Self-Reported Working Memory Encoding Strategies

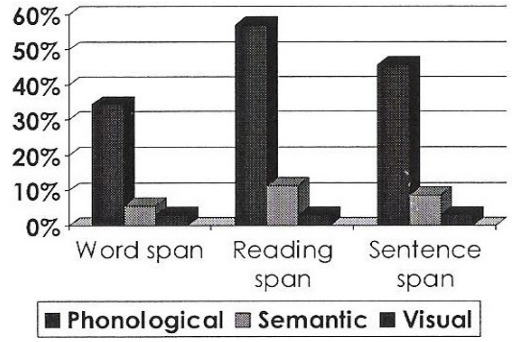
Introduction

- Working memory is a temporary, limited-capacity storage space in which data is maintained and manipulated for recall or permanent storage (Baddeley, 1986).
- Working memory span tasks measure a persons ability to store and manipulate information in memory.
- Previous studies suggest participants use of idiosyncratic memorial-based strategies, such as repeating or visualizing task-related information may impact span task performance (McNamara & Scott, 2001).
  - **Emphasis of Study:** Examine self-reported encoding strategies for verbal span tasks.
  - Investigate if reported encoding strategies differ as a function of span task requirements and administration condition (self-paced v. timed)
  - Examine potential relationships between span task performance and reported strategy type

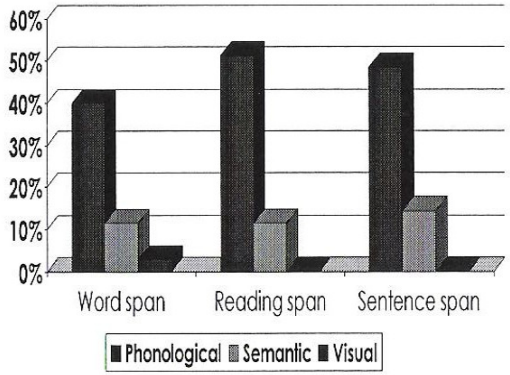
Methods

- **Memory span tasks**
  - *Word Span*: participants silently read lists of words and recall as many words as they can in serial order
  - *Reading Span* (Daneman & Carpenter, 1980): Participants read sets of sentences out-loud and recall the last word of each sentence in serial order
  - *Sentence Span* (Waters & Caplan, 1996): participants read sets of syntactically correct and ambiguous sentences silently, decide if the sentence makes sense (yes/no), and recall the final word of each sentence in serial order.
  - **Span task scoring procedure:** Participants were awarded one point for each correctly recalled word. Working memory span was computed for each participant as the maximum number of words perfectly recalled for two out of three trails.
- **Procedure**
  - **Span Task Administration:** *Self-Paced*: participants controlled the rate of presentation for each span task. *Timed:* presentation rate was controlled (1s for word span presentation, 6s for reading & sentence span presentation)
  - **Strategy Interviews:** After completing each span task, participants were asked how they remembered the to-be recalled words and if they used any techniques to help them remember the words.
  - **Strategy Survey:** Participants also completed a short survey about how they remembered the to-be recalled stimuli, administered at the completion of both study sessions.

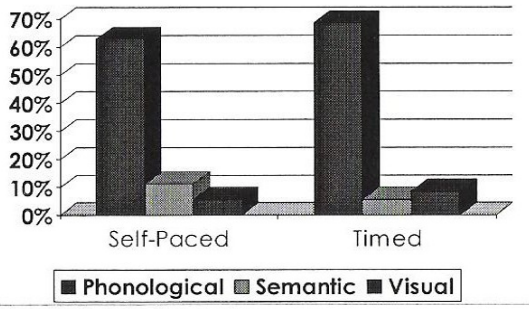
Self-Paced Span Task Administration



Timed Span Task Administration



Post-Experiment Strategy Surveys



Participants

Age	Gender	WAIS Vocabulary	Bkwrds Digit Span
20.6 (1.6)	14 (M) 21 (F)	44.94 (9.1)	4.3 (1.2)

Administration Condition

N=35	Self-paced	Timed
Word span	4.1 (.9)	3.7 (.7)
Reading span	3.3 (.9)	2.9 (.61)
Sentence span	3.2 (1.5)	3.2 (1.3)

Summary

- **General Conclusions**
  - Significant differences between self-paced & timed span task performance suggests that administration procedure is critical to the reliability of working memory span tasks.
  - Of the three techniques phonological strategies were the most frequently reported for both administration conditions. Interestingly, more participants reported using a semantic technique for the timed condition, as compared with the self-paced condition.
  - Significant differences between self-paced & timed sentence span strategies suggests that as task demands increase, participants may rely on different techniques to retain information.
  - Inter-correlations between reported strategies for the self-paced & timed administrations of the reading & sentence span tasks suggests that there may be mutually shared processing & storage qualities between the two measures.

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