The Effect of Label Specificity and Category Grouping on Visual Memory

Cihan Altunkaynak

Adam Mickiewicz University,

Research in Cognitive Science,

Poznań, Poland

Abstract

In daily life, giving verbal labels to visual objects increases their recall potential for later recall. This is because these labels draw more attention to the verbally described features of the object which then helps the encoding of these features in the memory. According to a study by Souza and colleagues (2021), using more specific labels rather than more general labels enhances this performance. However, while using verbal labels is sufficient for short-term memory, retention in long-term memory requires more than this (Overkott, Souza, 2021). Maintaining a visual object in long-term memory requires establishing an association between shape and color. However, it is unclear whether less object-specific labels can highlight common features among items within the same category to ensure the association between shape and color for long-term retrieval. The purpose of this study was to investigate whether naming the category ("fruit") rather than the object itself ("apple") improves visual memory performance when objects within the same category are presented in similar color tones.

In our experiments we used two category-grouping conditions: the Similar Feature Condition (all objects from the same category presented in similar colors) and the Dissimilar Feature Condition (objects from the same category presented in different colors). In each trial participants memorized 15 colored objects from five categories (fruits, animals, vehicles, clothing, furniture, musical instruments, and tools) under three labeling conditions (no labeling, a specific object-label, such as "green APPLE," and a general object-label such as "green FRUIT"). Memory was tested using a color retrieval task, wherein participants were to select the colors of the cued objects using a color-wheel.

Our findings demonstrate that objects within the same category having similar colors already lead to better color memory, and this benefit is significantly strengthened by general labels that emphasize categorical membership. This result supports the hypothesis that general labels encourage a category strategy based on shared characteristics. However, when objects are presented in different colors, the expected evidence of a superiority of specific labels over general labels was not found. This study offers a new perspective on how language influences memory strategies.

Overall, this study will provide new insights into the relationship between language and memory, help us improve memory performance in various contexts, and provide valuable information for education, cognitive rehabilitation, and the design of learning environments.

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Cihan Altunkaynak

Supervisor: Krzysztof Piątkowski