Effects of Learner Behavior on Derived Stimulus Relations

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Introduction

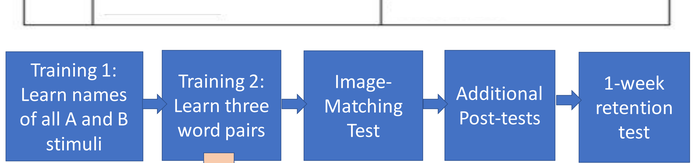
- Derived relational responding (DRR) is behavior that looks to be guided by certain stimuli or relations among stimuli, in the absence of any previous experiences that could have directly established the relevant stimulus functions. Instead, they arise indirectly from other experiences.
- Example: You confidently turn into the parking lot by the white building behind the Texaco station, neither of which you have seen before, because that's what you were verbally told you could park.
- Although DRR may look novel, it has been proposed to be guided by private verbal or visual stimuli based on previous direct experience (e.g., Horne & Lowe, 1996; Miguel, 2018).
- Behavior that occurs during the initial direct experience may affect the availability of stimuli to effectively guide DRR; for example, visual imagining (Cox, 2022; Cox et al., in preparation) or verbal mnemonic strategies. Are some such strategies better than others?
- Visual imagining leads to better retention of word associations than verbal mnemonic strategies or verbal rehearsal (e.g., Bower & Winzenz, 1970), but these findings have not been extended to DRR tasks in published research.
- An unpublished pilot study found that both visual imagining and verbal mnemonic learning strategies produced similar enhancement of outcomes in a DRR task (Rohm et al., 2022). However, many participants reported not having followed their task instructions.
- The present study compared the effects of visual and verbal learning strategies on DRR performance when the strategies are performed overtly using paper and pen.

Participants

- 30 undergraduate students (18-23 years of age) were recruited from the psychology department's human participant pool
- Randomly assigned to three groups: Drawing, Mnemonic, and Copy (Control)
- SuperLab 6 software run on a computer in one of the research lab's offices with an experimenter present

Procedure

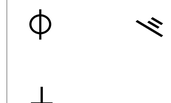
Experimental Stimuli				
	A		B	
1		Orga		Rido
2		Huzo		Fodi
3		Luti		Poga



Intraverbal Training Trial: Sample	Intraverbal Training Trial: Comparisons
Luti	Rido Poga Fodi

Drawing Condition: Draw a picture to help remember the word pair
Mnemonic Condition: Write down a phrase to help remember the word pair
Copy Condition: Copy the word pair

IMAGE-MATCHING TEST:

Tact Training Trial: Sample	Tact Training Trial: Comparisons
	

Results and discussion

- To date, 14 participants have completed the study
- Figures 1 and 2 show preliminary data based on completed participants. Figures and text will be updated, and statistical analysis conducted when all data have been collected.
- Participants in the Mnemonic group had the highest mean image-matching test score of the three groups (82.5%).
- Participants in the Copy group and the Drawing group performed similarly with averages of 46.7% and 45.6%, respectively.
- Reaction time on the image-matching test was lowest in the Mnemonic group and highest in the Drawing group
- If these preliminary patterns also characterize the final-results, then the findings seem to indicate that the verbal mnemonic strategy has a greater facilitating effect on derived relational responding.
- Retention data have not yet been obtained
- A limitation of this study was that those in the drawing group were not specifically instructed to draw the images of the stimuli, but rather something that reminds them of the word this may explain the lower scores amongst this group.

Figure 1. Image-test Accuracy Scores

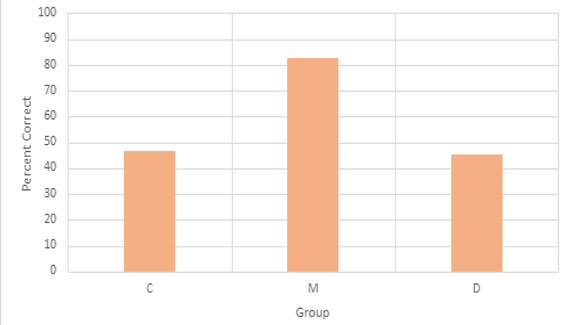
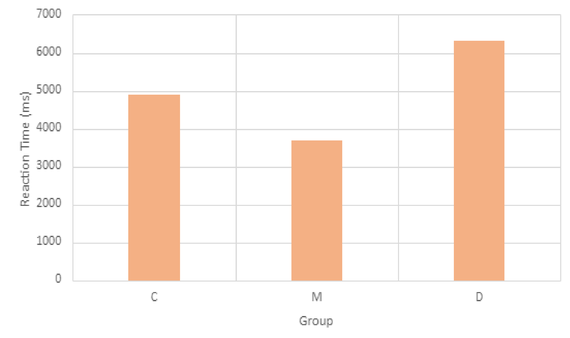


Figure 2. Image-test Reaction Times



References

Bower, G. H., & Winzenz, D. (1970). Comparison of associative learning strategies. *Psychonomic Science, 20*, 119-120.

Cox, R. E. (2022). *Sources of stimulus control in tests for emergent stimulus relations*. Unpublished dissertation, Texas Christian University.

Cox, R. E., Roberts, C., Petursdottir, A. I. (in preparation). *Effects of instructed visualization on emergent conditional discriminations*.

Horne, P. J., & Lowe, C. F. (1996). On the origins of naming and other symbolic behavior. *Journal of the Experimental Analysis of Behavior*, *65*(1), 185–241. doi:10.1901/jeab.1996.65-185

Miguel, C. F. (2018). Problem-solving, bidirectional naming, and the development of verbal repertoires. *Behavior Analysis: Research and Practice, 18*(4), 340–353. https://doi.org/10.1037/bar0000110

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