

Group Name:

Cognitive Keepers

Group Members:

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1. Data Collection

Have any data been collected for this study already? (Note: the typical answer should be “no” for a preregistration)

- Yes, we already collected the data
- ~~No, no data have been collected for this study yet.~~
- It's complicated. We have already collected some data. We provide an explanation below.

Additional explanation (if you answered “It’s complicated” above, otherwise blank):

2. Hypothesis

What's the main question being asked or hypothesis being tested in this study? If applicable, make sure to specify a direction for the hypothesis (e.g., the dependent variable will be higher for condition A than for condition B).

The primary hypothesis is that participants will demonstrate high accuracy in visual long-term memory tasks, even when distinguishing fine details among similar objects. Specifically, participants are expected to perform with high accuracy across all conditions (Novel, Exemplar, and State), challenging the limits of memory fidelity as suggested by Brady et al. (2008).

3. Dependent variable

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

The key dependent variable is recognition accuracy, measured by the participant's ability to correctly identify previously seen objects when presented in pairs. Accuracy will be calculated for each condition (Novel, Exemplar, and State) as the proportion of correct choices made across trials.

4. Conditions/ manipulated variables

How many and which conditions will participants be assigned to? Briefly describe each condition. Are the conditions between- or within-subjects?

Participants will be assigned to three within-subjects conditions:

- **Novel Condition:** Choosing between a previously seen object and a new, categorically different object
- **Exemplar Condition:** Distinguishing between a seen object and another object from the same category with similar features
- **State Condition:** Selecting between a seen object and the same object in a different state or pose

5. Randomization

State what aspects of the study design you will randomize, and how (e.g. trial order, stimulus assignment to condition, stimulus positions, etc.).

The order of trials and the positioning of objects within pairs will be randomized. Additionally, each image's assignment to a condition (e.g., which images are used in the Novel vs. State conditions) will also be randomized for each participant to control for position and order effects.

6. Stimuli

Briefly describe any stimuli you will use to test your question.

The stimuli include images of various everyday objects. These will be sourced from a pre-selected set of 100–200 images, divided across the three conditions (Novel, Exemplar, and State). The images have been chosen to include similar-looking objects across different states and poses to test memory fidelity accurately.

7. Changes from the Original Study

Briefly describe any changes/ deviations from the original experiment you are replicating, along with a justification or rationale for each change. This can be a bulleted list, with each bullet point corresponding to a change.

The following modifications will be made to adapt the study for practical constraints:

- **Reduced Image Set:** The number of images will be limited to 100–200, compared to the original 2,500 images used in Brady et al. (2008), for time efficiency
- **Shortened Viewing Duration:** Each session will be limited to approximately 5–10 minutes rather than the 5.5-hour duration of the original study
- **Streamlined Repeat-Detection:** The repeat-detection task will be simplified to focus more on recognition fidelity under time and logistical constraints

8. Data Analysis

Specify what analysis you will conduct to examine your hypothesis. [TIP: try to identify the analysis testing the main hypothesis in the original paper. You can base your planned analysis on this analysis]

9. Sample

How will you collect your data? How many observations will be collected or what will determine the sample size? [NOTE: For our group projects, the data will be collected in class from students in a course on programming and replicating experiments; we will aim to collect at least 20 participants per experiment, but will include responses from as many classmates as possible].

Data will be collected from a minimum of 20 participants, all students in COGS 119: a programming and experiment replication course. The exact sample size will depend on class enrollment, but all available responses will be included in the analysis to increase power and reliability.

10. Other

Anything else you would like to pre-register? (e.g., secondary analyses, other variables collected such as demographic details, unusual analyses planned?)

We may collect additional demographic data to explore secondary analyses, examining if variables like age or prior experience with similar memory tasks affect performance across conditions. This information, while not part of the primary hypothesis, could provide insights for further research.