



An evaluation of the efficiency of equivalence-based instruction

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INTRODUCTION

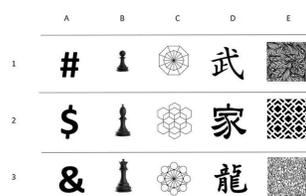
- Many studies have demonstrated successful applications of EBI with various populations and instructional objectives.
- EBI is assumed to be an efficient approach to teaching due to eliminating the need for directly teaching every instructional target
- Few studies have directly evaluated its efficiency compared to directly teaching all of the possible relations between stimuli in a set.
- EBI produced similar test performance and took less training to complete than sequential instruction of all stimulus relations (Fienup and Critchfield, 2011) and instruction of randomly selected relations (Zinn, Newland, & Ritchie, 2015)
- The purpose of the present study was to evaluate the efficiency of an EBI protocol compared to a simultaneous complete instruction (CI) protocol, using abstract stimuli.

METHOD

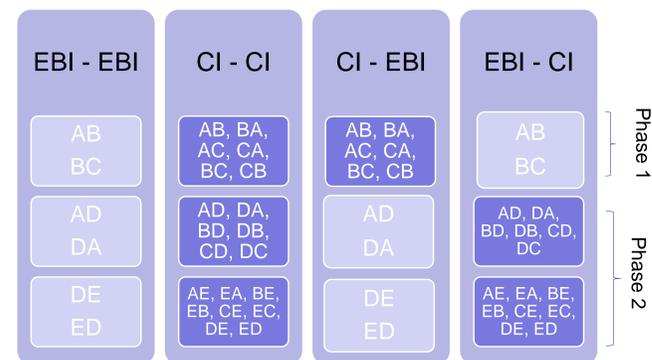
Participants: 48 undergraduate students were recruited from a psychology department's human subjects pool.

Setting and equipment: The experiment was programmed in *SuperLab 5.0* and runned on a laptop computer in a quiet room.

Figure 1.
Experimental stimuli



PROCEDURE



- Replication of a previous Experiment in our lab
- One modification: The training mastery criterion for EBI group was 12 correct trials in a row for Phases 1 and 2.

RESULTS

Figure 2.
Accuracy on the first ABC test

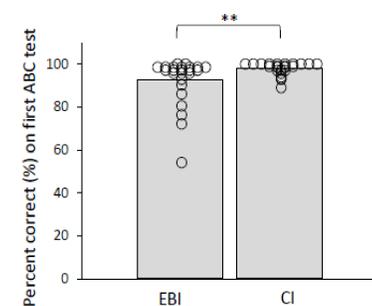


Figure 3.
Trials to passing the ABC test

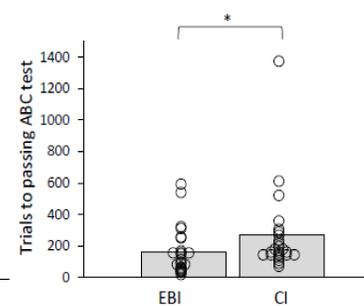


Figure 4.
Accuracy on the first ABCD

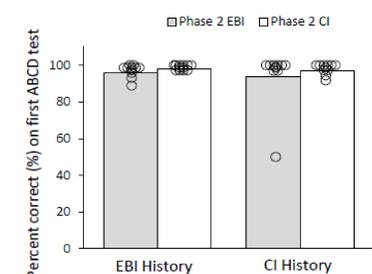


Figure 5.
Accuracy on ABCDE test

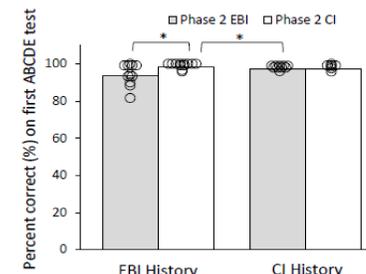


Figure 5.
Trials to passing ABCD test

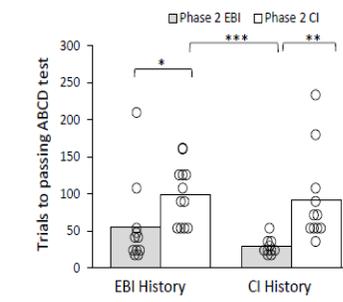


Figure 6.
Trials to passing ABCDE test

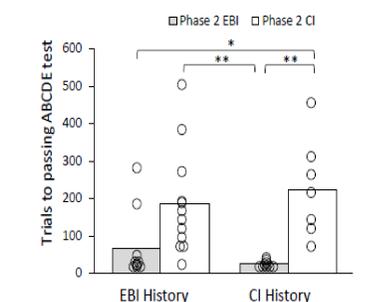
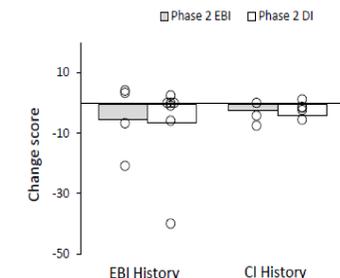


Figure 7.
Changes in accuracy from last test passed to retention test



- The results suggest that there was no effect of instructional condition on the number of trials it took to establish a 3-member class, but as class size increased, EBI gained advantage over DI.
- Expansion from 4 to 5-member classes, as observed in trials to pass ABCDE test, took significantly fewer trials with EBI than DI.
- However, there was no evidence that a history of EBI in Phase 1 affected learning via EBI in Phase 2.
- A potential limitation of the present study was the small number of stimuli used.

Fienup, D. M., & Critchfield, T. S. (2011). Transportability of equivalence-based programmed instruction: Efficacy and efficiency in a college classroom. *Journal of Applied Behavior Analysis, 44*, 435-450. doi: 10.1901/jaba.2011.44-435.
Zinn, T. E., Newland, M. C., & Ritchie, K. E. (2015). The efficiency and efficacy of equivalence-based learning: a randomized controlled trial. *Journal of Applied Behavior Analysis, 48*, 865-882. doi: 10.1002/jaba.258