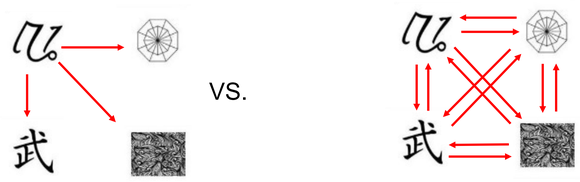
Evaluating Class Reorganization in Equivalence-Based Instruction

Gregory Tomlinson, Juliana S. C. de Oliveira and Anna Ingeborg Petursdottir

Texas Christian University

Introduction



Are there differences between stimulus classes established via equivalence-based instruction (EBI) and complete instruction (CI)? Our previous findings suggest that both EBI and CI produce true equivalence classes, as assessed by

- transfer of function (Oliveira et al., 2021)
- class expansion (Petursdottir & Oliveira, 2020)

In the present study we asked if equivalence classes established via OTM vs. CI differed in flexibility, as assessed in a class reorganization test following reorganization training.

Method

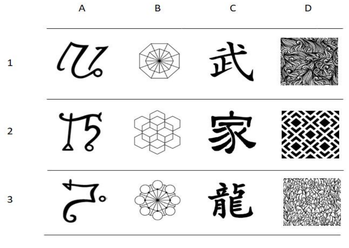
Participants

Forty eight undergraduate students (18–31 years of age) were recruited from a psychology department's subjects pool. Participants were assigned to either EBI or CI groups.

Apparatus and Stimuli

HP EliteBook 840 laptop computer, software Zoom, and software package SuperLab® 5.

Figure 2.
Visual Stimuli



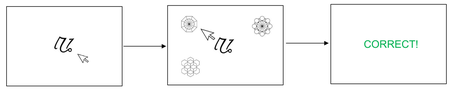
Data Collection and Dependent Variables

The software recorded data on correct and incorrect responses, and number of trials conducted throughout the experiment. Dependent measures included (a) trials to pass ABCD test, (b) percent correct in the second block of ABCD test, (c) trials to criterion in reorganization training, and (d) percent correct in the reorganization test.

Procedure

- ABCD Training:
  - EBI (OTM) group: AB, AC, AD
  - CI group: AB, BA, AC, CA, AD, DA, BC, CB, CD, DC
- Mastery: One 36-trial block at 89% correct or better.

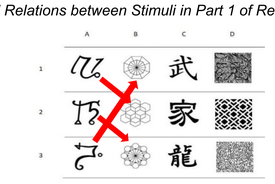
Figure 3.
Sequence of events in each ABCD training trial



- ABCD Test: 36-trial blocks (total 72 trials) without feedback, and identical for the two groups.

- Class Reorganization training:
- Part 1: Training for relations A1B2, A2B3, A3B1.
- Part 2: Training for relations A1C1, A2C2, A3C3, A1D1, A2D2, A3D3.
- Part 3: Training for all the relations above.

Figure 4.
Trained Relations between Stimuli in Part 1 of Reorganization Training



- Class Reorganization Test: Identical to ABCD Test, but correct responses were defined as those consistent with the classes A1B2C1D1, A2B3C2D2, and A3B1C3D3.

Results and Discussion

Figure 5.
Trials to pass ABCD training for EBI and CI groups.

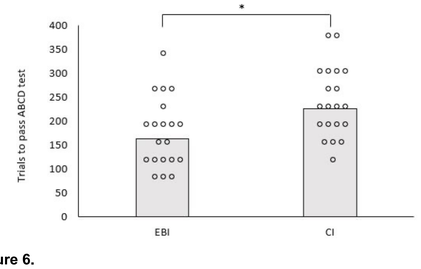


Figure 6.
Accuracy on ABCD test for EBI and CI groups.

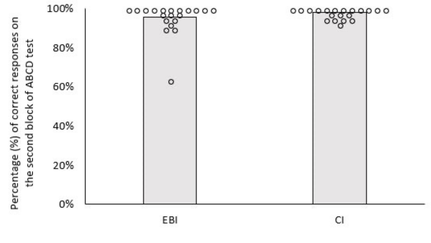


Figure 7.
Trials to pass the Reorganization Training for EBI and CI groups.

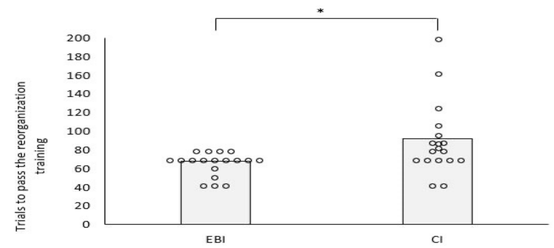
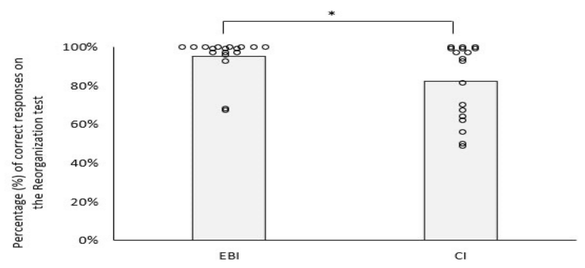


Figure 8.
Accuracy on Reorganization Test for EBI and CI groups.



Class Establishment

- The EBI group required significantly fewer trials (p = .008) to pass the ABCD test than the CI group and yet performed with equal accuracy in the ABCD test.

Class Reorganization

- The EBI group needed fewer trials in the reorganization training and compared to CI group (p = 0.008).
- Almost all participants in the EBI group demonstrated reorganized classes on the reorganization test. Fewer participants in the CI group demonstrated reorganized classes. On the average, the EBI group had significantly more correct responses (p = 0.019).
- The results may suggest that EBI is more likely than CI to produce flexible stimulus classes, or even that CI did not produce equivalence classes for all participants.
- Alternatively, the EBI group may have performed better because of the similarity between their ABCD training and reorganization training (i.e., both had the same OTM structure). This possibility will be examined in a second experiment.

References

Petursdottir, A. I., & Oliveira, J. S. C. D. (2020). The "equivalence-based" in equivalence-based instruction: A laboratory evaluation. *Journal of the Experimental Analysis of Behavior.* 114(1), 87-105. https://doi.org/10.1002/jeab.617

Oliveira, J. S. C. D., Freitas, L., Tomlinson, G. M., & Petursdottir, A. I. (2021). Translational evaluation of training structures in equivalence-based instruction. *Journal of the Experimental Analysis of Behavior*, *115*(1), 393–404. https://doi.org/10.1002/jeab.657