UDACITY

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Test a Perceptual Phenomenon

REVIEW | HISTORY

Requires Changes

3 SPECIFICATIONS REQUIRE CHANGES

Responses to Project Questions

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

Exactly, the dependent variable represents the output or outcome of the experiment (response time), while the independent is the variable that is changed or controlled (different conceptual conditions). https://www.thoughtco.com/i-ndpendent-and-dependent-variables-differences-606115

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

The Null and alternative hypothesis are not accurate, it is not clear if the hypotheses concerned about the population or the sample. It is stated "μ stands for sample mean", but instead the hypothesis should be concerned with the **mean population time**.

The idea of the test is that we are using limited data (based on our samples) in order to make inferences about the populations (and the **population means**). We know what the sample means are, and we are trying to infer something about the population, so **the null and alternative hypotheses should be concerned with the population**. The link here includes an example for the null and alternative hypothesis. http://support.minitab.com/en-us/minitab/17/topic-library/basic-statistics-and-graphs/hypothesis-tests/basics/null-and-alternative-hypotheses/

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

Please note that each participant performed the 2 conditions and the measurements are coupled, therefore not all the measurements are independents and the independent t-test is not appropriate here. You might find this link useful, https://statistics.laerd.com/statistical-guides/dependent-t-test-statistical-guide.php

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

The mean, median and standard deviation that you calculate for each condition are accurate.

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.

Well done! the charts depict the difference between the two conditions.

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.

The t-statistics that you calculated (6.53) is not accurate. The exact expression for the statistical test in this case is :
t-stat = (mean(a) - mean(b)) / (standard_deviation(a - b)/square_root(N))
where “a” and “b” are the measurements for each condition and "N" is the sample size.

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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