

Using Motor Learning Principles to Train Speech: Motor Learning Guided Approach

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Principles of Motor Learning (Duffy, 1995)

- Drill is essential
- Initial instruction and cueing matters
- Self-learning is valuable
- Specificity of training
- Practice schedule
 - Blocked
 - Random
- Type of feedback
 - Knowledge of Performance (KP)
 - Knowledge of Response (KR)
- Goal: Automaticity!

Motor Learning would be indicated IF _____.

Take home message:

- Motor Learning Principles can be applied in speech treatment (depends on goal)
 - Selecting targets (specificity)
 - Practice schedule (blocked / random)
 - Amount and type of feedback (KR / KP)
- *Examples:*
 - Motor Learning Guided
 - Script Training

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Approach #1: Motor Learning Guided (Stierwalt, Hageman & LaPointe, 2004)

- Goal of Treatment: _____
- Therefore, stimuli should be _____
- What happens during 4 second “wait”? _____

Step 1: Say together, then

- a. Client repeats once immediately, waits 4 sec
- b-d. Client repeats 3 times, with 4 second pauses between
Clinician says it, waits 4 seconds, provides # correct out of 4 attempts.

Step 2: (random order) Clinician will verbally read card, wait 4 seconds, give client card to read

- a. Client repeats once immediately, waits 4 sec
- b-d. Client repeats 3 times, with 4 second pauses between
Clinician says it, waits 4 seconds, provides # correct out of 4 attempts.

Step 3: (random order) Client will read card aloud (Clinician prompts him if wrong)

- a. Client repeats once immediately, waits 4 sec
- b-d. Client repeats 3 times, with 4 second pauses between
Clinician says it, waits 4 seconds, provides # correct out of 4 attempts.
* Client will say it again without looking at card.
* Client will say it in response to a questions.

Step 4: Repeat steps 1-3 with a different set of 5 stimulus cards

Step 5: Using both sets of cards (10 stimuli total) in random order, client will read aloud:

- a. Client repeats once, immediately, waits 4 sec
- b-d. Client repeats 3 times, with 4 second pauses between
Clinician says it, waits 4 seconds, provides # correct out of 4 attempts.

- 11 Accurate and immediate (minimal distortion ok)
- 10 Delayed less than 2 seconds
- 9 Delay with groping/posturing

- 8 Not readily accurate (you have to consider for intelligibility), but acceptable approximation
- 7 Not readily accurate, but acceptable, AND delayed more than 2 seconds

- 6 Needs stimuli repeated
- 5 Self-corrects

- 4 Incomplete. Similar characteristics (e.g., # syllables) but not the target
- 3 Error
- 2 Error AND 2+ second delay
- 1 Perseveration (produces previous response)
- 0 No response

Tell me about __	Sponge Bob Square Pants	Barbie Dolls	Wizard of Oz	Freaky Friday
Step 1: In unison				
a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
Step 2: clinician, 4 seconds, then client				
a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
Step 3: client read card				
a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:
In response to question				
a.	a.	a.	a.	a.

Step 1: In unison				
a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
Step 2: clinician, 4 seconds, then client				
a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
Step 3: client read card				
a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:	a. b. c. d. no card:
In response to question				
a.	a.	a.	a.	a.

Approach #2: Script Training (Youmans, Holland, Munoz & Bourgeois, 2005)

Overall Procedure:

1. Client-generated, relevant topics
2. Client and clinician write short scripts
- 3. Scripts divided into word/short phrases for training***
4. 45-minute sessions, 2 times per week
5. Practice with tape recording at home 2 times per day, for at least 15 minutes per practice session
6. Script phrases were trained using a cuing hierarchy
7. 3 Scripts were practiced in a cumulative fashion

*Training each word/phrase: (can move on to next phrase if ~90% accurate)

PART A: Acquisition (Blocked practice)

1. Clinician modeled word/phrase
2. Client produced phrase in unison with clinician many times
3. Clinician gradually faded participation
4. Client independently produced phrase with cue card in place, 5-10 times.
5. Client produced phrase independently without cue card 5-10 times
6. Conversation breaks were taken throughout session

PART B: Maintenance when phrase is ~90% accurate (Random Practice)

1. Elicit phrases in random order
2. Practice in conversation

Please reference as:

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