# Do Prospective Memory and Working Memory Share Common Processes? Evidence From a Color Matching Task

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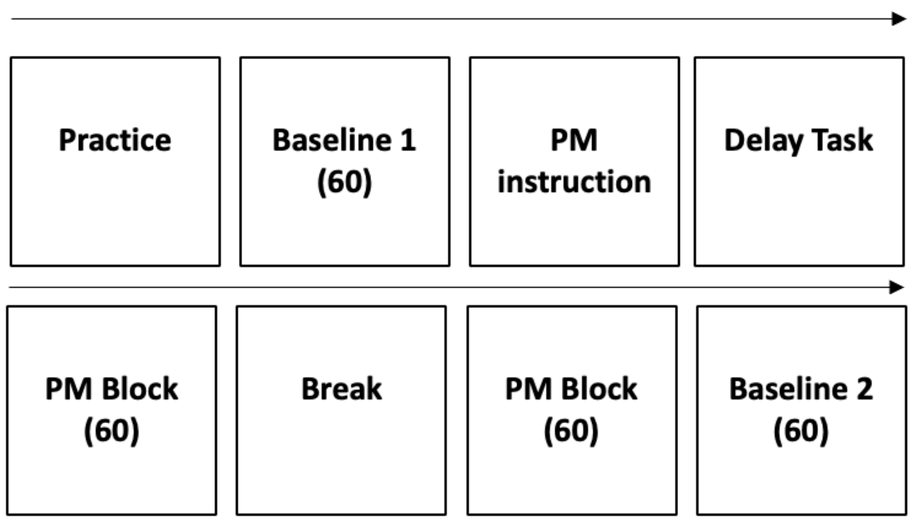
## Theoretical Background

Prospective memory (PM) defines the ability to remember and carry out intended actions in the future. Working memory (WM) is used to temporarily hold and manipulate information. There is mixed evidence with regard to the question whether PM and WM share common processes (e.g. Marsh & Hicks, 1998). Furthermore, most studies suggesting shared processes only give indirect evidence (compare Anderson et al., 2019). In this study, a delayed estimation task is paired with a prospective memory task to provide more direct evidence for potential shared processes in three loads. If WM and PM share common processes, a cost in working memory performance, which increases with higher load, is expected when a secondary PM task is introduced. If there are no shared processes, no cost is expected.

## Method; Delayed Estimation Task

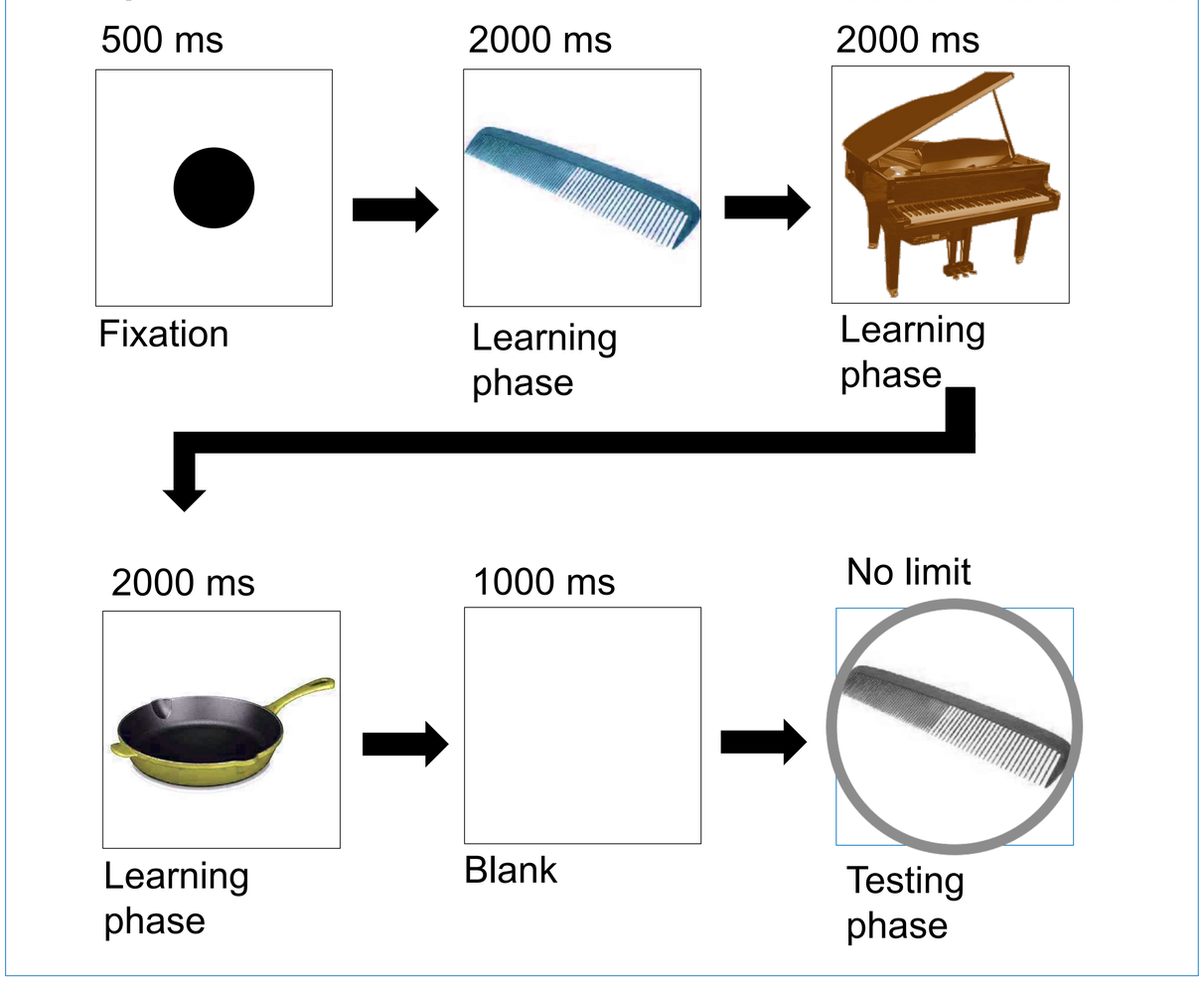
**General procedure session**




*Note.* The digits indicate the number of stimuli shown

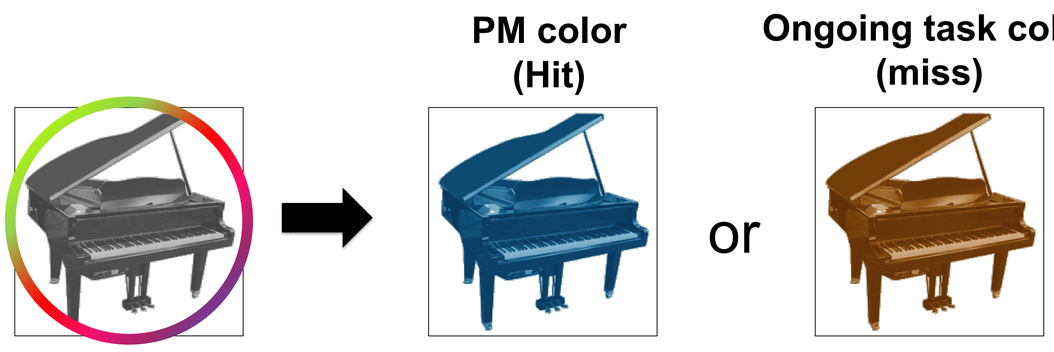
**Example trial load 3**

**PM Cue = Musical instruments**




## Method (continued)

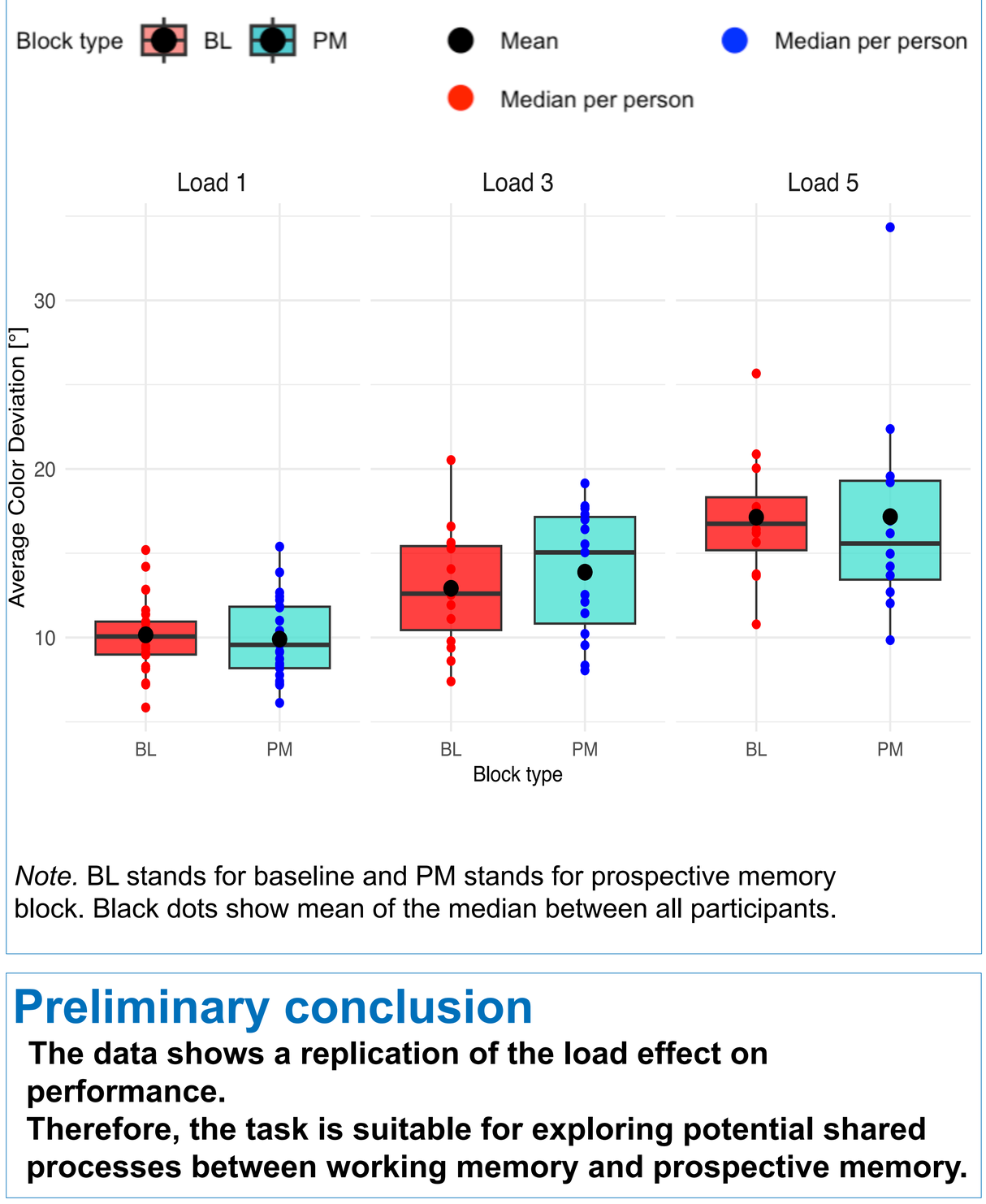
**Example procedure for PM task**




*Note.* The coloring is for display purpose only. Wheel is always shown in gray.

## Preliminary Results (Pilot Data; N = 12)

3x2 within-subject design:
- Load (1,3,5)
- Block (Baseline, Prospective memory)




*Note.* BL stands for baseline and PM stands for prospective memory block. Black dots show mean of the median between all participants.

## Preliminary conclusion

**The data shows a replication of the load effect on performance.**
**Therefore, the task is suitable for exploring potential shared processes between working memory and prospective memory.**

**Literature**

Anderson, F. T., Strube, M. J., & McDaniel, M. A. (2019). Toward a better understanding of costs in prospective memory: A meta-analytic review. *Psychological Bulletin*, *145*(11), 1053–1081. https://doi.org/10.1037/bul0000208

Marsh, R. L., & Hicks, J. L. (1998). Event-based prospective memory and executive control of working memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *24*(2), 336–349. https://doi.org/10.1037/0278-7393.24.2.336

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