Judgments of Learning Impair Rule-based Discovery

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Introduction

- Judgments of learning (JOLs) can enhance memory recall in some contexts[1]
- Little known about JOLs' effect on category learning and rule discovery
- Changed-goal hypothesis: JOLs may cause participants to prioritize short-term performance over mastery[2]
- Research Question: How do JOLs affect relational rule discovery in categorization tasks?

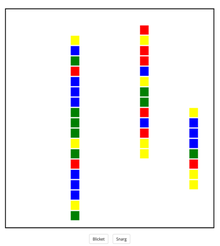
Materials and methods

Experiment 1

- Participants categorized geometric configurations as "blickets" or "snargs"
- Categories defined by:
  - Relational rule (monotonic vs. non-monotonic line arrangements)
  - Visual features (color distributions)
- JOL group rated likelihood of correct categorization on future test

Experiment 2

- Additional manipulation:
  - Feature hint group
  - Relation hint group
  - No hint group

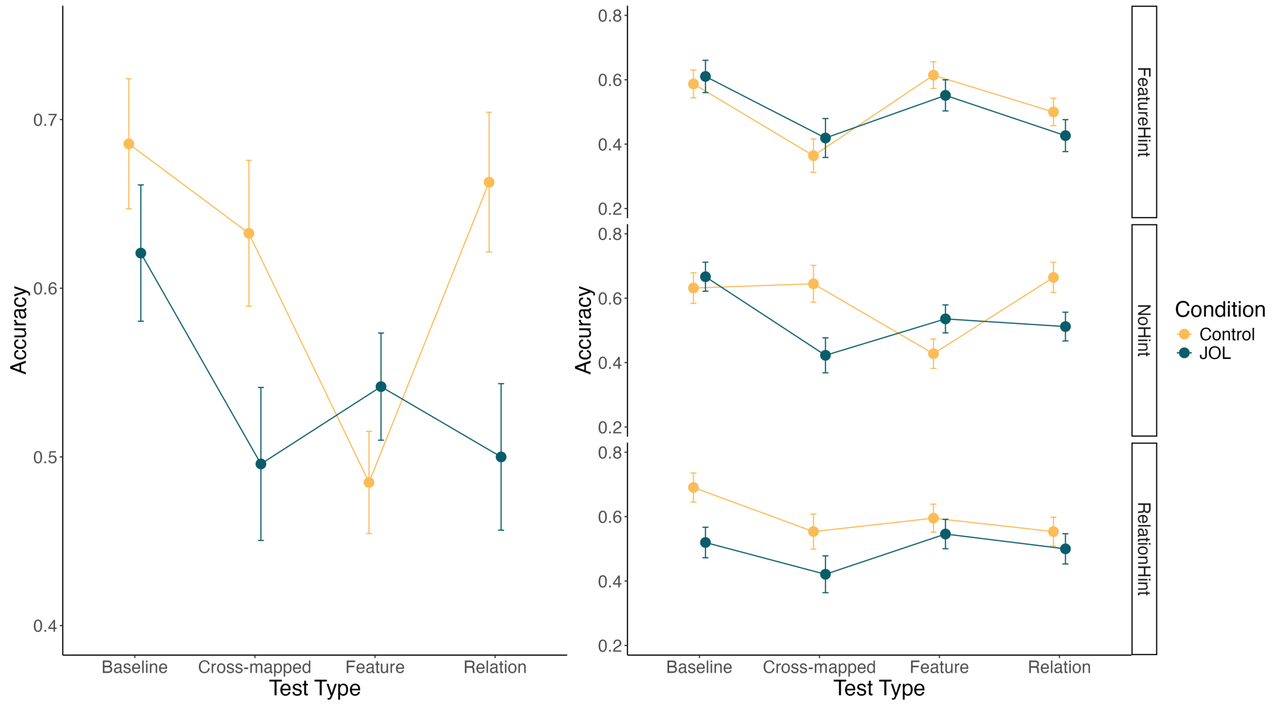


Experiment 3

- Modified task where only relational rule predicted category membership
- No feature-based strategy available

Results

Experiment 1	Experiment 2	Experiment 3
JOL group showed impaired rule discovery Selective deficit on relation and cross-mapped trials JOL group only exceeded chance on baseline trials	Replicated Exp 1 findings in no-hint condition When given strategy hints, reactivity largely disappeared No evidence that JOLs enhanced rule learning even with relational hint	No difference between JOL and control groups Both groups showed above-chance performance



Conclusions

- JOLs impair relational rule discovery when multiple strategies are available
- Effect occurs through strategy shift rather than direct impairment of learning processes
- JOLs may promote expedient performance-oriented strategies over deeper learning
- Important implications for educational contexts where rule discovery is crucial
- JOLs may improve memorization but at cost of deeper conceptual learning
- Careful consideration needed when using metacognitive prompts in education
- Future research needed with more educationally relevant materials

Further information

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Citations

[1]Double, K. S., Birney, D. P., & Walker, S. A. (2018). *Memory*, *26*(6), 741-750.

[2]Mitchum, A. L., Kelley, C. M., & Fox, M. C. (2016). *Journal of Experimental Psychology: General*, *145*(2), 200.