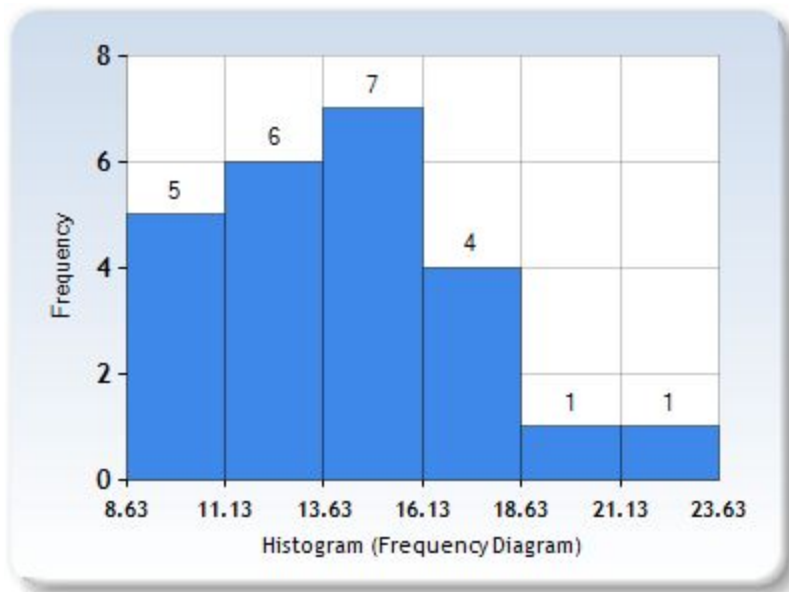


1. In this experiment, the independent variable/s is the condition of the task (congruent or incongruent words). The dependent variable is the amount of time it takes a participant to finish the task.
2. We can hypothesize that the participants' will take longer to perform the incongruent word test than the congruent test. We can compare the results of both sets of data of independent samples, and using a t-test, we can see if there is a statistically significant difference between the two tests. The null hypothesis will state that the two samples lie close enough to to not have a statistical significant difference. The alternative hypothesis will state that the incongruent group takes a statistically significant greater amount of time to finish the test.

$$H_0: \mu_c = \mu_i$$

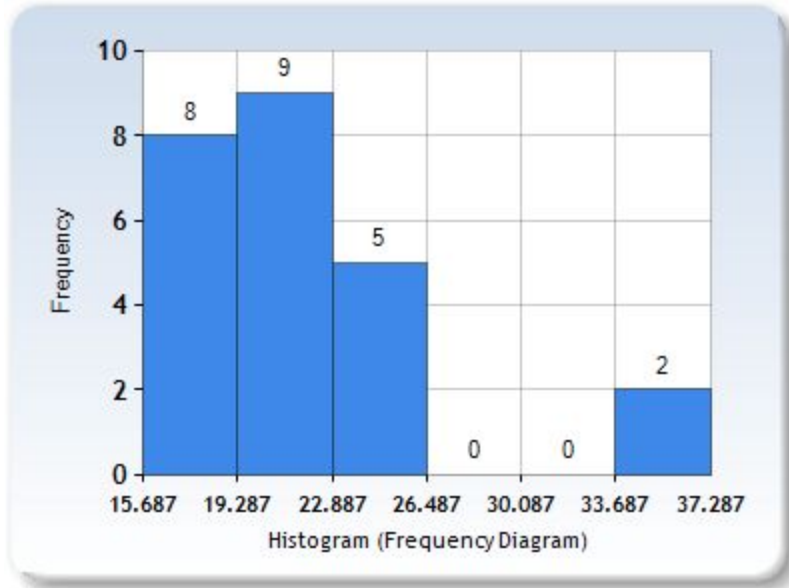
$$H_A: \mu_c < \mu_i$$

3. For the congruent data set, the mean time to complete the test was 14.05 seconds with a standard deviation of 3.56 seconds. The the incongruent set, the mean time was, as expected, longer -- at 20.02 seconds with a standard deviation of 4.8 seconds.



4.

Above is a histogram of the congruent test data. You can see the data seems to be normally distributed and has a mode that falls in the same bin as the mean.



In the second chart, which shows data from the incongruent set, we can see that the mean and mode are higher than that of the congruent set, but we also see that two outliers may have skewed the mean higher than it should be.

5. I will be using a one-tailed test with a confidence interval of .05.
P = 1.68
t-statistic = 6.53

We can reject the null hypothesis. The results are significant and we can confirm that the incongruent test does interfere with one's ability to recognize and recite color. This result does match with expectations, as one would think that the confusion of the incongruent test could only hurt, not help, the ability to recognize and recite the color shown.

6. I think the observed effects are coming from confusion or dissonance in the brain. Something related but to a lesser extent might be talking on the mobile phone while driving.