Retrieval practice based on recognition memory: testing the retrieval effort hypothesis

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3. Experiment 2: familiarity practice vs. restudying

- Probing familiarity-based recognition memory:
  - The « Speed and Accuracy Boosting procedure » (SAB) is a speeded Old/New memory test providing a direct estimate of familiarity-based recognition memory (S).
  - Use of the SAB procedure for all test phases

- Between-subjects design, N = 30
- Manipulation of the learning schedules:
  1. 2 or 3 repetitions of study trials each group
  2. 2 or 3 repetitions of test trials each group
- Matching for Age, Education, FSIQ, Verbal Memory
- Main outcomes: Performance at short- and long-term final tests

4. Results

- Subjects in the « Study » group spent twice as much time studying AND had up to three times more opportunities to encode the stimuli
- Similar minimal reaction times (minRTs) were achieved in both groups, well below 400ms, strongly constraining responses to familiarity-based recognition memory.
- Repeated retrieval was therefore based on automatic & fast processing, rather than slow, effortful, recollection
- Experiment 1 shows that the retrieval practice effect can be observed when retrieval is based on recognition memory rather than recall. Thus, learning does occur during recognition testing.
- Importantly both experiments show that the benefits of memory retrieval based on recognition memory are immune to negative side effects like extra false alarms.
- When retrieval is constrained to fast and automatic processes (around 320 ms), thus being mostly familiarity-based, the generation of elaborative retrieval cues and/or effortful (controlled) processing are quite unlikely. Even there, extensive restudying does not outreach retrieval practice. Repeated automatic retrieval yields similar learning levels than extensive restudying, up to a 6 months delay.
- Familiarity-based recognition memory can support a retrieval practice effect, and resists to a 6 months delay similar to restudying, thus challenging a core prediction of the « Retrieval Effort Hypothesis »

References


Experiment 1 provides the first evidence for a retrieval practice effect based on recognition memory. However, a contribution of controlled selective processes cannot be ruled out, which is addressed in experiment 2.