The memory representation of real-word 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 subsequent memory process. To investigate this question, we asked you to perform two types of tasks, the category learning task and the following memory reconstruction task.

In the category learning 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 reconstruction task, we measured this mnemonic change for the scenes depending on their category membership. In particular, we were 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 2D scene space. To measure the memory distortion, we asked you to reconstruct the scenes from the probe space. 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.

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Thanks for participating in our experiment!