

Retention and Transfer Tests
ESAT 3200 Motor Learning & Development

Name: _____ **Score:** _____

Objective: Demonstrate the use of retention and transfer tests to assess learning. These tests are widely used by instructors, physical therapists, and coaches wanting to know if their students, clients, or athletes really did learn the skill.

Activity I: Retention Test

Introduction: A *retention test* occurs after you have learned a skill that is of interest to the teacher, physical therapist, athletic trainers or coaches. Usually the subject is brought back at varying time periods usually days, or weeks after the learning of the task to determine how much the client/student has retained (persistence). The more a subject has retained the skill the more effective the condition or variable was in learning the task.

Task: Sliding Disc Task

Purpose: To determine if verbal performance feedback is better than knowing one's results of the movement (Knowledge of Results).

Procedure: The subject will be seated at the end of the table facing the target area. A barrier will be placed on the board that blocks the view of the board and target area. The subject will position the disc over the black dot on the board. The subject will attempt to slide the disc with the heel of their non-dominant hand under the barrier to the center of the target area.

The professor will assign you to one of the two experimental conditions. Both experimental groups will be given absolute terminal feedback, that is, feedback at the end of every trial. One experimental group will be given knowledge of results feedback while the other group will be given verbal feedback. The knowledge of results feedback group will be able to see the result of their slide after every slide. After every trial remove the barrier and let the subject view the location of the disc on the board relative to the target (center of the board). The subjects in the verbal feedback will only be given information verbally. After every trial provide verbal feedback by saying it was "too short (long)" and it landed to the "right (left)" of the target. The barrier will not be removed for the subjects in the verbal feedback group. In both conditions the experimenter will be required to record the results of each slide.

After performing the 15 acquisition slides wait at least 5-10 minutes and then complete the 2 retention trials. The 2 retention slides is where the subject will slide the disc under the barrier to the target area ***without any feedback***. Record your retention scores on the form provided. A 5-10 minute no practice period will serve as a near-retention test. In practice the professional would have the subject come back one day, a week or even a month later to observe the affects of their method of practice on learning the skill. Remember no practice before or between the 2 retention trials.

Data Collection: Record the score in the table for every practice and retention trial. Scoring of each trial will require you to add the X & Y ordinates together. For example, the subject slide the disc where X = 2 and Y = 3, one would sum both together and the score for this trial would be 5. Record your practice and retention trials on the board. After everyone has completed recording the scores on the board, calculate the means for each practice and retention trials.

	Verbal Terminal Feedback									Knowledge of Results Feedback								
Trial	S1	S2	S3	S4	S5	S6	S7	S8	SM	S1	S2	S3	S4	S5	S6	S7	S8	SM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
R																		
R																		

Graphing Develop a line graph by plotting the practice trial means and retention means of the two feedback conditions. In graphing the retention experiment, the graphs X-axis should be labeled the feedback conditions with a legend indicating the two feedback conditions and y-axis should be labeled AE scores. The retention graph should be entitled, "Acquisition and Retention Test Mean by Feedback Conditions." On the X-axis, you will need to label one set of means as being the practice mean (AM) and other set of means as being the transfer means (RM).

Lab Question for Activity I

1. After reading the section on page 264 of the text, what is the purpose of retention tests? Why are retention tests necessary in assessing one's performance? Then write a summary of this experiment's

results. Make sure you include your graph below or above this summary and make reference to the graph, and report the overall class means in your findings. In your report, you will need to first discuss the practice acquisition phase. Usually during practice both groups improve but in your discussion cite which group was the best or worst. Then discuss the results of the retention test. The purpose of this activity was to determine which feedback condition was best. Which condition was best and why?

Activity II: Transfer test

Introduction: *Transfer tests* assess the adaptability aspects of performing changes related to learning. Transfer tests involves performing a previously learned task in a novel situation, such as training one to hit a forehand/backhand drives in table tennis then having them perform these skill in a game of table tennis (*context*) or the transfer test can come in the form of a *novel variation of the skill*, such as, training one to throw a ball with a certain overhand delivery then asking them to throw with a different size ball or increase the speed of their delivery faster than how it was practiced (one changes how the task is to be performed). In review, a physical therapist, instructor, coach or exercise leader can provide transfer tests by changing the context of performing the skill and/or change how they perform the skill.

Task: Pursuit Rotor

Procedure: The professor will assign you to one of the two conditions. Each subject will perform 10 trials on the pursuit rotor holding a stylist in your non-dominate hand. The object of the task is to track the moving light traveling clockwise with the stylist. Do not touch the stylist on the glass or plastic while tracking the light. Each subject will be perform 10 practice trials where the duration of each trial is set at 15 seconds. One group of subjects will attempt to track the light around a *circle* where as other group will track a light traveling in a *triangle*. The traveling light will move around the circle or triangle at 45 revolutions per minute. After the subject had completed the 10 practice trials, immediately complete two-15 second ***transfer trials tracking a rectangle moving counterclockwise*** at 45 rpm. The rectangle trials will serve as the transfer task.

Data Collection: Record your time-on-contact scores in table below. A higher time-on-contact score is a better score. Record your practice and retention trials on the board. After everyone has completed recording the scores on the board, calculate the means for each practice and retention trials.

Trial	Triangle Condition								Circle Condition							
	S1	S2	S3	S4	S5	S6	S7	SM	S1	S2	S3	S4	S5	S6	S7	SM
1																
2																
3																
4																
5																
6																

7																
8																
9																
10																
R1																
R2																

Graphing Develop a line graph by plotting the practice trial means and transfer means of the triangle and circle practice conditions. In graphing the transfer experiment, the graph's X-axis should be labeled practice condition with a legend appearing indicating triangle or circle. The Y-axis should be labeled "time on contact." The transfer test title should be "Acquisition and Transfer Test Means by Practice Conditions." Again on the X-axis, you will have two sets of means as being the practice mean (triangle & circle) and the other set of means as being the retention means (TM).

Lab Question:

2. After reading the section on pages 264-265, what type of transfer test, novel context or novel skill variation, was performed in this lab? Explain what this type of transfer test was attempting to prove? Write a summary of your transfer test results. Make sure you make reference to the graph and report the overall class means in reporting your findings. Your strategy in writing the summary will be the same as indicated above in question 1 but relates to transfer test not retention test.