



Jordan Mille¹, Laetitia Silvert¹, Rémy Versace², Marie Izaute¹, Guillaume T. Vallet¹

¹Laboratoire de Psychologie Sociale et Cognitive (CNRS UMR 6024), Université Clermont Auvergne, France

²Laboratoire d'Etude des Mécanismes Cognitifs (EA 3082), Université Lumière Lyon 2, France



Introduction

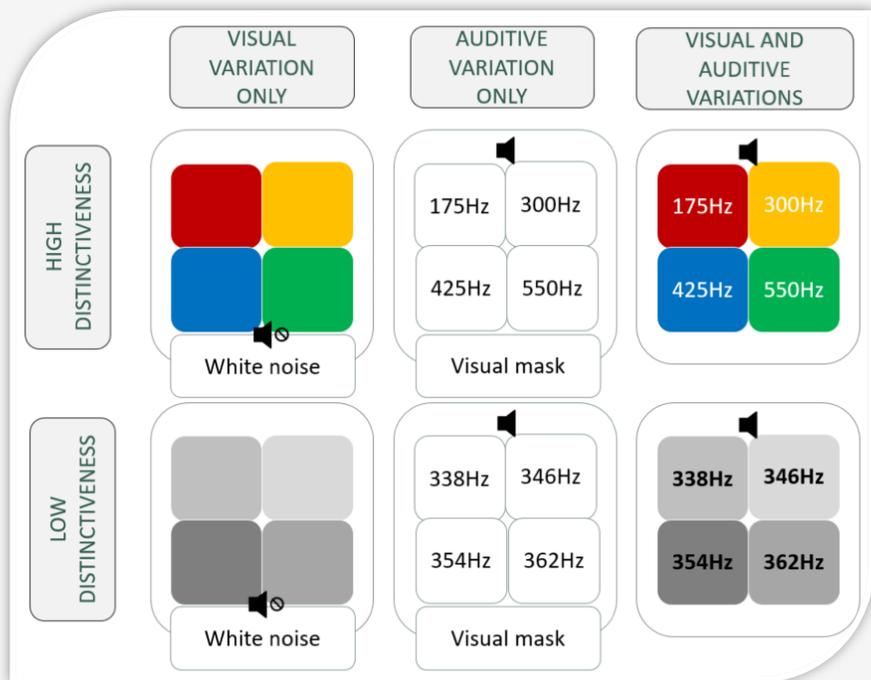
The Simon Game is a ludic multimodal game with 4 tiles associated with 4 distinct colors, 4 different sounds and 4 different spatial positions.

➤ Since distinctiveness (including physical properties) minimizes interferences between memory traces (Versace et al., 2014), the Simon game might be adapted to develop cognitive stimulation activity by manipulating various distinctiveness-based difficulty levels.

- Does **physical-distinctiveness enhance performance in the game?**
- If so, **which modality matter?**

Method

1. A first sequence of 4 to 6 tiles is shown
2. **If the participant can reproduce it**, a new sequence of length N+1 starts, **else** a new sequence of the same length is presented again
3. **Span**: at least **one correct** recall of a sequence **and then two errors** in the same length (four span by condition)

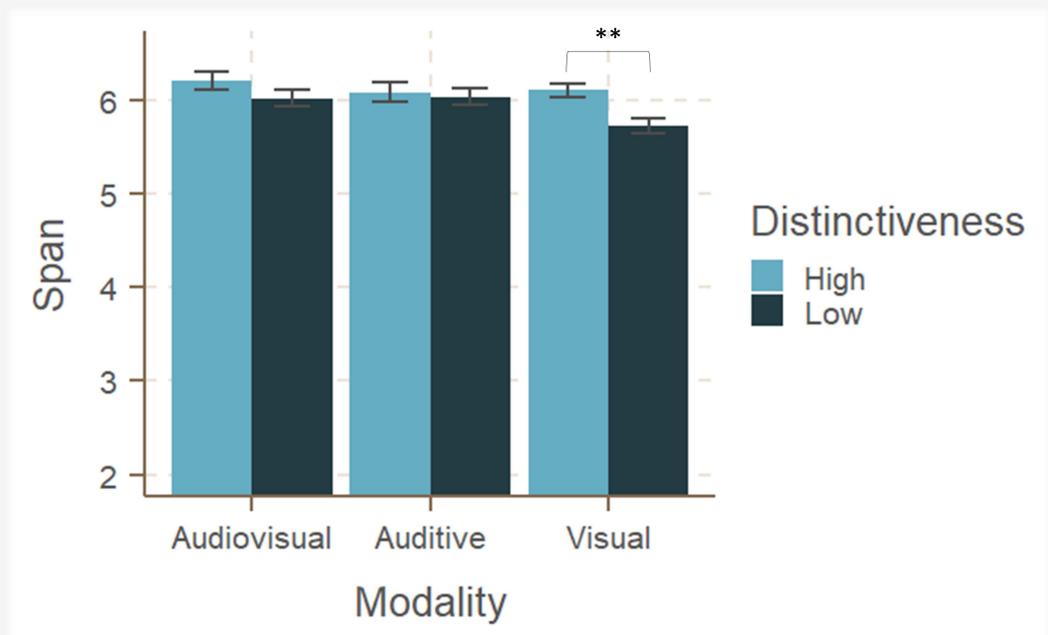


Results



N = 43

** $p < .01$



- ✓ **Distinctiveness effect** ($p=.007$): **visual high > visual low**
- ✓ **Modality effect** ($p=.06$): **audiovisual > visual**

References

- Davidson, P. S. R., Vidjen, P., Trincao-Batra, S., & Collin, C. A. (2018). Adults' lure discrimination difficulties on the Mnemonic similarity test are significantly correlated with their visual perception. *The Journals of Gerontology: Series B*.
- Vallet, G. (2015). Embodied cognition of aging. *Frontiers in Psychology*, 6(463), 1–6.
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Conclusion

- **Visual distinctiveness** is important, **but audio information also contributes** to the task.
- **Limitation**: verbal rehearsal strategy coding (colors but not greys squares have a lexical label)?
- These data may help to develop playful **cognitive stimulation activity** with various **difficulty levels**.
- **Targeting aging** as this population is characterized by *less distinctive traces* (Vallet, 2015) possibly drive by *altered pattern separation processes* (Davidson, et al., 2018).