

Supplemental Appendix D

Combined Aphasia and Apraxia of Speech Treatment (CAAST) Protocol

Introduction: Show sentence frame. “We are going to practice saying short sentences. Most sentences are made up of these parts (point to frame):

- a “doer”—someone or something that does something
- an “action”—what is being done
- and a “theme”—a person, place or thing that is involved with what is being done
- “other”—we have a space for “other” parts of sentences that we can include descriptor words—like “big,” “pretty,” “hard,” “hot”

DOER	ACTION	THEME	OTHER
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Step 1. Present a picture (random order) with a prompt (e.g. “Tell me about this picture”; “What does this remind you of?”; “Tell me what’s happening.”).

A. Upon an appropriate response (any utterance related to the picture), go to Step 2

B. Upon an inappropriate or no response, verbally provide two response examples and request a response (e.g. “You could say something like *noun phrase* [hairy man] or *verb phrase* [shaves face].”; “You could say something like *noun + verb* [man shaves] or *verb phrase* [shaves beard].”).

(1) Upon an appropriate response, go to Step 2.

(2) Upon an inappropriate or no response, provide a one word model and request a repetition (e.g., “Say *noun* [man].” or “Say *verb* [shaves].”).

a. Upon an appropriate response, go to Step 2.

b. Upon an inappropriate or no response, use integral stimulation with a maximum of four attempts to elicit the noun or verb production (e.g., “Watch me, listen to me, say it with me . . . man”). Upon an appropriate response, go to Step 2. Upon an inappropriate or no response, present the next item.

Step 2. Repeat the participant’s production and reinforce it. (e.g., “Man . . . good”). Refer to sentence frame and write the participant’s response under the correct part of the frame (e.g., “man” can be the doer or the theme . . . where shall we put it?). If no direction from patient or an incorrect response, print the response under an appropriate item. Go to Step 3.

Step 3. Ask a question to elicit another element of the frame (e.g., “what is the man doing?”)

A. Upon an appropriate response, go to Step 4.

B. Upon an inappropriate or no response, model two response examples and request a response (e.g. “You could say something like noun phrase [foamy face] or verb phrase [shaves beard].”)

(1) Upon an appropriate response, go to Step 4.

(2) Upon an inappropriate or no response, provide a one word model and request a repetition (e.g., “Say *noun* [beard].” or “Say *verb* [shaves].”)

a. Upon an appropriate response, go to Step 4.

b. Upon an inappropriate or no response, use integral stimulation with a maximum of four attempts to elicit the noun or verb production (e.g., “Watch me, listen to me, say it with me . . . shaves”). Upon an appropriate response, go to Step 4.

Upon an inappropriate or no response, present the next item.

Step 4. Reinforce the participant’s production from Step 3, print the response in the frame, and model a phrase/sentence that combines the participant’s productions from Steps 1 and 3 (e.g., “Right, shaves. Man shaves.”) Go to Step 5.

Step 5. Model the combined production again and request a repetition.

A. Upon a correct response (all target words produced with correct articulation), request three repetitions of the utterance using integral stimulation as needed. Go to Step 6* (use in subsequent substeps when a correct production occurs).

B. Upon an incorrect or no response, underline sounds in error on frame. Say . . . “let’s think about these sounds and try again.” Model sentence and request a response. If correct . . . 3 reps—Step 6*.

C. If incorrect, give feedback and say let’s try again . . . use integral stimulation up to 3X for each target sound in each word. Say let’s try the entire phrase again and request 3 reps with integral stimulation as needed. Proceed to Step 6.

D. If incorrect give articulatory placement for all sounds in error (up to 3 sounds) while referring to frame; try entire phrase again with integral stimulation for 3 repetitions. If correct . . . *If incorrect, give feedback on target sounds and go to Step 6.

For example, response is “man sabs”: This sound (point/underline to sh) in shaves is a little off. Try putting your teeth together . . . and try the word “shaves.” Give feedback as appropriate. Now this sound (v) is also not quite right. Try . . . and try the word “shaves.” Give feedback as appropriate. Now . . . let’s try those sounds again in the whole phrase “man shaves” with integral stim.

Step 6. Remove the picture, wait for approximately five seconds, return the picture and request that the participant again describe the picture.

- A. Correct or alternate correct response, reinforce and go to the next picture.
- B. Partially correct response—assist with integral stimulation
- C. No response—model and request repetition using integral stimulation

If time allows, conduct ADDITIONAL SPT—after completing all pictures, repeat Step 5 with sentences/phrases written previously (no underlining).