The Short-term Cost of Retrieval Failure

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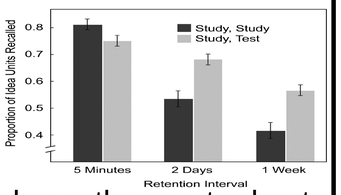
The Testing Effect

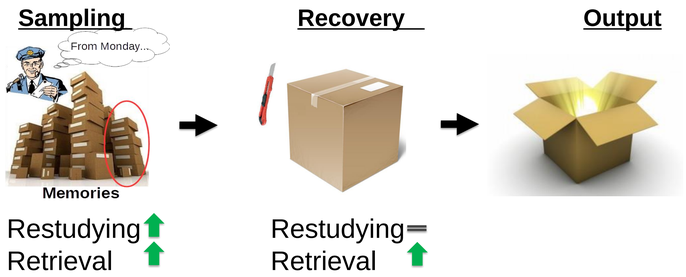
- Testing yourself can be more beneficial than restudying (e.g. flash cards > re-reading).
- The test practice advantage appears as the retention interval grows. (Roediger & Karpicke, 2006b).



- Test practice involving recall produces the most robust difference in forgetting rates (Carpenter & DeLosh, 2006).

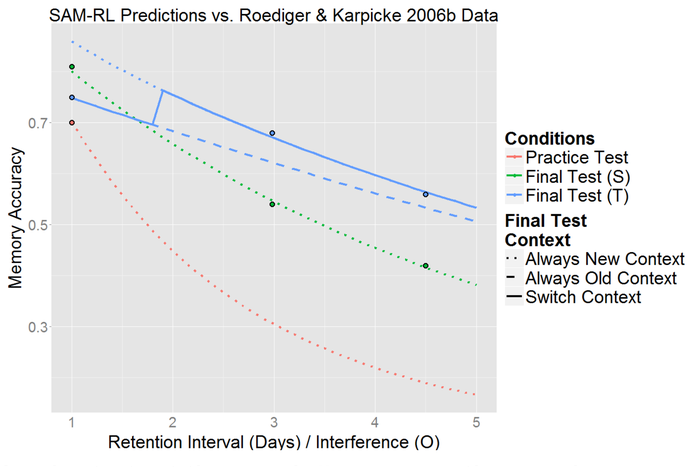
SAM-RL

- Novel extension of the Search Of Associative Memory Model (SAM) (Raaijmakers and Shiffrin, 1981).
- SAM-RL allows for learning and interference in both the sampling and recovery stages of the retrieval process.



- Only successful retrieval can increase the probability of recovery.
- If an item is sampled, but not recovered, all subsequent retrieval attempts will fail until new search cues are utilized.
- Memory is stuck in a 'tip of the tongue' (TOT) state.

Model Fitting Results $\chi^2(1) = .1,\ p = 0.75$



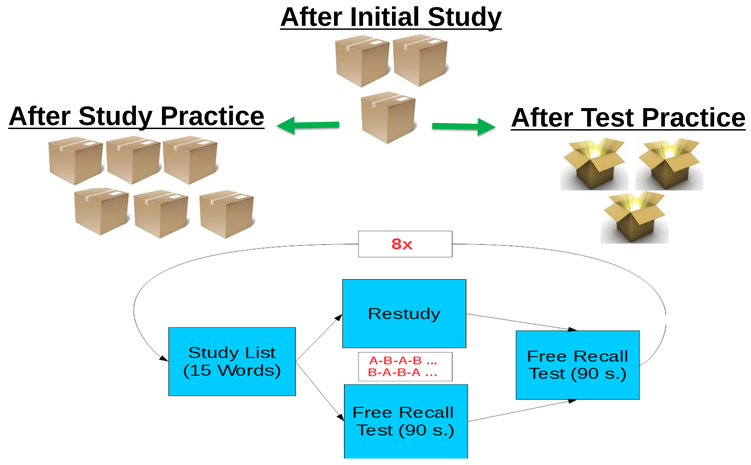
- We aim to test the model's assumptions using behavioral experiments.

Experiment 1

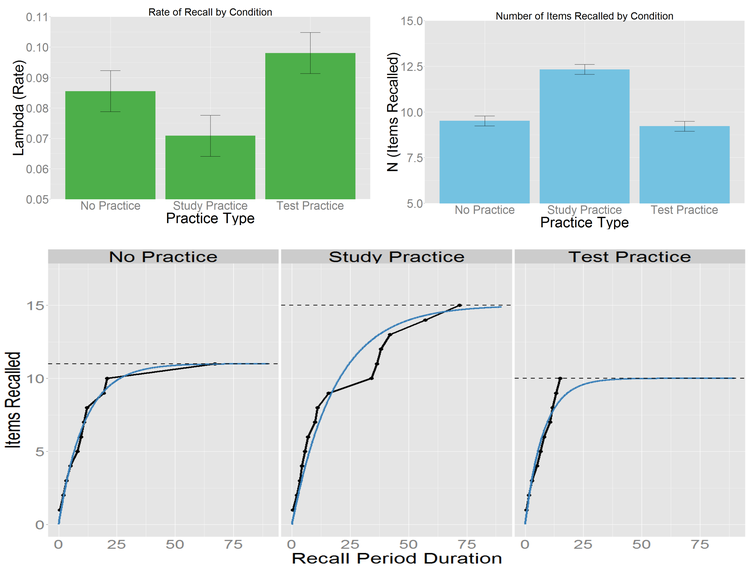
- Measured cumulative free recall latency and accuracy in a free recall paradigm to gather support for recovery learning (Wixted & Rohrer, 1994).
- Fit an exponential function to each participants cumulative free recall curve from each test episode

$$f(x) = N(1 - e^{-\lambda x})$$

- Study practice should increase the quantity of output on final test (measured by the N parameter).
- Test practice should increase rate of output on final test (measured by the lambda parameter).



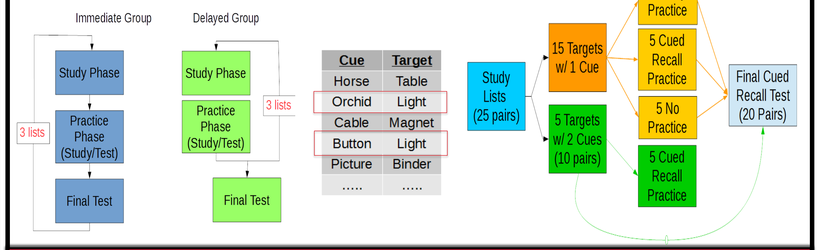
Experiment 1 Results



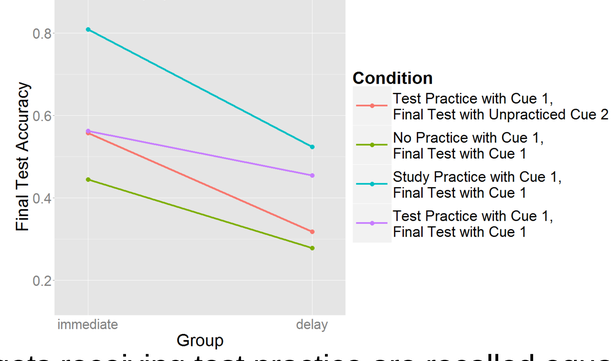
- Significant increase in rate of recall after test practice relative to practice test baseline, without a change in number of items output.
- Consistent with the recovery learning hypothesis

Experiment 2

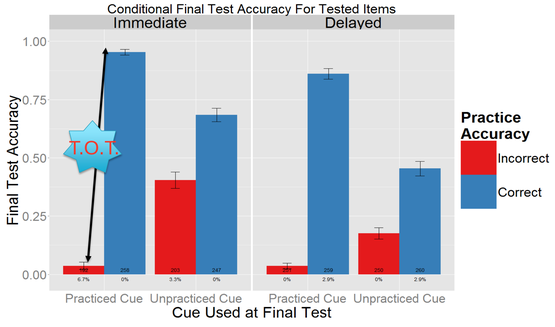
- Retrieval cues used during the practice and final test phase were manipulated in two ways, to test the recovery dependence (TOT) assumption
- Context retrieval cue was changed by performing all initial learning and practice blocks before final testing (Jang and Huber, 2008).
- Word cue was changed by using a learned but unpracticed cue on the final test



Experiment 2 Results



- Targets receiving test practice are recalled equally as on immediate final test well regardless of word cue.



- Using a new retrieval cues on final test shows evidence of item-specific learning and TOT release.

References

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