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The Same or Different? Capacity Limitations in Visual Imagery versus Visual Memory of Simple Structured Objects

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Abstract

Visual mental imagery and visual memory appear to utilise similar brain networks. However, limited research has investigated how similar the systems are in terms of capacity limits. Capacity limits of visual working memory (VWM) and visual short-term memory (VSTM) have been the focus of considerable research, but to our knowledge none has attempted to ascertain the number of objects that can be simultaneously imagined. This study aimed to provide estimates of imagery capacity and explore how this relates to the capacity of visual memory. Participants completed three tasks that explored imagination, VWM and VSTM, respectively. Set size was manipulated similarly in each task enabling modelling of imagination and visual memory capacity. Capacity estimates were similar in the two visual memory tasks and higher than that of imagination. The relations between these tasks are discussed alongside the theoretical implications about the mechanisms underpinning imagery and visual memory.