

# Using Equivalence-based Programmed Instruction to Improve Fluency of LGBTQIA+ Terms Among Direct Support Staff



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## INTRODUCTION

### Research Question:

- Does equivalence-based programmed instruction effectively teach LGBTQIA+ terminology and improve fluency of the terms?

### Literature:

- Cultural responsiveness is a key component of ethical behavior analytic services. To improve cultural responsiveness, it needs to be incorporated into the training of behavior analysts (Fong et.al, 2016). Applied behavior analysis largely serves the autistic population. LGBTQIA+ people are highly represented by the autistic population (George and Stokes, 2017). Therefore, cultural training on the LGBTQIA+ community is valuable.
- Equivalence-based instruction (EBI) procedures have been shown to improve fluency of verbal repertoires among different learners. One of the first successful applications of stimulus equivalence procedures was teaching Greek letters and symbols to kindergarten and first grade students. (Sidman and Tailby, 1982).
- Online programmed instruction (PI) has been found to be an effective teaching methodology for students learning behavior analysis ethics in remote learning settings (Root and Rehfeldt, 2020). This use of online instruction is helpful in teaching wider audiences effectively in remote settings.

### Purpose

- This study examined the use of PI and EBI methods to teach key terms used in the LGBTQIA+ community. Teaching appropriate terminology for the LGBTQIA+ community to staff is one form of cultural responsiveness training, which is a key component of providing high quality ethical services to clients.

Table 1. Example questions and answers of frames with the relations. Frame questions were modified from Fenway Health's National LGBTQIA+ Health Education Center

Relations	Frame Questions	Answer
A-B	Pansexual describes a person who can be attracted to people of ___ gender/sex.	any
B-A	Someone is attracted to people of any gender/sex can be called ___.	pansexual
C-B	Steve is pansexual and dates people of ___ gender.	any

## METHOD

### Participants:

- Five participants: three behavior technicians and two board certified behavior analysts.

### Setting:

- Modules were completed over Zoom.

### Materials:

- Personal computers and internet access (arrangements for technology/internet access could have been made if necessary)
- The link for the Mastery Based Learning (MBL) website
- Individual login information.
- Pre-test and Posttest open ended exams.
- Four modules, 80 frames total.
  - Module One Introduction to Concepts : 12 individual frames (No EBI used)
  - Module Two Sexuality: 24 individual frames (A-B, B-A, C-B, B-C, C-A, A-C relations)
  - Module Three Gender: 22 individual frames (A-B, B-A, C-B, B-C, C-A, A-C relations)
  - Module Four Gender and Sexuality: 22 individual frames (A-C, C-A, B-C, C-B relations)

### Design:

- A pre-test and posttest design was used to measure knowledge of LGBTQIA+ terms.
- Researchers looked to see if posttest scores were higher than pre-test scores after intervention.
- Modules also measured duration of time spent on specific frames / terms as well as trials to mastery.
- Terms were broken into three stimulus classes A= Term, B= definition, C= scenario.

## PROCEDURE

- Participants were provided a login for the MBL website
- First, they complete pre-test exam containing 12 questions. After pretest, they completed four training modules.
- Participants were allowed unlimited attempts to mastery (100%)
- Correct frames were not repeated during the module set.
- Incorrect frames were moved to the end of the module set to allow for another attempt.
- Units were presented in sequential order, participants had to complete a module to mastery criteria (100%) before moving onto the next unit.
- After all modules were completed, they were directed to the posttest exam.
- Results were logged by the MBL website
- Reports were generated by the MBL website:
  - Duration of completion for each module set
  - Attempts to mastery for each frame and module

Figure 2. Bar graph depicting duration of testing time to complete modules to mastery.

## RESULTS

### Data Explanation:

#### Pretest Posttest

- Tests were scored on a 12-point scale 1 point= correct answer, .5 points = partially correct, 0 points = incorrect.
- The average increase from pre-test to posttest was 3.8.
- Participant five showed largest increase scoring an additional 5 points on posttest.
- Participants one and two showed smallest increase by scoring an additional 2.5 points on posttest.

#### Duration and Trial to Criterion During Testing

- Average duration to complete frame per module (M1=24.1 secs, M2= 18.9 secs, M3= 28.8 secs, M4=21.9 sec)
- Average number of trials to criterion per frame across modules (M1= 1.06 trials, M2= 1.25 trials, M3= 1.65 trials, M4=1.4 trials)
- Module three, which focused on terms related to gender, had the highest average duration per frame and trial to criterion out of all modules across participants.
- Frames in the module with highest duration and trial included: Q4, Q6, Q7, Q8, Q10, Q13, Q20, Q21
- Terms taught in those frames included; *gender identity, non-binary, transgender, and intersex.*

### Outcomes:

The use of the PI did increase posttest scores across all participants. The modules also allowed all participants to achieve mastery criteria for all frames.

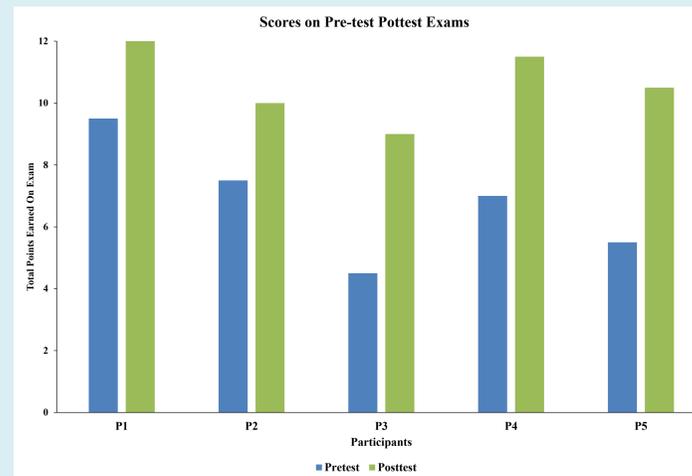
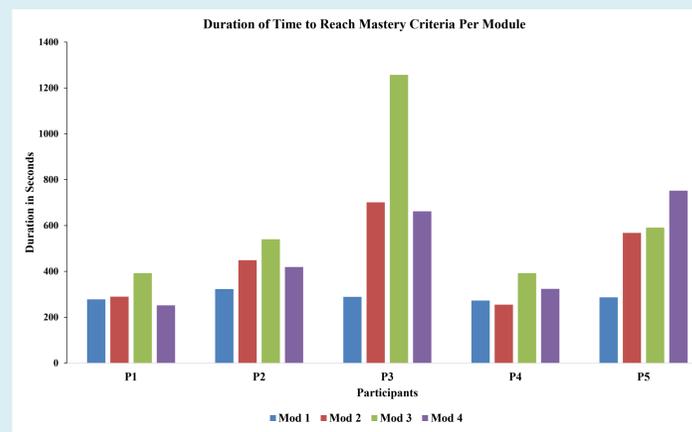


Figure 1. Bar graph depicting pretest posttest scores



## DISCUSSION

- All participants increased on posttests vs pretest indicating that the fluency increased after completion.
- The two participants who had lower increases in posttest scores, had higher pre-test scores .
- Participants received reinforcement through completing modules.
- Module three required the most amount of time to complete. This module contained terms related to gender, including *gender identity, transgender, cisgender, non-binary, and intersex.*
- On the pretest the terms which scored 0 or .5 for four or more participants included *queer, bisexual, cisgender, non-binary, and intersex.*
- Results may indicate that participants who came in with less knowledge on specific terms took longer on frames pertaining to those terms.
- History or reinforcement for specific terms and or lack or exposure may have an impact on the time it took to master specific frames.

### Limitations

- Short delay between intervention and posttest.
- Small number of participants, some of whom had reasonable prior knowledge of terminology taught.
- Best practices survey was not completed in time for inclusion on the poster, will be discussed in paper.

### Future Research

- Testing for generalization with time between training.
- Training focused on gaps in best practices.
- Providing reinforcement for staff who engage in culturally responsive behaviors in natural environment.

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