van Riper's *Association Method.* Teach a new sound by calling attention to its similarity to another sound the client already can produce. Examples:

   a. Place: Use /t/ to teach /s/

   b. Manner: Use /ʃ/ to teach /s/

   c. Voice: Use /s/ to teach /z/

3. Auditory Attention: Focusing on specific sound units as significant stimuli. Auditory attention is perhaps the most important first step in sound remediation. We must make the target grab the client's auditory attention. For example, if the child's cognitive level is at the two-year level, then we engage him in listening activities that normally would be interesting to a two-year-old.

4. Auditory Awareness: Becoming aware of the characteristics of a sound. Most authors agree that auditory awareness must work together with visual, tactile, and kinesthetic awareness for phoneme correction, however, "The auditory impression is the most potent sensory avenue of approach in speech teaching" (Anderson, 1953, p. 124). We help our clients become more aware of phonemes, syllables, and words by using any of the methods described in the opening section of this document.

5. Auditory Blending: Combining the phonemes of a word produced with separations between them into entire words. For example, model *soap* as "S-----oap". The client might begin by speaking the word in separated units like the therapist did. Using his powers of *auditory blending*, however, the client will begin to blend the word *soap* together back into one single unit.
6. Auditory Closure: Completing a word by filling in the parts omitted. For example, model *cat* as "Ca…." The client fills in the final sound and says, "cat." This work forces the client to search his auditory memory for the correct auditory image, to match his production to this image, and to close the target.
7. Auditory Comparing: Comparing one's production to a community standard. This was a standard of practice before *political correctness* took over. It was called the *comparator function* (Van Riper and Irwin, 1958). The client must understand how most people within the speaking community pronounce a certain sound unit. We use words of comparison to help the client understand this: correct/incorrect, old/new, how you are doing it/how most people do it, how babies say it/how older children say it, how people from Boston say it/how people from Atlanta say it, and so forth.
8. Auditory Discrimination: Detecting differences between sounds in the language, and detecting differences between correct and incorrect productions. Next to auditory awareness, this is perhaps the most important skill we teach. Some clients have difficulty in this area, and others do not. Certain formal tests have been used in the past to measure these skills, but usually this is an informal assessment accomplished during the course of therapy. We teach the client to discriminate his target sound from all other sounds, and to discriminate the correct target from his error production.
9. Auditory Fatigue: The normal temporary loss of sensation following a period of stimulation. This is not a skill, but a lack thereof. For example, a client might be listening to himself as he performs quite well trial after trial, and then suddenly he becomes confused, or can't do it correctly any more. We work in such a way that auditory fatigue is avoided. Auditory fatigue also can be a problem for speech-language pathologists at the end of a busy week.
10. Auditory Self-Monitoring: Listening to oneself talk. Deficiency in auditory self-monitoring can be a huge problem in many clients, and it is perhaps the greatest reason that carryover fails. "We must teach [the client] to scrutinize his own auditory feedback" (Van Riper and Irwin, 1958, p. 116). The most egregious example of this failure is seen in the client who is highly unintelligible in connected speech yet can pass an articulation test. This client must learn to listen to himself. We do this in therapy by taking away our judgments of his correct and incorrect productions, and by forcing him to make his own judgments. We ask the client, "How did you do on that one?"
11. Auditory Figure-Ground Discrimination: Selecting the relevant from the irrelevant auditory stimuli in an environment. This is also called *auditory differentiation*,

selective listening, and *competing messages integration.* For example, this type of discrimination is needed when a child has to listen to his teacher's verbal instructions being given in the front of the class while ignoring children whispering nearby. Poor auditory figure-ground discrimination can interfere with the development of both speech and language. Teach the client the following— "We are not listening to that… We are listening to this…."

12. Auditory Fixing: This is Van Riper and Irwin's term for listening while trying to produce a target, while oscillating around the correct position of the target, and then fixing one's auditory attention on the correct production of the target— "The new sound must be strengthened [and] repeatedly practiced. This is done to enable the new tactile and kinesthetic feedbacks to merge with the auditory feedback" (Van Riper and Irwin, 1958, p. 117).
13. Auditory Identification of Word Position: Identifying whether a phoneme occurs at the *beginning*, *middle* or *end* of a word. Early SLP's developed this method but its value in articulation therapy has never been tested. It is a simple addition to treatment for children that generally helps them listen hard and become more aware of the target phoneme.
14. Auditory Localization: Locating the physical source of a sound, whether near or far, high or low, left or right, and so forth. The client's auditory world is integrated with the world he perceives with his other senses. This is a primitive skill that develops during infancy, and it is not usually an issue in an articulation disorder. Problems with auditory localization generally are more a concern with severe motor speech deficit, sensory-motor issues, and language disorders.
15. Auditory Memory:
    a. Auditory sequential memory: Storage and retrieval of information requiring a specific order of input and recall. Therapy idea: Use visual sequences like blocks to help clients remember items in sequence.
    b. Long-term auditory memory: Memory retained for an indefinite period of time. Therapy idea: Use concepts, contexts, cues, and drill to aid this.
    c. Short-term auditory memory: Memory retained for only a relatively brief period of time. Therapy idea: Use chaining, review, and rehearsal.
    d. Rote auditory memory: Storage and retrieval of information without comprehension. Therapy idea: Use rapid model-response to aid this.
16. Negative Practice: Listen to and practice the error.

    "Deliberately contrasting the 'wrong' way and the 'right' way of an aspect of voice or articulation provides valuable ear training…. Juxtaposing incorrect and correct productions enables you to make auditory discriminations which would be impossible if you tried to say only the correct form; furthermore, it enables you to

compare the tactile and kinesthetic sensations of the two articulations" (Fisher, 1966, p. 25)

Tools for Amplifying Speech

There are a variety of objects that can be used during the process of amplifying speech. Costs range from very expensive to no cost at all. Each object has its own benefit. Make sure to give young children time to experiment with these objects before you make them perform specific tasks with them. Otherwise they will be far too interested in the tool itself and will ignore what you are trying to teach them with it. Make sure to follow sanitary procedures at all times.

1. Mouth-to-ear and nose-to-ear tools: Tools that carry the child's voice from his mouth or nose to his ear. Examples— flexible tubing, Rapper Snapper, Oral and Nasal Listener, HearPhones, Elephones, TalkBack Tool, toy telephones, elbow joints, and hands.
2. Places and spaces: Enclosed spaces that amplify a child's voice. Examples— cabinets, closets, boxes, hallways, stairwells, blankets, and children's forts.
3. Small amplifiers: Small items that amplify a child's voice back to him. Examples— cups, bowls, EchoMics, funnels, megaphones, and cardboard rolls.
4. Electronic equipment: Electronic equipment that can amplify a client's voice back to him. Examples— Auditory Trainer, Phonic Ear, home stereo systems, and boom boxes that have microphones and earphones.

References

Albert, M., & Sparks, R., & Helm, N. (1973). Melodic intonation therapy for aphasia. *Archives of Neurology, 29*, p. 130–131.]
Anderson, V. A. (1953). *Improving the Child's Speech*. New York: Oxford University.
Berry, M. F., & Eisenson, J. (1956). *Speech Disorders: Principles and Practices of Therapy*. NY: Appleton-Century-Crofts.]
Blanton, M. G., & Blanton, S. (1919). *Speech Training for Children: The Hygiene of Speech.* NY: The Century Company
Edwards, M. L. & Shriberg, L. D. (1983). *Phonology: Applications in Communicative Disorders*. San Diego: College-Hill.
Fisher, H. B. (1966). *Improving Voice and Articulation.* New York: Houghton & Milton.
LaRiviere, C. H., & Winitz, H., &, Reeds, J., & Herriman, E. (1974). The selective reality of selected distinctive features. *Journal of Speech and Hearing Research, 17*, p. 122-133.
Nemoy, E. M., & Davis, S. F. (1937-1954). *The Correction of Defective Consonant Sounds*. Magnolia, MA: Expression.
Van Riper, C. & Irwin, J. (1958). *Voice and Articulation*. Englewood Cliffs: Prentice-Hall.
Walsh, G. (1939). *Sing Your Way to Better Speech*. NY: E. P. Dutton & Company.
Ward, I. C. (1923, 1929, 1931). *Defects of Speech: Their Nature and Their Cure*. London: J. M. Dent and Sons.