My new demo of a semester long project

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Abstract

This is a demo for the semester long project in PSYC 7765/66.

Keywords: Stroop, Posture, Reproducible analysis

Word count: 1000

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This is a short example of creating an APA manuscript using papaja. It is intended to provide example code for your semester project. This would normally be the introduction to your paper. Below is a very brief introduction.

This report reproduces the analysis of Experiment 3 reported in Rosenbaum, Mama, and Algom (2017). The data were downloaded from https://osf.io/b7x8q/

Rosenbaum et al. (2017) had participants perform a Stroop task (Bugg & Crump, 2012; for a review see, MacLeod, 1991) in one of two posture conditions. Participants either sat and performed the Stroop task, or stood and performed the Stroop task. The question was whether the size of the Stroop effect would change as a function of posture. The Stroop effect is measured as a difference between reaction times on congruent vs. incongruent trials.The experiment involved a 2 (Posture: sitting vs standing) x 2 (congruency: congruent vs. incongruent) repeated measures design.

Methods

Participants

There were 50 participants

Material

The details of the Stroop experiment are report in the paper (Rosenbaum et al., 2017).

Procedure

In each posture condition, participants completed 72 Stroop trials, half congruent and half incongruent.

Results

First, the means for each condition collapsed across subjects are presented in Table 1.

Additionally, the means for each condition are plotted in Figure 1.

The original authors reported the following in their analysis, "The Stroop effects in both the sitting condition, M = 118.9 ms, t(49) = 16.52, p < .01, d = 2.376, and the standing condition, M = 95.9 ms, t(49) = 14.327, p < .01, d = 2.034."

Open data from this paper was obtained, and a script was generated to attempt a reproduction of the analysis. The following results are generated by the R analysis script.

The re-analysis for the sitting Stroop effect showed a significant Stroop effect, $M_d = 118.86$, 95% CI $[104.40, 133.33]$, $t(49) = 16.52$, $p < .001$. The re-analysis for the standing Stroop effect was significant, $M_d = 95.95$, 95% CI $[82.49, 109.41]$, $t(49) = 14.33$, $p < .001$.

Power analysis

The following reports a power curve analysis for one the t-tests in the design. This shows the power of the design to detect effects of different sizes.

References

Bugg, J. M., & Crump, M. J. (2012). In support of a distinction between voluntary and stimulus-driven control: A review of the literature on proportion congruent effects. *Frontiers in Psychology*, *3*, 367.

MacLeod, C. M. (1991). Half a century of research on the stroop effect: An integrative review. *Psychological Bulletin*, *109*(2), 163.

Rosenbaum, D., Mama, Y., & Algom, D. (2017). Stand by your stroop: Standing up enhances selective attention and cognitive control. *Psychological Science*, *28*(12), 1864–1867.

Table 1

Congruency	Posture	mean_RT	SEM
Congruent	Sit	821.92	16.60
Congruent	Stand	807.96	14.94
Incongruent	Sit	940.79	17.91
Incongruent	Stand	903.91	15.35

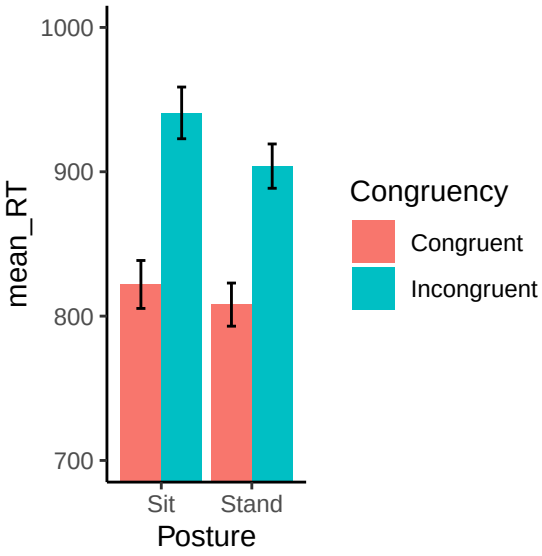

Figure 1. Mean reaction times as a function of Congruency and Posture conditions, with standard errors of the mean.

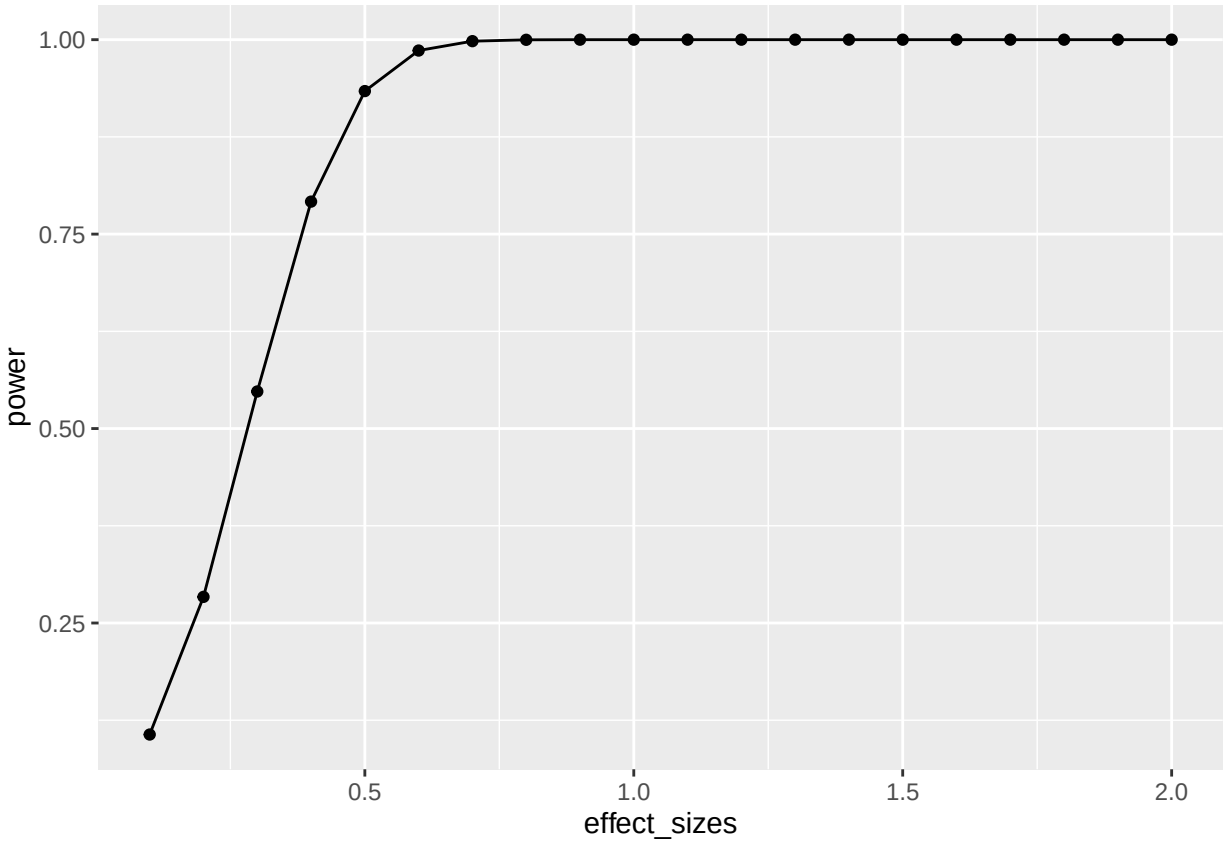

Figure 2. A power curve analysis for a paired sample t-test with 50 participants.