Vocal Variability Training

<u>Candidate for this Procedure</u>: Learner emits a limited number of *different* sounds and does not readily attempt to vocally imitate the teacher when asked.

<u>Step 1: Assessment and Target Development</u>

1. Take at least 2 vocalization baselines in order to gather a sound inventory.
2. Develop word shells based on the learner's sound inventory and at least 10 future mands.
3. Select around 10 targets based on the lowest levels of the word shells that are not mastered as echoics.

Specific targets are not critical for the procedure. However, the instructor should develop and use targets in case the student happens to gain some echoics during the procedure.

<u>Step 2: Lag 1 Reinforcement Schedule</u>

Vocal variability training is based on a lag schedule of reinforcement: reinforcement depends solely on the topography of the learner's previous response(s). During a lag 1 schedule, a learner is reinforced if the current response sounds different from his/her previous response. During a lag 2 schedule, a learner is reinforced if the current response sounds different from his/her previous 2 responses. And so on.

Prior to running this procedure, the instructor should:

- Gather a set of valuable reinforcers that are currently not being targeted for signed mands.
- Prepare a data sheet by sequencing target echoics in random order. (However, make sure that two of the same targets are not in a row.)
- Prepare to hold at least 3 short sessions and run at least 50 trials per day.

Procedure:

1. Provide a vocal model of the target. Reinforce the first trial in which *any* vocal response occurs within 3 seconds of the model.
2. For subsequent trials, only reinforce vocalizations that are ***<u>different</u>*** from the learner's previous response—no matter the target. Vocalizations are considered different if they contain:
    - Completely different sounds (Example: ah vs. bee)
    - Different combinations of sounds (Example: bat vs. tab)
3. Kinds of errors:
    - Response is the same as the previous response: Do not reinforce and move to the next trial.
    - No response within 3 seconds: Repeat vocal model 3-5 times until the learner emits a response. If learner does not respond within 3-5 repetitions, move to the next trial. (Do not reinforce.)
4. Graph the percentage (%) of total trials reinforced per day. You will find two different examples of data sheets attached.

If necessary, to gain further sound variability, the instructor can: 1) increase the lag schedule, or 2) change other criteria (e.g., response cannot contain <u>any of the same sounds</u> as the previous response).

Esch, J. W., Esch, B. E., & Love, J. R. (2009). Increasing vocal variability in children with autism using a lag schedule of reinforcement. *The Analysis of Verbal Behavior, 25*, 73-78.

Koeler-Platten, K., Grow, L. L., Schulze, K. A., & Bertone, T. (2013). Using a lag reinforcement schedule to increase phonemic variability in children with autism spectrum disorders. *The Analysis of Verbal Behavior, 29*, 71-83.

Vocal Variability Data

Student:_____Example_____ **Date:**_____1/26_____

1. Reinforce the first trial in which *any* vocal response occurs after your model.
2. For subsequent trials, only reinforce vocalizations that are ***different*** from the learner's previous response—no matter the target.
3. If the learner's vocal is the same as his/her previous response, do not reinforce. Move to the next trial.
4. If there is no response, model the target 3-5 times until a response is emitted, or move to the next trial.

Trial	Target/Teacher Model	Student Response	Reinforce?
1.	boo	ah	Y
2.	ee	bah	Y
3.	oh	bah	N
4.	me	bah	N
5.	duh	mmm	Y
6.	dah	oo	Y
7.	oo	oo	N
8.	uh	yaya	Y
9.	ah	ah	Y
10.	buh	-----	N
11.	bee	ah	N
12.	eh	ahbah	Y
13.	noh	bahbah	Y
14.	dah	-----	N
15.	oo	bah	Y
16.	oh	bah	N
17.	uh	bah	N
18.	duh	bah	N
19.	me	ah	Y
20.	bee	ee	Y
21.	ah	yah	Y
22.	dah	oo	Y
23.	oh	oo	N
24.	boo	oo	N
25.	eh	boo	Y
		Total Variable Responses	14
		Percent Variable Responses	**56%**

Vocal Variability Data

Student:_____ **Date:**_____

1. Reinforce the first trial in which *any* vocal response occurs after your model.
2. For subsequent trials, only reinforce vocalizations that are ***different*** from the learner's previous response—no matter the target.
3. If the learner's vocal is the same as his/her previous response, do not reinforce. Move to the next trial.
4. If there is no response, model the target 3-5 times until a response is emitted, or move to the next trial.

Trial	Target/Teacher Model	Student Response	Reinforce?
1.			Y N
2.			Y N
3.			Y N
4.			Y N
5.			Y N
6.			Y N
7.			Y N
8.			Y N
9.			Y N
10.			Y N
11.			Y N
12.			Y N
13.			Y N
14.			Y N
15.			Y N
16.			Y N
17.			Y N
18.			Y N
19.			Y N
20.			Y N
21.			Y N
22.			Y N
23.			Y N
24.			Y N
25.			Y N
		Total Variable Responses	
		Percent Variable Responses	

Vocal Variability Data

Date:_____

Trial	Stimulus	Response	Reinforce ?
1			Y N
2			Y N
3			Y N
4			Y N
5			Y N
6			Y N
7			Y N
8			Y N
9			Y N
10			Y N
		Percentage of variability	

Date:_____

Trial	Stimulus	Response	Reinforce ?
1			Y N
2			Y N
3			Y N
4			Y N
5			Y N
6			Y N
7			Y N
8			Y N
9			Y N
10			Y N
		Percentage of variability	