UDACITY

PROJECT

Test a Perceptual Phenomenon

A part of the Data Analyst Nanodegree Program

PROJECT REVIEW

NOTES

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Meets Specifications

Responses to Project Questions

Q1: Question response correctly identifies the independent and dependent variables in the experiment.

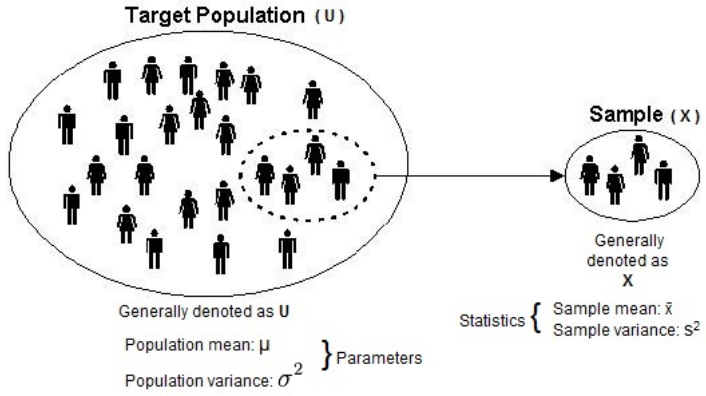
- Please note that an independent variable, sometimes called an experimental or predictor variable, is a variable that is being manipulated in an experiment in order to observe the effect on a dependent variable, sometimes called an outcome variable.
- We are taking control of the word color congruency condition and observe the time taken for each individual to name the ink color.

Q2a: Null and alternative hypotheses are clearly stated in words and mathematically. Symbols in the mathematical statement are defined.

Please consider to be more specific here regarding to he mathematical symbols - please consider to refer to the population means explicitly.

What is the hypotheses testing?

- A hypothesis test is a statistical test that is used to determine whether there is enough evidence in a sample of data to infer that a certain condition is true for the entire population.
- A hypothesis test examines two opposing hypotheses about a population: the null hypothesis and the alternative hypothesis. The null hypothesis is the statement being tested. Usually the null hypothesis is a statement of "no effect" or "no difference". The alternative hypothesis is the statement you want to be able to conclude is true.
- Please refer to the illustration below:



Samples/Participants are something we know

- We have some data, so we know what the sample means are (and whether or not they differ), but we are trying to use this information to infer something about the population.
- We are trying to understand whether there is a difference between congruent and incongruent means in the population or not.

So, we should test our observations (samples) in order to prove our hypothesis about the population.

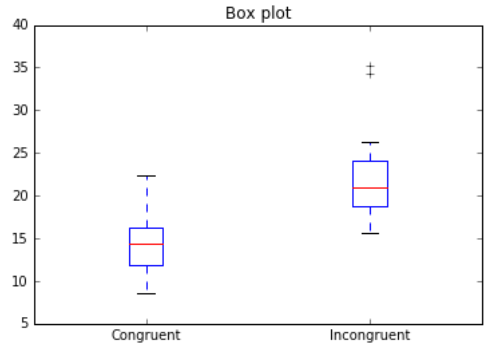
Q2b: A statistical test is proposed which will distinguish the proposed hypotheses. Any assumptions made by the statistical test are addressed.

- Please look at here for a more detailed assumptions for conducting t-test.
- The t-test for dependent means is considered typically "robust" for violations of normal distribution.This means that the assumption can be violated without serious error being introduced into the test in most circumstance.
- However, if we are conducting a one-tailed test and the data are highly skewed, this will cause a lot of error to be introduced into our calculation of difference scores which will bias the results of the test. In this circumstance, a nonparametric test should be used.

Q3: Descriptive statistics, including at least one measure of centrality and one measure of variability, have been computed for the dataset's groups.

Q4: One or two visualizations have been created that show off the data, including comments on what can be observed in the plot or plots.

- For further improvement, please come nsider to implement the boxplot, which clearly shows the distribution and outliers.
- Please look at the below example and how to implement the boxplot at here



Q5: A statistical test has been correctly performed and reported, including test statistic, p-value, and test result. The test results are interpreted in terms of the experimental task performed.

Well done for getting the test statistics reported correctly. Conclusion drawn is well aligned with the test results.

Q6: Hypotheses regarding the reasons for the effect observed are presented. An extension or related experiment to the performed Stroop task is provided, that may produce similar effects.

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