

Does memory training help? You will be given a list of words. You will be given 3 minutes to memorize as many as possible by just rereading the words. You will record as many words as you can remember. You will then be given another list of words to memorize for 3 minutes using a memorization strategy. You will record as many words as you can remember.

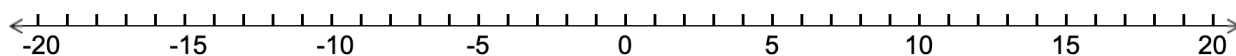
1. How many words did you get correct using strategy A (rereading)? _____
2. How many words did you get correct using the strategy B (story)? _____
3. Add your data to the class data tab.

Name									
A									
B									
Difference ($A - B$)									

Name									
A									
B									
Difference ($A - B$)									

Name									
A									
B									
Difference ($A - B$)									

4. Create a dot plot in [stapplet](#) by entering the DIFFERENCES only. Draw the dot plot below.



5. What does the dotplot suggest about the memory training?

25.1 Paired Samples

6. Identify and interpret the following:

a. Mean:

Interpret:

b. Standard Deviation:

Interpret:

7. Construct a 95% confidence interval for the true mean difference in words remembered by students using rereading and story. Follow all of the required steps.

8. Do we have evidence that there is a difference in the average words remembered using rereading and story?

25.1 Paired Samples

9. Perform a hypothesis test for the paired data. Follow all necessary steps for this procedure.

25.1 Paired Samples

Big Ideas

1. Analyze the distribution of differences in a paired data set using graphs and summary statistics.
2. Construct and interpret a confidence interval for a mean difference.
3. Perform a significance test about a mean difference.
4. Determine when it is appropriate to use paired t procedures versus two-sample t.

Check Your Understanding

Researchers designed an experiment to study the effects of caffeine withdrawal. They recruited 11 volunteers who were diagnosed as being caffeine dependent to serve as subjects. Each subject was barred from coffee, colas, and other substances with caffeine for the duration of the experiment. During one 2-day period, subjects took capsules containing their normal caffeine intake. During another 2-day period, they took placebo capsules. The order in which subjects took caffeine and the placebo was randomized. At the end of each 2-day period, a test for depression was given to all 11 subjects. Researchers wanted to know whether being deprived of caffeine would lead to an increase in depression at the $\alpha = 0.05$ significance level?

The table below contains data on the subjects' scores on the depression test. Higher scores show more symptoms of depression.

Subject	1	2	3	4	5	6	7	8	9	10	11
Depression (caffeine)	5	5	4	3	8	5	0	0	2	11	1
Depression (placebo)	16	23	5	7	14	24	6	3	15	12	0
Difference											

1. Make a dotplot of the difference in depression test scores (*caffeine* – *placebo*) for each subject. What does the graph reveal about the difference in depression test scores?
2. Find the mean and standard deviation of the difference (*caffeine* – *placebo*) in depression test scores. Interpret the mean difference in context.
3. Construct and interpret a 90% confidence interval for the true mean difference in depression test score (*caffeine* – *placebo*).