**Psy 633  
 Lab 1: t-tests  
Between- versus Within-Subject Designs**

A researcher wants to investigate the type of reinforcement (positive vs. negative) that leads to better learning of a new spatial-motor task. Participants must learn to trace a star pattern using a mirror drawing apparatus. Participants receive 50 training trials for each condition and are required to keep the pencil moving at all times during a trial. Participants in the positive reinforcement condition received 50 cents for each error-free trial. Participants in the negative reinforcement condition are charged 50 cents for each practice trial they need. Participants can avoid paying the 50 cent fee by completing an error-free trial. Participants were required to keep practicing until they reached the criterion of 5 consecutive error-free trials. The number of practice trials needed to reach criterion was as follows:

Positive Negative

15 16

7 12

6 7

20 23

12 14

19 22

15 20

5 10

18 25

6 10

22 28

9 7

1. Assume that the data are from an independent measures (between-subjects) experiment using two separate samples, each with n = 12 participants. Do the data indicate a significant difference between the two treatments? Use a two-tailed test with alpha = .05.

*Please run the analysis in SPSS. Then write or type a few sentences that report the results in APA format.*

2. Now assume that the data are from a repeated-measures (within-subjects) experiment using the same sample of n = 12 participants in both treatments. Conduct a t-test for repeated measures. Do the data indicate a significant difference between the two treatments? Again, use a two-tailed test with alpha = .05.

*Please run the analysis in SPSS. Then write or type a few sentences that report the results in APA format.*

3. How do you explain the different outcomes? (Compare the standard errors for the two different tests. Also compare the mean differences obtained.) Be sure to specify which benefit of a repeated-measures design this example illustrates.  
*Please write or type your answer on one of the printouts or on an attached page.*

4. Let’s switch gears. Please see Chapter 7 of your SPSS manual which gives the instructions for conducting a one-sample t-test. Work through that scenario Then write a sentence or two summarizing the results in APA format.