

## The memory representation of real-world scenes

The experiment you just completed investigates how people learn and remember new information. The specific focus of this experiment was observing the influences of category membership of the real-world scenes on the memory process of those scenes. To investigate this question, we asked you to perform two types of tasks – the categorization task and the following memory task.

In the categorization task, you had to selectively attend to diagnostic features and ignore the irrelevant features of the scenes to successfully learn their category membership. After category learning, therefore, we expected that the memory representations of the scenes change in the way to emphasize the diagnostic features. In the memory task, we measured this mnemonic change for the scenes depending on their category membership. We were particularly interested in how the typicality of the scenes for the category impacts the magnitude of mnemonic distortion. We hypothesized that the less typical the scenes were, the more distortion occurs on the memory representations of the scenes to optimize the categorization process. Here the typicality level was determined how closely a given scene is located to a category boundary arbitrarily set on the continuously changing scene dimension named ‘scene wheel.’ To measure the memory distortion, we asked you to reconstruct the scenes from the scene wheel. We expect that the scenes located closer to the boundary will be less precisely remembered than the scenes farther from the boundary due to mnemonic distortion.

Completion of this project will inform theories of memory by characterizing how people remember complex scenes in such a learning context. This project will also inform future studies we will conduct that investigate different brain regions critical for successful learning and memory ability. If you are interested in this topic, check out the materials below:

Cacioppo, J. T., & Freberg, L. (2018). *Discovering psychology: The science of mind* (Chapter 9. The knowing mind: memory). Cengage learning.

Konkle, T., Brady, T. F., Alvarez, G. A., & Oliva, A. (2010). Scene memory is more detailed than you think: The role of categories in visual long-term memory. *Psychological science*, 21(11), 1551-1556.

Ester, E. F., Sprague, T. C., & Serences, J. T. (2020). Categorical biases in human occipitoparietal cortex. *Journal of Neuroscience*, 40(4), 917-931.

If you have any questions, please contact Dr. Michael Mack at 416-978-4243 or by email at [mack@psych.utoronto.ca](mailto:mack@psych.utoronto.ca).

Thanks for participating in our experiment!