

Value-driven distraction 2017 (#3321)

Author(s)

Dorottya Rusz (Radboud University) - d.rusz@psych.ru.nl
Erik Bijleveld (Radboud University) - e.bijleveld@psych.ru.nl
Michiel Kompier (Radboud University) - m.kompier@psych.ru.nl

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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 examine how cognitive performance is affected by task-irrelevant stimuli (distractors) that were previously associated with high vs. low value. Hypothesis: We expect people to perform worse when they are exposed to distractors previously associated with earning money (vs. no money).

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

Participants will perform a mental arithmetic task.

Main dependent variable: Accuracy

Secondary dependent variable: Response time

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

Distractor value (manipulated within-subjects):

- high: distractors were previously associated with earning money (8 cents per trial)
- low: distractors were previously associated with earning no money (0 cents per trial)

To explore the circumstances under which the hypothesized effect is strongest, if it exists at all, participants will be exposed to three different variations of the experiment (between-subjects):

- A: reward contingency is 100%: high-value distractors were previously associated with earning money on all trials
- B: reward contingency is 80-20%: high-value distractors were previously associated with earning money on 80% of the trials
- C: like A, but target and distractor are located spatially (3.5 times) further away from each other

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

To test our hypothesis, we will run a paired samples t-test with distractor value (high vs. low) as the independent variable and accuracy as the dependent variable.

6) Any secondary analyses?

We plan to test our hypothesis also with response time as the dependent variable (i.e., as a secondary measure of performance). We will do this with another paired t-test with distractor value (high vs. low) as the independent variable.

To explore the circumstances under which the hypothesized effect is strongest, we will investigate performance with a 2(distractor value: high vs. low) x 3(experimental variation: A vs. B. vs. C) repeated-measures ANOVA. We will do this analysis separately for accuracy and response time.

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.

We will stop data collection after collecting data from 90 participants (30 participants per variation).

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

Data exclusions:

A priori:

Participants can participate if they are 25 years old or younger, speak Dutch fluently, are not colorblind, and have slept at least 6 hours the night before the experiment.

After data collection:

We will exclude participants who are accurate on less than 60% of trials.

We will exclude response latencies (and their corresponding accuracy scores) that deviate 3sd or more from the participant's mean.

Variables measured for exploratory purposes:

- Participant's need for money
- Impulsivity (BIS-11)