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No-Cost vs. Low-Cost Doors (#9750)

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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?

In this study, participants will be presented with two identical doors and told that another agent placed an object near one of the them (the "modified" door). Participants will then be presented with an unmodified door, and the modified door, and they will have to decide if they should or should not walk through the modified door.

We predict that when participants believe that walking through the modified door is harder, they will infer that they should walk through the unmodified door. In contrast, when participants do not believe that walking through the modified door is harder, we predict that they will show a weaker preference for the unmodified door, but we do not have expectations about whether they will systematically favor the modified door, perform at chance, or have a weak preference for the unmodified door.

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

The key dependent variable will be whether people infer that they should walk through the modified door, or not walk through the modified door.

We will also have two auxiliary variables, that are elicited from participants after the dependent variable, where we ask participants (1) which door they think would take more effort to walk through (with three options: the modified door, the unmodified door, or equal), and (2) whether or not they would be physically able to walk through the modified door if they wanted to.

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

We will have two conditions that vary the placement of the object near the modified door. In the first condition (the "low-cost" condition), the object is placed so that it is a minor, but not unsurmountable, obstacle to crossing the door (usually by placing the object in the center). In the second condition (the "no-cost" condition), the object is placed so that it is not an obstacle when walking through the door (usually by placing it on the side of the door). Once participants answer if they think they should walk through the modified door or not (in a 2AFC), participants will be asked which door is harder to walk through (options are unmodified door, modified door, or equally costly). Finally, participants will only be presented with the modified door and they will be asked if they could physically walk through the modified door if they wanted to (see Q3 above).

The stimuli will consist of eight trials in each condition (all tested across participants). The objects we have chosen for our stimuli are: a chair, a hat, a string tacked to the door frame (it's also tied to a fishbowl in the "low-cost" condition), a stack of books, a plant, tape, a collection of three rulers, and a pile of cinder blocks.

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

Our first analysis consists of a logistic mixed-effects regression predicting the dependent variable (see Q3) with the condition ("low-cost" vs "no-cost") as the independent variable, and object type (see Q4) as random intercepts. Failure to find significance in this analysis may imply that (1) our hypothesis is wrong, or that (2) our a priori distinction between low-cost and no-cost is wrong.

Our second analysis is the critical test of our hypothesis. Using a logistic mixed-effects regression we will predict the dependent variable using participant's judgment about whether one door was harder to walk through or whether they were equally easy to walk through (see auxiliary variables in Q3) as the independent variable. Object types (Q4) will have random intercepts. The second analysis is identical to the first, with the difference that we will use each participant's categorization on whether the trial was low-cost or no-cost, instead of the distinction that we defined a priori.

To supplement these analyses, we will also compute 95% bootstrapped confidence intervals for (1) percentage of choices for the dependent variable as a function of the low-cost and no-cost conditions, (2) percentage of choices for the dependent variable as a function of which door participants believe is harder to walk through or whether they believe they are equally easy, and (3) percentage of choices as a function of each object-type and condition. These confidence intervals will not constitute hypothesis tests and are meant to only help readers in interpreting the data.

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

Because the unmodified door is never more work to walk through, participants who give this response in the first auxiliary variable (see Q3) will be excluded from the study (note that this implies that although first auxiliary variable has three levels, it will become a binary variable for the analyses).





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 test 10 participants in each of our eight modified doors across our two conditions, adding up to a total of 160 participants. We verified that this sample size is overpowered for our critical analysis (p=0.913) by running a Monte Carlo power analysis using pilot data (n=3 participants per condition). Participants that are excluded (see Q6) will be replaced so that the final sample size is 160 participants.

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