

Are You Sure About That? The Impact of Semantic Relatedness on Learning Through Testing, JOLs, and Passive Restudy

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Introduction

Testing Effect (TE)

- Testing enhances long-term memory more than passive restudy^{1,2,3}
- TE is widely replicated across materials and contexts^{4,5,6,7,8}

Judgments of Learning (JOLs)

- Metacognitive ratings predicting future recall (e.g., "How likely are you to remember this?")⁹
- Immediate JOLs can enhance memory *when pairs are semantically related* compared to restudy (positive JOL reactivity)^{10,11,12,13,14}
- **Cue-strengthening hypothesis:** JOLs boost memory by reinforcing the cue-target link during judgment^{13,15,16,17}

Prior Work & Open Questions

- Higham et al. (2023): Found *restudy with retrospective memory ratings* outperformed testing; even with semantically unrelated Swahili-English pairs

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Current Study

Goal: Compare JOL restudy to passive restudy and testing in a typical TE paradigm

Possible outcomes:

- JOLs help even without semantic links → challenges cue-strengthening
- JOLs help only with related pairs → supports cue-strengthening
- Testing may still outperform JOL reactivity; Higham's result may be task-specific

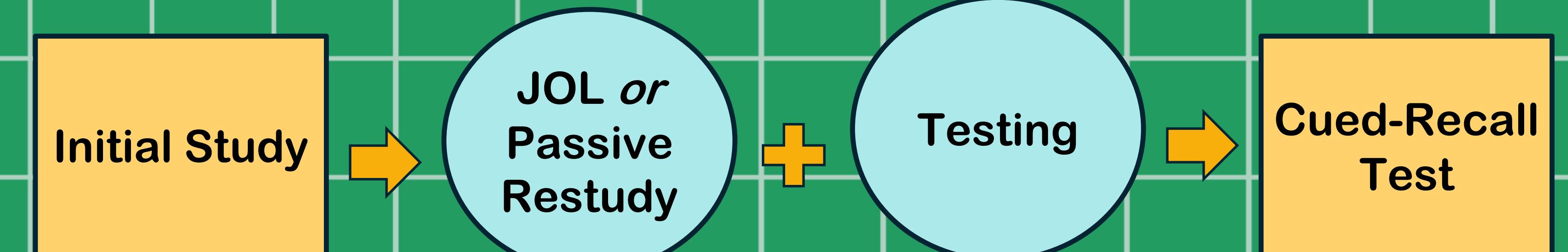
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Methodology

Design: 2 (Restudy Type: Passive vs. JOL) × 2 (Study Method: Restudy vs. Test) mixed factorial

Experiment 1: Used unrelated English word pairs (72 word pairs)

Experiment 2: Used semantically related word pairs (76 word pairs)



BLENDER - WOOD

BLENDER - WOOD
On a scale of 0-100, how likely are you to remember this on a final exam?

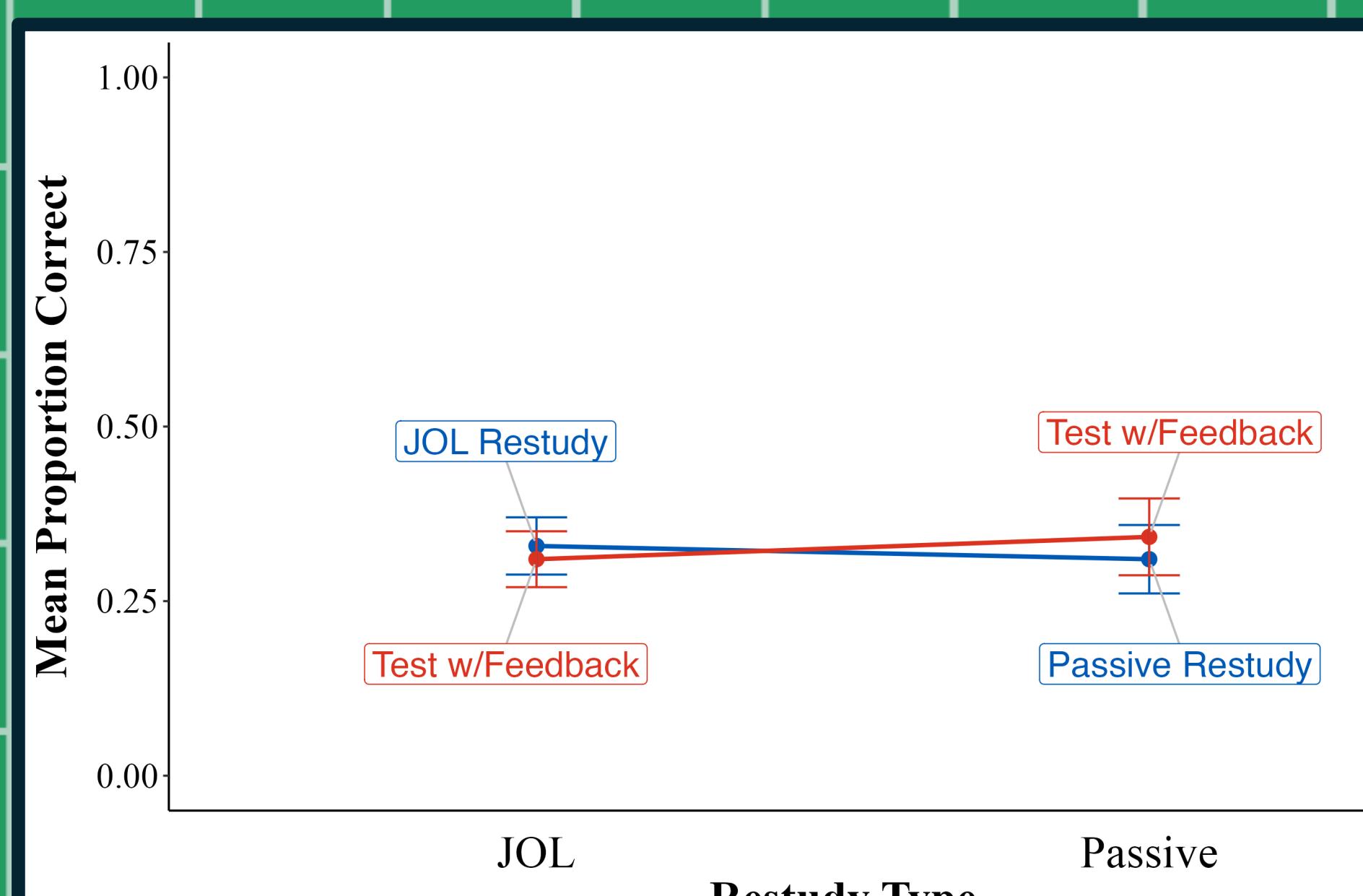
BLENDER - ?
Please type the answer:

Passive Restudy

JOL Restudy

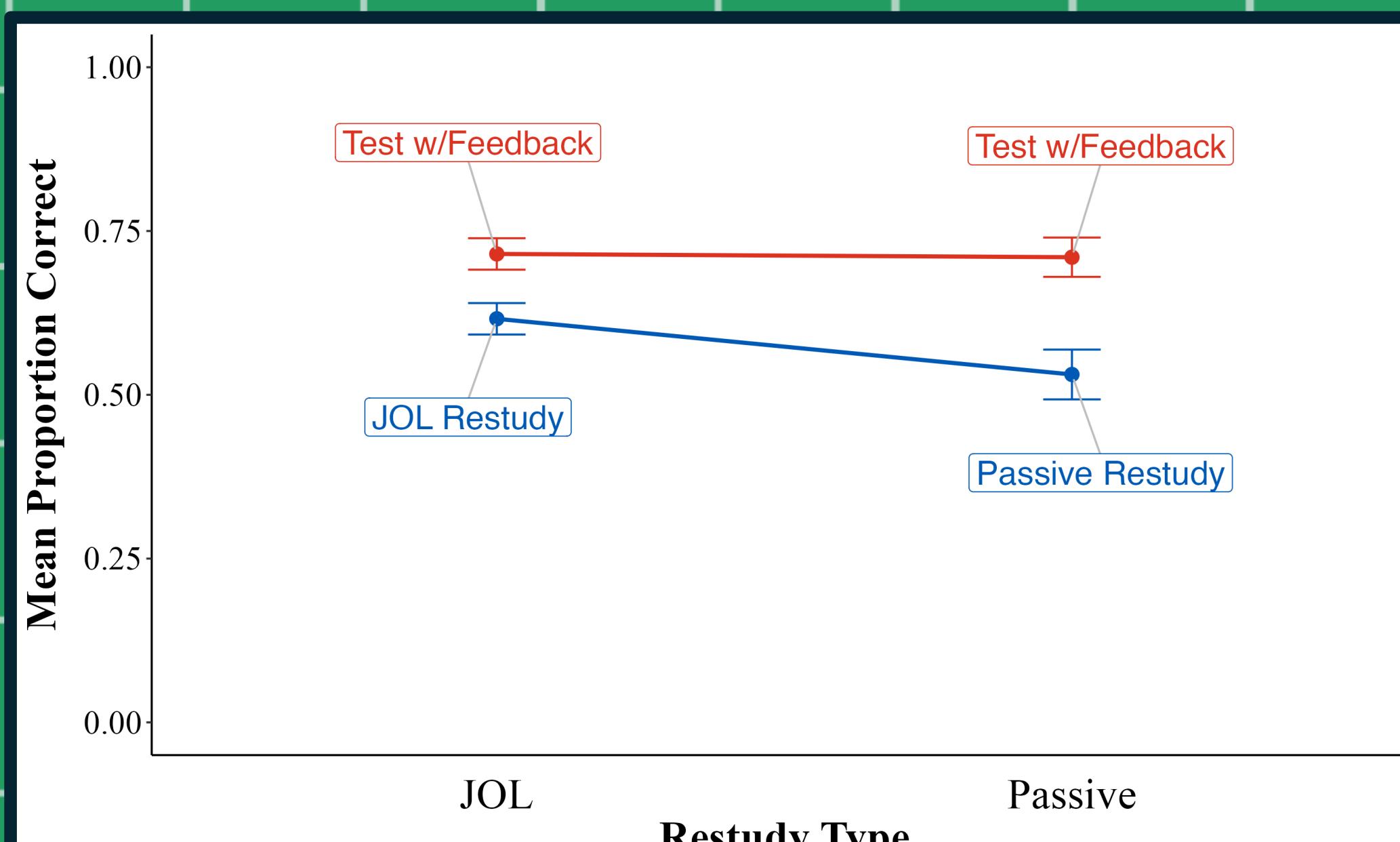
Testing

Results



Exp 1

- No main effect of Restudy Type or Study Method
- Significant cross-over interaction between Restudy Type and Study Method: $F(1,75) = 5.105, p = 0.03, \eta^2_p = 0.06$
- No pairwise comparisons were significant (all $p > .09$)



Exp 2

- Testing led to significantly better recall than restudy: $F(1,83) = 89.18, p < .001, \eta^2_p = .52$
- Significant interaction: Testing benefit was smaller in JOL vs. Passive group: $F(1,75) = 7.33, p < .01, \eta^2_p = .08$
- No significant effect of Restudy Type

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Discussion

- **JOLs did not significantly outperform testing** in a typical TE paradigm, even when word pairs were semantically related
- **Semantic relatedness influenced both TE and JOL reactivity:** When pairs lacked semantic association, neither effect emerged; stronger associations produced a robust TE and modest JOL reactivity.
- **Findings support the cue-strengthening account** for JOLs and calls into question the role of semantic relatedness in TE literature



References/
More Info!