The Contribution of Semantics to the Time-course of Word Learning in Adults and Children

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Background

- Models of memory and consolidation proposed that semantic knowledge enhances the learning of new words. The time-course of this effect is less clear: this benefit could be relevant at the encoding stage and/or following a period of consolidation.
- Consistency with existing knowledge is an additional factor that facilitates learning: new information that can be easily linked to existing representation is easier to learn than new information that is harder to link.
- Developmental Differences: Previous studies suggest that adults are better at using existing knowledge to support learning, while children may derive greater benefit than adults from offline consolidation processes.

Hypotheses

H1: Words paired with semantic information (illustrated animals) will be better recalled than words paired with non-semantic patterns. Moreover, words with semantic information that are highly linkable with existing knowledge will also be better recalled than words paired with less linkable semantics.

H2: Improvements in the recall of new words from the immediate test to the 1-day delay test, with further improvements after a 1-week delay.

H3: Children will demonstrate greater improvements across test sessions than adults, who would show greater benefits of recalling words paired with more semantic information.

Method

- 61 children (mean age: 10.08 years ±0.54) and 63 adults (mean age: 19.63 years ±1.01).
- 24 di- and tri-syllabic spoken novel words were paired with pictures from one of the three semantic conditions:
  - No semantic information
  - Less linkable to existing knowledge
  - Highly linkable to existing knowledge

Changes across test sessions (H2):

- The recall of phonological word forms improved across test sessions: adults showed significant improvements between Tests S2 & S3, whereas children showed significant improvements across all three sessions.
- Developmental differences (H3):
  - Children also showed greater improvements in recall than adults from Tests S1 to S2, and from S2 to S3.

Conclusion

- Adults’ word learning benefits from semantic information from the point of training, especially information that are highly linkable to existing knowledge. However, this effect is only found in children with better vocabulary knowledge, suggesting that this ability may rely on the maturity of the mental lexicon.
- Memories of new words are strengthened across time, benefitting from consolidation processes and/or repeat-testing.
- Developmental differences are evident as children showed greater improvements in recall across test sessions than adults.

References


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Pre-registration at: https://osf.io/w6mvp