

Stroop task

Independent Variable : Type of data which is congruent words or non congruent words are independent variable in this example.

Dependent Variable : Time taken to predict ink color in sample size.

Hypotheses:

H(null) : The congruent words and non congruent world's dataset population means are same $\mu_c = \mu_{ca}$ OR $\mu_c - \mu_{ca} = 0$

H(alternative): The congruent words and non congruent world's dataset population means are different $\mu_c \neq \mu_{ca}$

As there are same sample being used in different treatment, So this is a dependent test. We will be using T- test as sample size is less than 30. It seems we are given treatment to sample as we can consider this as two condition test

Descriptive Statistic regarding data set :

For congruent words data set:

Mean	14.05
Standard Deviation	3.559
Variance	12.67

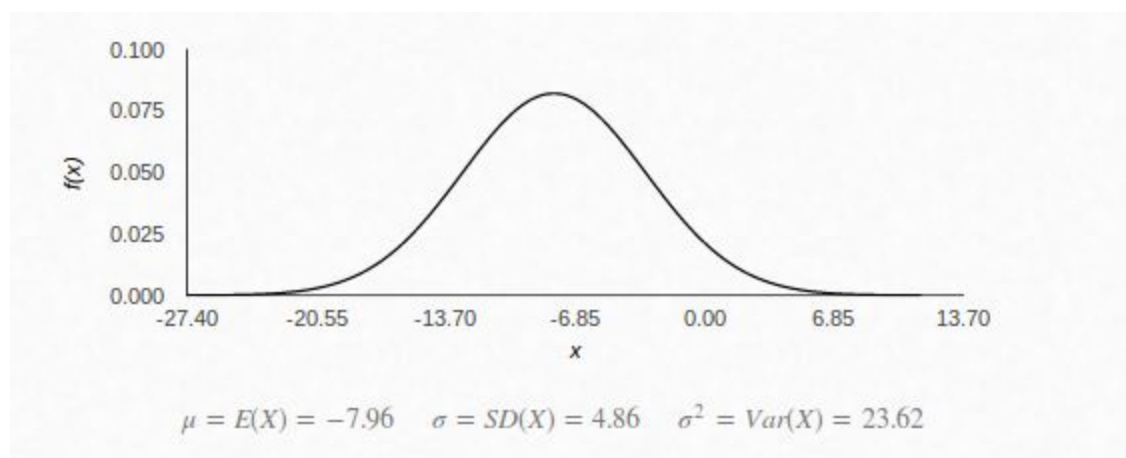
For non congruent words data set:

Mean	22.02
Standard Deviation	4.707
Variance	23.01

For Difference

Mean Difference	-7.94
Standard Deviation	4.86
Variance	23.66

Visualization of sample data:



Above image shows normal distribution of two samples with mean difference and standard deviation. They are not skewed to any direction. The mean is around -7.94 and standard deviation is around 4.86.

From this data we can calculate that t-statistic value is : -8.02

Confidence Level:

CL for 95% = (-10.01, -5.91)

Critical statistic value for alpha (0.05) two tailed : ± 2.069

As t-statistic is falling under t-critical region, We can reject the null hypothesis.

So, Result is we are able to find proper evidence to reject null hypothesis. Hence we conclude and can make casual statement that for given sample time will differ for given two treatments or condition.

Result is atched with my expectation as from data non congruent data set will take more time to predict ink color of words.