The Utility of a Paired-Choice Preference Assessment in Predicting Reinforcer Effectiveness for an Infant

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Abstract

This study examined the utility of a paired-choice preference assessment in predicting reinforcer efficacy for a 13-month old with a history of prenatal drug exposure. First, two paired-choice assessments were conducted one week apart, using the same items. A high level of correspondence between the two assessments was observed. Next, a reinforcer assessment was conducted indicating that the high-preference items identified by the paired-choice assessments served as reinforcers for the participant. The results suggest that the paired choice assessment was effective in predicting reinforcers for this infant. Limitations of the current study and suggestions for future early intervention research are discussed.

Key Words: paired-choice assessments, reinforcer assessments, early intervention.

A key component to developing appropriate interventions for children exhibiting severe behavior problems involves identifying potent reinforcers. One commonly used procedure for identifying potential reinforcers is the paired-choice preference assessment (Fisher et al., 1992). This nonverbal assessment method requires the individual to choose between randomly presented paired items (Fisher et al., 1992). Research has shown the procedure to be effective in identifying potential reinforcers, however, the majority of the research on this procedure has been conducted with individuals above the age of five (e.g. Fisher et al., 1992; Pace, Ivancic, Edwards, Iwata, & Page, 1985). To date, there have been no studies published on the utility of paired-choice and reinforcer assessments for children under 18-months old. Thus, the utility of the paired-choice assessment with young children is unknown. Given the considerable amount of research that emphasizes the importance of early identification and intervention, more research on the assessment and treatment of behavior problems in very young children is needed (Kurtz et al., 2003). In the present case study, the reliability and validity of a paired-choice assessment was evaluated for an infant.

METHOD

Participant and Setting

Kyle was a 13-month-old African American male with a history of prenatal drug exposure. Kyle was typically developing in the areas of language and physical development but displayed social and behavioral deficits as well as very high levels of hyperactivity and impulsivity. Kyle was referred for outpatient services for the assessment and treatment of self-injury, aggression, and severe tantrums. All sessions were conducted in a padded room with a one-way mirror.

Procedure, Response Measurement, and Reliability

Paired-Choice Assessment. First, a list of stimuli was generated from parental report using a structured interview, the Reinforcer Assessment for Individuals with Severe Disabilities (RAISD; Fisher, Piazza, Bowman & Amari, 1996). A paired-choice assessment was then conducted with Kyle as described by Fisher et al. (1992) and repeated one week later. A total of eight stimuli were used in the assessment with each stimulus being paired once with every other stimulus. During each trial, two stimuli were placed in front of Kyle. A choice response (i.e., Kyle contacted the item) resulted in 30

seconds access to the chosen stimulus. Data were collected on item consumption, approach, avoidance, and no response. Consumption responses were defined as the participant manipulating the stimulus. Approach responses were defined as the participant's hand moving at least six inches from the previous position and towards the object. Avoidance responses were defined as actively pushing or throwing the object, or the participant moving away within 3 seconds of the presentation of the stimulus. No response was defined as exhibiting no reaction to the stimulus within 5 seconds of its presentation.

Responses were recorded independently by two trained observers using a paper and pencil data collection system. Interobserver agreement was calculated across both assessments by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Interrater reliability data were collected across 100% of trials with a mean interobserver agreement of 96.2%.

To obtain percentages used to develop a hierarchy of 'preferred' stimuli, consumption responses were added together and divided by the total number of presentations and multiplied by 100 for each stimulus. High preference stimuli were defined as the two stimuli with the highest percentage of consumption. Low preference stimuli were defined as the two stimuli with the lowest percentage of consumption. Using the hierarchy of preferred stimuli for each assessment, a Spearman's rank-order correlation was calculated to determine the level of correspondence between item rankings in each assessment.

Reinforcer Assessment. A reinforcer assessment similar to the one described by Piazza, Fisher, Hagopian, Bowman, and Toole (1996) was conducted to compare the reinforcing effectiveness of high preference stimuli to low preference stimuli, as well as to a control (no item). Prior to the assessment, training trials were conducted to train Kyle in the targeted response (sitting). A moderately preferred item not used in the reinforcer assessment was used during the training trials. One training session consisted of ten trials. Three-step guided compliance was used to train Kyle on the targeted response. Training was conducted until Kyle independently sat in a chair for 80% of the trials across two consecutive sessions.

At the beginning of each session of the reinforcer assessment, the items (or control "no item") were randomly assigned to one of two chairs and Kyle was placed equidistant from the chairs. Kyle gained access to a stimulus by sitting in a chair associated with that stimulus. Sessions were five minutes in length. Two independent observers collected data simultaneously but independently on lap top computers on the duration of task engagement (sitting) associated with each chair across 100% of sessions. Exact agreement for duration of task engagement was calculated by dividing the number of agreement by the sum of agreements plus disagreements and multiplying by 100. Mean exact agreement was 89.8%.

RESULTS AND DISCUSSION

Results of the paired choice assessments indicated a high level of correspondence between the two assessments (see Figure 1). Specifically, the majority of the items in the second assessment obtained the same ranking as obtained in the first assessment, or moved no more than one placement within the rank order. Two of the least preferred items moved 1.5 or 2 placements within the rank order (Maraca moved from 6 to 8, and Tambourine moved from 7.5 to 6). Finally, a Spearman's rank-order correlation revealed a high level of correspondence between the two paired choice assessments (r=.874, p=.005).
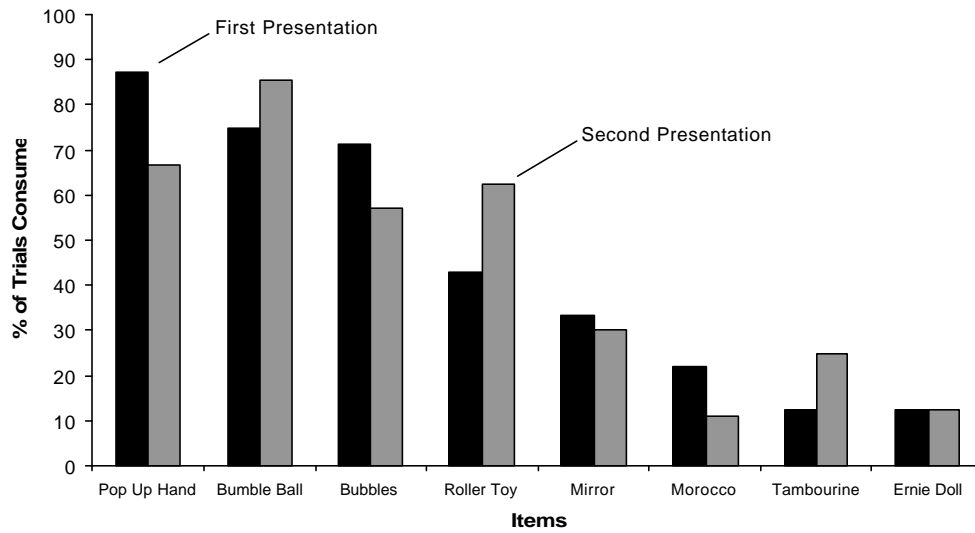
Figure 1. Paired-choice assessment results

As shown in Figure 2, the high preference item was associated with a higher percentage of task engagement (M = 55.1%) than the low preference item (M = 3.2%) and the control (M = 2.2%). The results of this assessment suggest that the highly preferred item served as a reinforcer for Kyle.
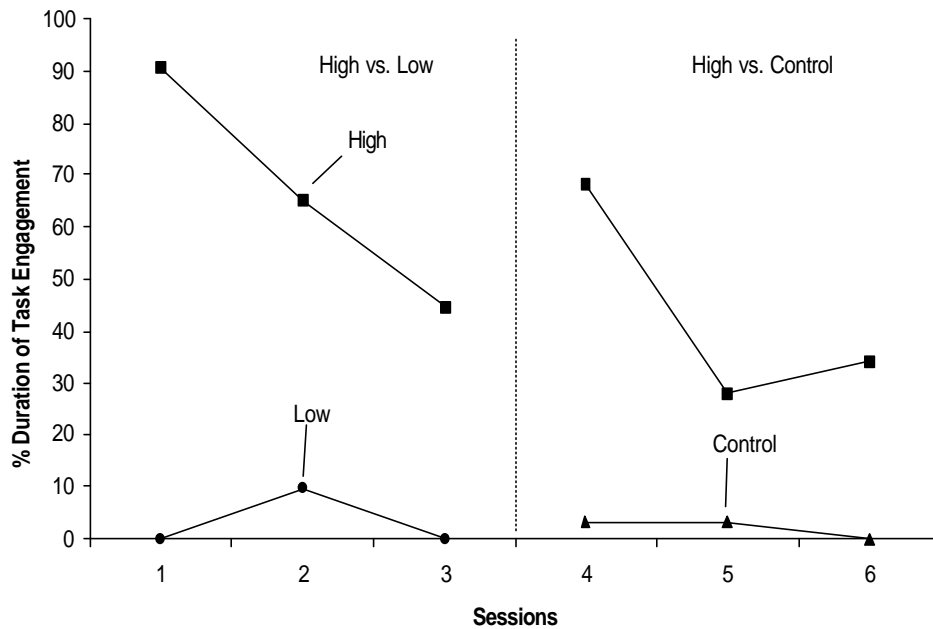

Figure 2. Reinforcer assessment results

These results suggest that paired choice assessments may be a reliable and valid method for identifying reinforcers for very young children. However, the generalizability of these results is limited in

that only one child participated in this study. Future studies should examine the reliability and validity of the paired-choice assessment with a larger number of infants and toddlers to determine the age at which these assessments are appropriate. In addition, the effects of satiation should also be explored when examining reinforcer efficacy with young children. Consistent with previous research on holding reinforcers constant (Egel, 1981), a decline in stimulus engagement was observed with this participant. Thus, future studies may want to examine the effectiveness of constant versus varied or multiple reinforcers with very young children. Finally, there is limited research on the utility of other assessment and treatment methods for young children. With an increasing emphasis being placed on prevention and early intervention, more research is needed on the utility and acceptability of other assessment and treatment techniques with very young children.

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