

The impact of Response Conflict on Free Recall Performance (#6895)

Created: 11/22/2017 12:32 AM (PT)

Public: 12/03/2019 02:58 AM (PT)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

We apply a task-switching paradigm with two verbal classification tasks, then we conduct an incidental free recall test for the words shown in the study phase. We use stimuli which contain a Response conflict (two words of the same Task but different categories, termed incongruent) and stimuli which do not contain a Response conflict (two different words from the same category, thus requiring the same response, termed congruent). Therefore, the perceptual load for both types of stimuli is similar, but the difference is that congruent stimuli do not trigger response conflict while the incongruent ones do.

We predict that those Targets (words written in red) which occur in an incongruent stimulus (with Response conflict) will enhance later free recall performance compared to those Targets which occur in a congruent stimulus (without Response conflict).

We assume that the participants counteract the response conflict in incongruent trials by focusing on the target word, which then results in better recollection compared to targets of congruent trials. In the case of congruent trials (two words of the same category), focusing on the target stimulus to counteract response conflict is not necessary. By contrast, both stimuli point towards the same response, so attention can be spread out without harming the task in terms of accuracy.

Moreover, we assume that Targets shown in repeat trials will be better remembered than Targets shown in switch trials because the cognitive load is higher in switch trials and encoding is less successful then.

Finally, we expect an interaction when the distractors (words written in green) are also assessed. We expect that on repeat trials attention can successfully be focused on the relevant target and suppressed for the distractor, this attentional strategy is reduced on switch trials, leading to distractor intrusion.

Therefore, we predict reduced memory for the target and better memory for the distractor in switch trials compared to repeat trials (i.e. more distractors remembered from switch trials than from repeat trials), in line with previous studies (Richter & Yeung, 2012). In contrast, Memory for targets should be better for repeat than for switch trials.

3) Describe the key dependent variable(s) specifying how they will be measured.

Proportion of recalled items.

The conditions in which the words have been presented in the study phase are assigned to the words, e.g. repeat-congruent.

4) How many and which conditions will participants be assigned to?

This is a within-subject design with 2 variables (trial type, repeat vs switch) and congruency (congruent vs incongruent).

The conditions are repeat-congruent, repeat-incongruent, switch-congruent and switch-incongruent.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

2 x 2 ANOVA with repeated measures with the factors trial type (repeat vs switch) and congruency (congruent vs incongruent).

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We exclude: Participants with more than 30% errors in the study phase, participants with reaction times with more than 3 SD over the mean of all participants in the study phase, participants with a free recall performance of Zero.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

40 participants.

We conducted an apriori Power Analysis with G*Power

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)