

## ***Constant and Varied Practice***

### **Purpose**

To provide students with the experience of practicing tasks according to either a constant or a varied practice schedule.

### **Background**

Many skills require that we adjust performance to meet varying environmental demands. One good example of this is how we adjust the speed at which we walk. We can walk slowly so as to enjoy the scenery or a conversation during a casual stroll, or we can walk briskly as we might when walking through an airport. Both of these actions—strolling and walking briskly—share the common features that place them in the same class of movements (i.e., they use the same generalized motor program), but they have different movement outcomes—speed of travel—that result from the adjustments we make to meet different environmental goals (i.e., parameter adjustments).

Chapter 9 of your textbook discusses the common features that describe a class of movements. These features include a common relative timing structure as well as adjustable parameters that allow us to produce different movement outcomes. Effective training for a class of movements will help a person learn to vary movement outcomes by adjusting parameter values of the generalized motor program that governs the class of movements. One technique for doing this is *varied practice*. In varied practice, the learner practices more than one variation of a task so that he or she can learn the relationship between parameter settings and the resulting environmental outcomes. Your textbook discusses the example of an overhand throw. Varied practice for an overhand throw might incorporate throwing to targets that are placed at different distances from the thrower. By engaging in such practice, the thrower will learn about the relationship between the overall force parameter and the resulting distance that the ball travels. In other words, he or she will learn that the harder the throw (i.e., more force), the farther the ball travels.

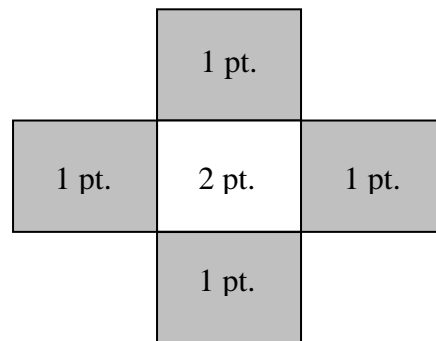
Varied practice is thought to enhance the *schema*, which is the rule relating the parameter settings to the outcomes of a movement. By enhancing this abstract representation of the class of movements, varied practice should help a learner to generalize learning experiences to novel demands within the same class of movements. For example, if you practice throwing to targets placed 3 meters, 4 meters, and 6 meters away from you, it is likely that you will also be capable of effectively throwing to a target placed 5 meters away from you. In contrast, a person who engages in *constant practice* learns only about the specific pairing between the parameter value for that one target and the resulting outcome. For example, if you practice throwing only to a target placed at 3 meters, you will not have experienced how to *adjust* the force parameter to produce different distance outcomes. Thus, it is less likely that you will be capable of effectively throwing to different distances than the one you practiced (compared to someone who engaged in varied practice).

**Equipment**

1 beanbag, 1 target (see instructions), masking tape

**Instructions**

Students will take turns in the roles of participant and experimenter. The class of movements to be learned is an underhand toss. During practice, the participant will toss a beanbag to a target on the floor either from one distance (*constant practice condition*) or from three different distances (*varied practice condition*). The target can be made by taping five pieces of paper together as shown in the following figure and then taping it to the floor. Be sure to tape all of the “joints” between sheets of paper and tape the entire perimeter of the target to the floor to prevent the beanbag from catching on edges. Tossing lines should be created by placing pieces of masking tape on the floor at 4 meters, 5 meters, and 6 meters from the center of the target (you can use a marker to label each piece of tape for easy reference during the lab).



If the beanbag lands on the center piece of paper, the participant is awarded 2 points. If the beanbag lands on one of the outer pieces (shaded gray in figure), the participant is awarded 1 point. No points are awarded for tosses that land off the target. When the beanbag lands on a line, half or more of the beanbag must rest in a region of the target in order for the participant to be given the points for that region. For example, if the beanbag lands on the line between a 1-point region and the 2-point region and most of the beanbag rests in the 1-point region, the toss is awarded 1 point.

To begin a trial, the experimenter will tell the participant which line to use and when to start a trial. The experimenter should ensure that there is a 5- to 10-second pause between trials. Once the experimenter signals for a trial to begin, the participant makes the toss when he or she is ready. The experimenter will score the toss, record the data, and retrieve the beanbag. Because the participant can see the outcome of a trial, it will not be necessary to provide feedback.

The participant will complete 45 practice trials in three 15-trial blocks, with a 1-minute break between blocks. Five minutes after the last practice trial is completed, the experimenter will administer a 5-trial retention test. The procedures for the retention test

will be the same as those used during practice. Collect all the data for one participant before switching roles.

The first student will practice according to a *constant* schedule, and the second student will practice according to a *varied* schedule. The data sheet indicates the order in which the tasks will be administered.

*Condition 1—Constant Practice*

The participant will practice tossing the beanbag to the target from the 5-meter line throughout practice. During the retention test, the 5-meter line will also be used.

*Condition 2—Varied Practice*

The participant will practice tossing the beanbag from three different lines located 4 meters, 5 meters, and 6 meters from the target. The trials will be presented in a serial schedule (i.e., 4 meters, 5 meters, 6 meters, 4 meters, 5 meters). During the retention test, the 5-meter line will be used.

Lab 9.2

Name: \_\_\_\_\_

**Data Sheet:**

Participant: \_\_\_\_\_

Experimenter: \_\_\_\_\_

*Condition 1—Constant Practice*

**5 to 10 Seconds Between Trials**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
1	1	5 m	_____
	2	5 m	_____
	3	5 m	_____
	4	5 m	_____
	5	5 m	_____
	6	5 m	_____
	7	5 m	_____
	8	5 m	_____
	9	5 m	_____
	10	5 m	_____
	11	5 m	_____
	12	5 m	_____
	13	5 m	_____
	14	5 m	_____
	15	5 m	_____

**1-Minute Break**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
2	16	5 m	_____
	17	5 m	_____
	18	5 m	_____
	19	5 m	_____
	20	5 m	_____
	21	5 m	_____
	22	5 m	_____
	23	5 m	_____
	24	5 m	_____
	25	5 m	_____
	26	5 m	_____
	27	5 m	_____
	28	5 m	_____
	29	5 m	_____
30	5 m	_____	

**1-Minute Break**

Lab 9.2

Name: \_\_\_\_\_

**Data Sheet (p. 2)**

Participant: \_\_\_\_\_

Experimenter: \_\_\_\_\_

*Condition 1—Constant Practice (continued)*

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
	31	5 m	_____
	32	5 m	_____
	33	5 m	_____
	34	5 m	_____
	35	5 m	_____
	6	5 m	_____
	37	5 m	_____
3	38	5 m	_____
	39	5 m	_____
	40	5 m	_____
	41	5 m	_____
	42	5 m	_____
	43	5 m	_____
	44	5 m	_____
	45	5 m	_____

**5-Minute Break**

**Retention Test: No Feedback**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
	1	5 m	_____
	2	5 m	_____
	3	5 m	_____
RET	4	5 m	_____
	5	5 m	_____
		Sum:	_____

Lab 9.2

Name: \_\_\_\_\_

**Data Sheet (p. 3)**

Participant: \_\_\_\_\_

Experimenter: \_\_\_\_\_

*Condition 2—Varied Practice*

**5 to 10 Seconds Between Trials**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
1	1	4 m	_____
	2	5 m	_____
	3	6 m	_____
	4	4 m	_____
	5	5 m	_____
	6	6 m	_____
	7	4 m	_____
	8	5 m	_____
	9	6 m	_____
	10	4 m	_____
	11	5 m	_____
	12	6 m	_____
	13	4 m	_____
	14	5 m	_____
	15	6 m	_____

**1-Minute Break**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
2	16	4 m	_____
	17	5 m	_____
	18	6 m	_____
	19	4 m	_____
	20	5 m	_____
	21	6 m	_____
	22	4 m	_____
	23	5 m	_____
	24	6 m	_____
	25	4 m	_____
	26	5 m	_____
	27	6 m	_____
	28	4 m	_____
	29	5 m	_____
30	6 m	_____	

**1-Minute Break**

Lab 9.2

Name: \_\_\_\_\_

**Data Sheet (p. 4)**

Participant: \_\_\_\_\_

Experimenter: \_\_\_\_\_

*Condition 2—Varied Practice (continued)*

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
	31	4 m	_____
	32	5 m	_____
	33	6 m	_____
	34	4 m	_____
	35	5 m	_____
	6	6 m	_____
	37	4 m	_____
3	38	5 m	_____
	39	6 m	_____
	40	4 m	_____
	41	5 m	_____
	42	6 m	_____
	43	4 m	_____
	44	5 m	_____
	45	6 m	_____

**5-Minute Break**

**Retention Test: No Feedback**

<u>Block</u>	<u>Trial</u>	<u>Distance</u>	<u>Score</u>
	1	5 m	_____
	2	5 m	_____
	3	5 m	_____
RET	4	5 m	_____
	5	5 m	_____
		Sum:	_____

Lab 9.2

Name: \_\_\_\_\_

**Discussion**

Describe your results in terms of the total score during the retention test for you and your lab partner. Discuss how the results illustrated the various effects of constant and varied practice on learning. Did your results match what would be expected based on the information presented in chapter 9? Discuss a few factors other than practice schedules that might have contributed to your results.