ASPREDICTED

response conflict, control experiment (#16453)

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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?

This is an experiment which is conducted in order to corroborate former findings (for an experiment also preregistered here).

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. The stimuli consist of two interleaved words, one word has to be classified, the other one is a distractor.

In the "task congruent" condition, we use two words which stem from the same category (e.g. two mammals), thus they require the same response key. In the "task incongruent" condition, the two words derive from the two claissifcation tasks, and, crucially, they also require the same response key (e.g. the "a"-key in the animal as well as in the object task). Here, we want to show that the occurrence of response conflict would be crucial for a memory benefit. Therefore, we hypothesize that there will be no effect of "task congruency" on memory performance. Response conflict - which has been removed in this experiment – results in a better memory performance due to an allocation of attention in a strategic way towards the target words. In this experiment, the two words point towards the same response in both conditons, therefore attention can be spread out without the risk of making errors.

For task switching, we hypothesize that memory performance would be better for target words shown in repeat compared to switch trials due to the enhanced control demands associated with the need to switch tasks, which results in less focused attention.

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

Free recall performance: Amount of recalled items in the test phase.

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

All participants perform all conditions (besides block order): the target stimuli can be task congruent vs. incogruent and shown in repeat vs. switch trials.

We have four main conditions: repeat-congruent, repeat-incongruent, switch-congruent, switch-incongruent.

Moreover, we present the two congruency conditions in two blocks (similar as in the former experiment).

Therefore, block (1, 2) would be another factor (within-subject) and block order (between-subject) which is counterbalanced. We expect no effects of block or block order.

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

We conduct an 2x2x2 ANOVA with the two within-subject factors trial type (repeat vs. switch) and task congruency (congruent vs. incongruent) and the between-subject factor block order.

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

For the study phase: medians are computed for the reaction times. Participants with an accuracy below 70% are excluded.

No outliner control/exclusion in the test phase.

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.

In our former experiment we also tested 40 participants. We want to hold everything constant besides the congruency manipulation.

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

Finally, we expect an interaction when the distractor words 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 less possbile on switch trials due to task operations, leading to distractor intrusion. Therefore, we predict reduced memory for the target and better memory for the distractor in switch compared to repeat trials (i.e. more distractors remembered from switch trials than from repeat trials). In contrast, memory for targets should be better in repeat than in switch trials.