Evaluation of a Competition Assessment for Multiply-Maintained Problem Behavior

CAITLIN PARKER, Katie Donohoe, Sean Smith, Patrick Thulen, Susan Field, & Tracy L. Kettering

Bancroft
One world. For everyone.

INTRODUCTION

Positive reinforcement has been shown to compete with problem behavior maintained by automatic reinforcement, attention (e.g., Fisher et al., 2004), and escape (Lalli et al., 1999).

Piazza et al. (1997) conducted a competition assessment and found that positive reinforcement alone competed with problem behavior that was maintained by both positive and negative reinforcement.

Similarly, Kodak et al. (2007) also found a preference for positive over negative reinforcement for individuals with multiply controlled problem behavior, even when the break was enriched with alternative sources of positive reinforcement.

Assessing relative preference between positive and negative reinforcement may be difficult because a demand or an aversive stimulus must be present in order to assess escape as a reinforcer. In addition, the duration of positive reinforcement must be controlled to prevent unintended access to escape, which may alter the value of the positive reinforcer. Finally, availability of the reinforcer may differ depending on the arrangement (positive reinforcement may be available during negative reinforcement periods).

The current study extends existing research by utilizing a competition assessment to determine relative reinforcer preference for two individuals with multiply-controlled problem behavior.

METHOD

Participant and Setting

Lennon: 14-year-old male diagnosed with autism and moderate intellectual disability.
Harrison: 18-year-old male diagnosed with autism and intellectual disability.

- All sessions were conducted in an 8 ft x 8 ft session room with a one-way observation mirror.

Dependent Variables and Data Analysis

Frequency data were collected on laptop computers using a computerized data collection system during all sessions.

Problem Behavior (PB): Disruption only (Lennon); aggression, disruption, and self-injury (Harrison).

Compliance (Comp): Completion of the task within 5 s of the verbal or model prompt.

- Percent allocation to each reinforcer was calculated using the first response following the presentation of each demand.

Procedures

Functional Analysis
Four test (attention, escape, ignore, and tangible) and one control condition were evaluated. Reinforcement during the attention, escape, and tangible conditions was 30 s in duration. No consequences were provided for problem behavior during the ignore and control conditions.

- Sessions were 10 min in length.

Competition Assessment
Twenty task demands were presented using least-to-most prompting. Access to positive (i.e., edible items) and negative (i.e., 30 s escape) reinforcement were simultaneously available.

- If compliance or problem behavior was not observed, the prompting sequence continued and the next task was presented.

SR+ (PB)/SR- (Comp)
Positive reinforcement was provided on a FR 1 schedule for problem behavior and 30 s of escape was provided contingent on compliance with the demand.

SR+ (Comp)/SR- (PB)
Positive reinforcement was provided on a FR 1 schedule for compliance with the demand and 30 s of escape was provided contingent on problem behavior.

SR+ (Comp)/Ext (PB) (Lennon only)
Positive reinforcement was provided on a FR 1 schedule for compliance and problem behavior was placed on extinction. The schedule of reinforcement for compliance was faded from FR 1 to FR 14 during the final phase of the assessment.

Experimental Design

Functional Analysis: Multielement design.

- Additional comparisons between test and control conditions within alternating treatment designs (i.e., pairwise evaluations) for Lennon.

Competition Assessment: Concurrent operant schedule within an ABABC reversal design.

Interobserver Agreement (IOA)

IOA data were collected during 44% and 27% of all sessions during the functional analysis for Lennon and Harrison, respectively. Mean agreement was 97% (range, 80% to 100%) for Lennon and 99% (range, 93% to 100%) for Harrison. IOA data were collected during 36% and 72% of all sessions during the Competition Assessment for Lennon and Harrison, respectively. Mean agreement was 94% (range, 67% to 100%) for Lennon and 93% (range, 82% to 100%) for Harrison.

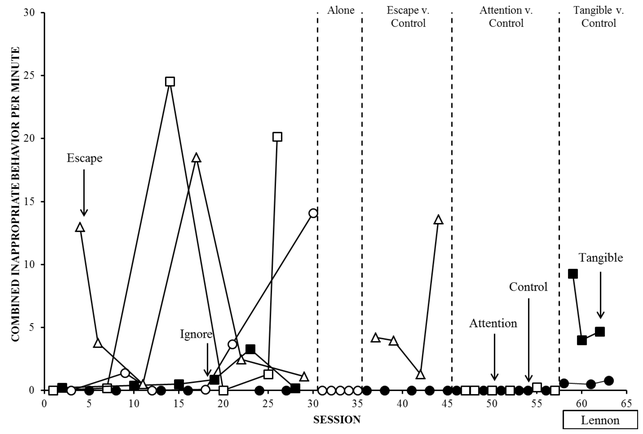

Figure 1 displays the functional analysis of combined inappropriate behavior for Lennon.

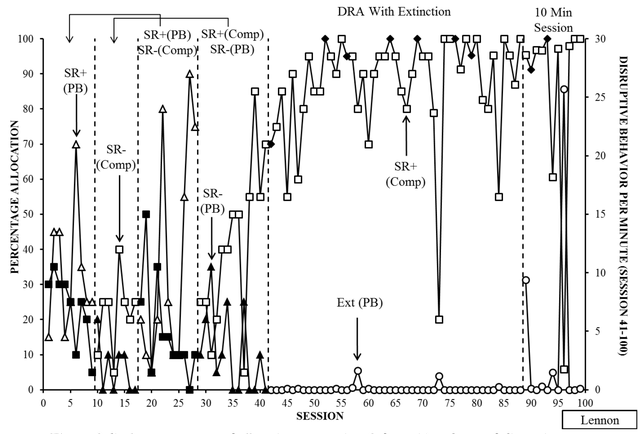

Figure 2 displays percentage of allocation per session (left y-axis) and rate of disruptive behavior (right y-axis) during treatment conditions and DRA with extinction for Lennon.

Figure 3 displays the functional analysis of self-injury and the functional analysis of disruptive behavior for Harrison.

Figure 4 displays the percentage of allocation per session for Harrison.

DISCUSSION

- During all phases of the competition assessment, Lennon allocated higher rates of responding to gain access to positive reinforcement. The schedule of positive reinforcement was thinned to FR 14 schedule for Lennon to effectively reduce problem behavior.
- The results of the competition assessment support within session data analysis of the functional analysis escape conditions for Lennon, which found high rates of disruptive behavior during periods of reinforcement.
- Throughout Harrison's competition assessment, compliance was relatively high, regardless of the reinforcer that compliance produced. However, when compliance was provided with positive reinforcement, compliance was slightly higher and problem behavior was lower.
- Although not depicted in the current data, Harrison also continued to have problem behavior and frequently engaged in mands for positive reinforcement during the escape reinforcement intervals.
- One limitation to this study was that positive reinforcement and negative reinforcement were not compared concurrently at thinner schedules of reinforcement.

REFERENCES

Fisher, W. W., DeLeon, I. G., Rodriguez-Catter, V., & Keeney, K. M. (2004). Enhancing the effects of extinction on attention-maintained behavior through noncontingent delivery of attention or stimuli identified via a competing stimulus assessment. *Journal of Applied Behavior Analysis*, *37*, 171–184.

Kodak, T., Lerman, D. C., Volkert, V. M., & Trosclair, N. (2007). Further examination of factors that influence preference for positive versus negative reinforcement. *Journal of Applied Behavior Analysis*, *40*, 25–44.

Lalli, J. S., Vollmer, T. R., Progar, P. R., Wright, C., Borrero, J., Daniel, D., … May, W. (1999). Competition between positive and negative reinforcement in the treatment of escape behavior. *Journal of Applied Behavior Analysis*, *32*, 285–296.

Piazza, C. C., Fisher, W. W., Hanley, G. P., Remick, M. L., Contrucci, S. A., & Aitken, T. L. (1997). The use of positive and negative reinforcement in the treatment of escape-maintained destructive behavior. *Journal of Applied Behavior Analysis*, *30*, 279–298.