Updating Single Features in Visual Working Memory
David T. Goldenhaus-Manning, Vanessa M. Loaiza & Nicholas R. Cooper
University of Essex

Introduction

1. **Feature binding**: Ability to integrate aspects of an item into a cohesive representation.
2. **Working memory updating (WMU)**: Ability to manipulate and change immediately available information.
3. Prior research has suggested that WMU relies on the suppression of irrelevant information, but more recent research suggests that it is removed and replaced from working memory.

**Design**

- N = 30 (following Kessler et al., 2015).
- 6 (updating type: baseline, 0/6, 1/6, 2/6, 4/6, 6/6 items update) x 2 (probe type: repeated-probe, updated-probe).

**Analysis**

- Two Hierarchical Bayesian three-parameter mixture models fitted with particular interest in binding errors.
- **Model 1**: Simulates suppression of irrelevant features.
- **Model 2**: Simulates removal and replacement of irrelevant features.

**Procedure**

- Baseline
- Update 0/6
- Update 1/6, 2/6, or 4/6
- Update 6/6

**Results**

- No credible effects observed in binding errors between the partial-update (1/6, 2/6, 4/6) and full-update conditions (6/6) regardless of the model fitted.
- Moderate binding errors (10% - 50%) in both models fitted.

**Discussion**

1. Our paradigm indicated that individuals could update single features without requiring a feature binding to update. Binding errors were moderate in both models fitted.
2. No clear indication whether individuals suppress or remove and replace irrelevant information during working memory updating.

**References**