Does restudying impair memory for non-restudied information? A real-world application of the list-strength effect

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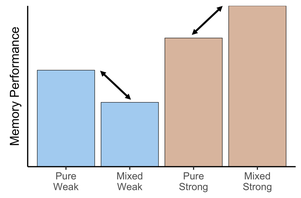
Background and Rationale

List Strength Effect (LSE) refers to the finding that strengthening a subset of items (e.g., by repetition) in a list impairs free recall of other, non-strengthened items. Additionally, memory performance for strengthened items in a mixed-list is increased relative to a pure strong list.

Pure Strong: S1 S2 S3 S1 S4 S3 S5 S4 S6 S5 S2 S6

Pure Weak: W1 W2 W3 W4 W5 W6

Mixed List: W1 S1 S2 W2 S1 S3 W3 S2 S3



Traditional LSE: Items presented twice (strong items) are chosen randomly.
Real-world Application: When selecting items for restudy, individuals do not always select all items. Unselected items may be analogous to weak items in the traditional LSE, whereas selected items may be analogous to the strong items.

Rationale

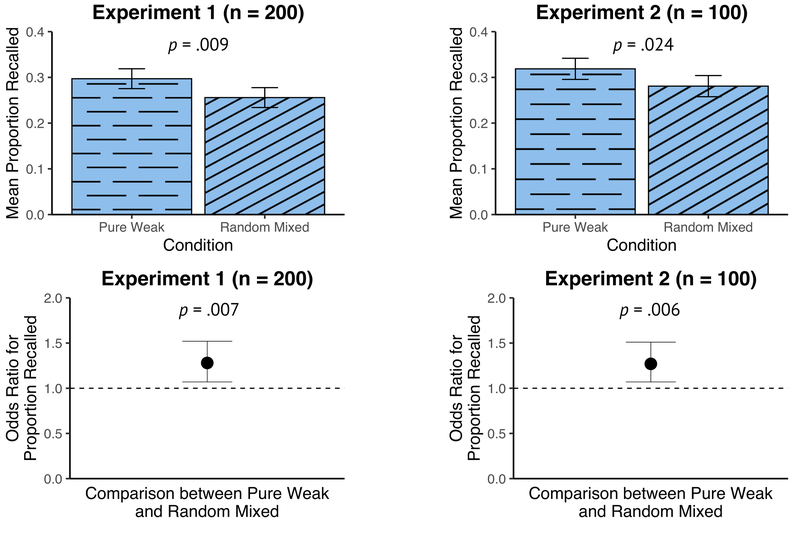
Whether in a laboratory setting or the real-world the unselected items may endure a similar mixed-list cost as seen in the typical list-strength effect. Additionally, the selected items may experience a similar mixed-list boost.

Traditional LSE Mixed-list Cost

Overview of Methods

Pure Weak	Random Mixed
• 24 unique items • All items presented once (weak items)	• 24 unique items • 12 items *randomly* chosen to be presented twice (strong items) • 12 items presented once (weak items)

Results
(weak items only)

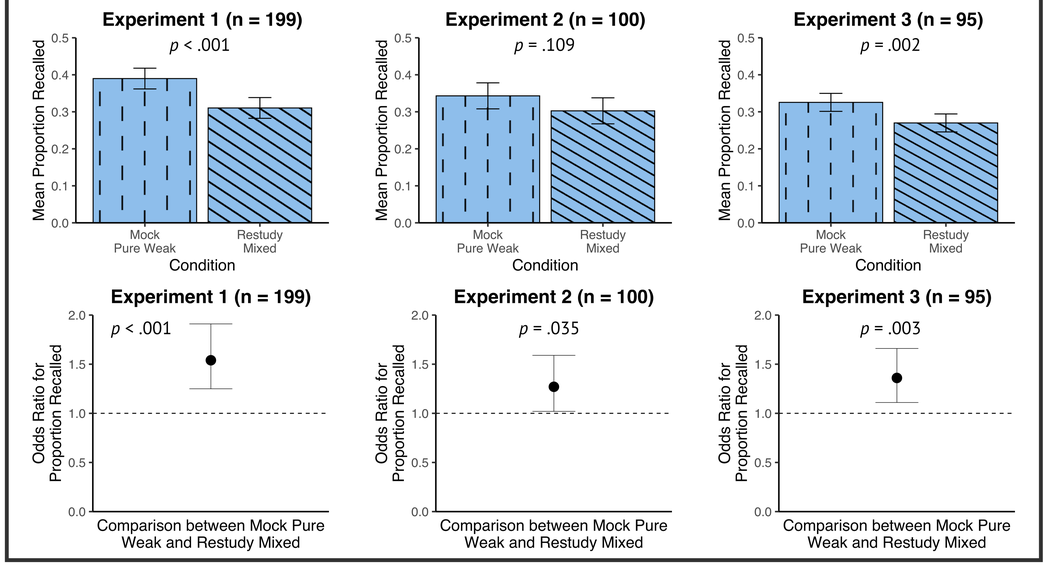


Real-world Application Mixed-list Cost

Overview of Methods

Mock Pure Weak	Restudy Mixed
• 24 unique items • Participants are *required to select* 12 items to restudy • **No items are re-presented** • All items are weak items	• 24 unique items • Participants are *required to select* 12 items to restudy • All selected items re-presented to participants (strong items) • Unselected items serve as the weak items

Results
(weak items only)

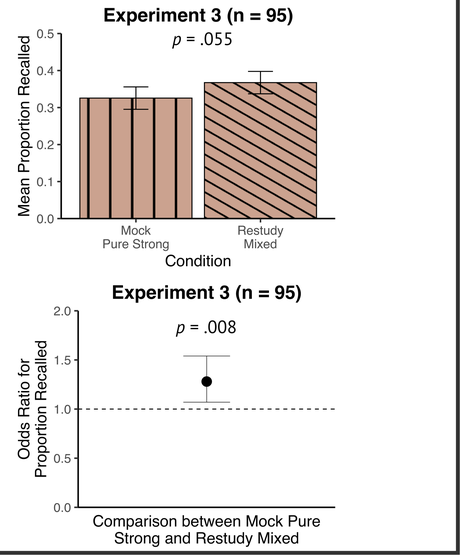


Real-world Application Mixed-list Benefit

Overview of Methods

Mock Pure Strong	Restudy Mixed
• 24 unique items • Participants are *required to select* 12 items to restudy • All items are re-presented • All items are strong items	• 24 unique items • Participants are *required to select* 12 items to restudy • All selected items re-presented to participants (strong items) • Unselected items serve as the weak items

Results
(strong items only)



Conclusions

- In addition to being a suboptimal learning tool our results demonstrate that restudying can also induce both mnemonic costs and benefits
- In comparison to a condition in which *no items* are restudied, memory performance for non-restudied items from a mixed list is reduced
- In comparison to a condition in which *all items* are restudied, memory performance for restudied items from a mixed list is increased.

Possible Real-word Applications

1. When studying for an upcoming exam, if some material is weighted more heavily, it would be more beneficial to focus restudy efforts on the information weighted more heavily to observe the greatest memory benefit
2. If all material has the same weight, and restudying is the only study option available, it would be more beneficial to restudy all material to prevent any cost for non-restudied information

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References

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