Introduction

14-month old infants and adults have a working memory (WM) capacity limit of 3 items\(^1-3\) but can sometimes overcome this limit by chunking objects into sets\(^4,5\). Infants younger than 7.5 months appear to have a WM capacity of less than 3\(^6,7\).

What is WM capacity at 7 months of age? Can younger infants use chunking as a strategy to overcome WM capacity limits?

Methods

Subjects: 7-month-old infants (6;15 - 7;14)

General setup:
- Violation of expectation looking paradigm
- 2 familiarization trials
- 8 test trials (4 pairs of expected & unexpected outcomes)

Exp 1: WM capacity at 7 months

7-month-old infants fail to represent 3 items in WM

Exp 2: Spatiotemporal cues to chunking

Spatiotemporal grouping cues are not sufficient to cause infants to chunk items and increase WM capacity

Exp 3: Featural cues to chunking

Featural grouping cues are not sufficient to cause infants to chunk items and increase WM capacity

Exp 4: Spatiotemporal & featural cues combined

Spatiotemporal and featural grouping cues are sufficient to cause infants to chunk items and increase WM capacity

Exp 5: Conflicting cues

Spatiotemporal and featural grouping cues must be redundant to cause infants to chunk items and increase WM capacity

Conclusions

1. WM capacity at 7 months is less than 3 items
2. This capacity can be expanded using chunking

Exp | Chunking Cues | Success?
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1 | none | ✗
2 | spatiotemporal only | ✗
3 | featural only | ✗
4 | redundant spatiotemporal & featural | ✓
5 | conflicting spatiotemporal & featural | ✗

3. 7-month old infants need multiple, redundant cues to chunk items into sets

References