UDACITY

Logo

Back to Data Analyst Nanodegree

Test a Perceptual Phenomenon

REVIEW | HISTORY

Meets Specifications

Hello student.

Nice job fixing the issue from the last submission!
Congrats! 😃

I wish you good luck in your Nanodegree!
Stay !

Responses to Project Questions

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

You have correctly stated the variables :)

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

Optimal Way to State the Hypotheses
Null:
The null hypothesis is that the congruent and incongruent samples come from the same general population – meaning even though we are observing a difference in the sample means there is actually no difference in response times between the conditions of the experiment for the population and what we are witnessing is by chance. One-tail will go even further and state that the Incongruent population has a lower mean time than the Congruent population.
Two-Tail

One Tail (Preferred)

Or
Two-Tail

One-Tail (Preferred)

Alternative:
One-Tailed (Preferred)
The alternative hypothesis is that the population_mean(incongruent) is greater than the population_mean(congruent) – meaning that they come from different populations and that the incongruent condition actually does increase response times - the difference in sample means we are witnessing is representative of the general population.

Or

Two-Tailed (similar to the one-tailed but not assuming which is larger (or smaller))
The alternative hypothesis is that there is a difference between the population_means of the congruent and incongruent, however, we are not assuming which is larger or smaller - the difference in sample means we are witnessing is representative of the general population in that they are different, but we are not making the assumption of

directionality.

Or

Note A one-tail assumption is preferred and justified since the question is “does Incongruency increase response times” and all Incongruent times are larger in our sample dataset.
Notice how the statements of the hypotheses are making sure to convey they reference an assumption about the population not the samples since we do not need to make a guess about the samples - we have access to them.

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

Well done! 👏🏼

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.

I love your plots :) We can directly see the difference. Thus we know what we can expect from the result 😉

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. Alternatively, students may use a bootstrapping approach to simulate the results of a traditional hypothesis test.

To Exceed Specifications
For this project, it is ok to assume that our distributions are normal but what if they were not? One of the main things before we use a statistical test that assumes normal distribution is to test for normality. There are a couple of ways to test normality of sample distributions besides looking at the histograms. I wanted to talk about some of them as they are a more accurate way to judge the normality of distributions and will be a valuable tool later on in your career. For the level of this class, we let students assume the distributions are normal and therefore can use a T-test which assumes normality. Upon further investigation, we find this is not quite true.

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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