

*AN EVALUATION OF A BRIEF MULTIPLE-STIMULUS PREFERENCE  
ASSESSMENT WITH ADOLESCENTS WITH EMOTIONAL-BEHAVIORAL  
DISORDERS IN AN EDUCATIONAL SETTING*

NANCY W. PARAMORE AND THOMAS S. HIGBEE

UTAH STATE UNIVERSITY

Brief multiple-stimulus-without-replacement (MSWO) preference assessments were conducted with 3 adolescent boys with emotional-behavioral disorders in the context of their public school educational program. The reinforcing effects of stimuli identified as high, medium, and low preference were then evaluated using an alternating treatments design in which, following an initial baseline, stimuli were delivered contingent on on-task behavior. High-preference stimuli produced the highest percentages of on-task behavior for all 3 participants.

DESCRIPTORS: multiple-stimulus preference assessment, emotional-behavioral disorders, reinforcer identification

Many students with emotional and behavioral challenges engage in dangerous or disruptive behaviors that necessitate the use of behavioral interventions (e.g., Dunlap et al., 1994). These plans often include positive reinforcement-based systems such as token economies and level and point systems. Thus, the identification of powerful reinforcers may be a key to effective behavioral programming for students with emotional and behavioral disorders.

Preference assessments have been shown to accurately predict reinforcer effectiveness in numerous research studies conducted with participants with severe disabilities such as mental retardation and autism (e.g., Fisher et al., 1992; Pace, Ivancic, Edwards, Iwata, & Page, 1985). Limited data exist, however, on the application of this technology to participants with less severe disabilities or behavioral

challenges. Notable exceptions include studies by Northup, George, Jones, Broussard, and Vollmer (1996) with participants of normal intelligence who had been diagnosed with attention deficit hyperactive disorder (ADHD); Wilder, Ellsworth, White, and Schock (2003) with participants of normal intelligence who had been diagnosed with schizophrenia; and Cohen-Almeida, Graff, and Ahearn (2000), which included 2 participants whose IQ fell within the normal range. In each of the previous studies, the preference assessment method involved presenting verbal, pictorial, or tangible stimuli in pairs, in a forced-choice format.

The brief multiple-stimulus-without-replacement (MSWO) preference assessment has been shown to accurately identify reinforcers in much less time than paired-stimulus preference assessments (Carr, Nicolson, & Higbee, 2000) making it more practical for use in classroom settings. Because the brief MSWO assessment has not previously been examined with this population, the purpose of this study was to replicate and extend the results reported by Carr et al. by examining the utility of brief MSWO preference assessments conducted in an educational setting with adolescents with emotional-behavioral disorders.

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This study is based on a creative project submitted by the first author, under the direction of the second author, to the Department of Special Education and Rehabilitation at Utah State University in partial fulfillment of the requirements of the MEd degree.

Address correspondence to Thomas S. Higbee, Department of Special Education and Rehabilitation, Utah State University, 2865 Old Main Hill, Logan, Utah 84322 (e-mail: tom.higbee@usu.edu).

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## METHOD

### *Participants*

Three adolescent boys who were receiving special education services under the classification of emotional-behavioral disorders participated in the study. Participants' ages were 11 years (Cris), 9 years (Gabe), and 10 years (Tony). Participants were students from the same elementary school and attended the same special education and regular education classrooms.

### *Setting*

The brief MSWO assessments took place in the special education teacher's private office. The office contained a table, two chairs, and the stimuli needed for the study. Reinforcer evaluation took place in the participants' general education classroom during teacher-directed group instruction in math and reading. The number of sessions conducted in each content area did not vary systematically between phases or participants. Classroom management contingencies, in which the students earned points to obtain privileges and access to preferred activities, were in effect for all students throughout the reinforcer evaluation.

### *Preference Assessment*

*Brief MSWO preference assessment.* Procedures for the brief MSWO preference assessment were identical to those described by Carr et al. (2000) with three exceptions: (a) Only edible stimuli were present in the stimulus array, (b) the stimulus array consisted of five stimuli instead of eight, and (c) participants could indicate their selection either verbally or nonverbally. Only edible stimuli were evaluated because they could be delivered easily and consistently and did not interfere with the ongoing classroom behavior-management system. Stimuli were selected for inclusion in the preference assessment based on information from informal interviews with students, their parents, and classroom staff. Observers recorded the order in which items were selected during each session.

*Interobserver agreement.* Two observers independently recorded selections during all sessions. An agreement was defined as both observers recording the same order of stimulus selection. No disagreements occurred; therefore, interobserver agreement was 100% for all 3 participants.

### *Reinforcer Evaluation*

*Response definition and measurement.* At the conclusion of the preference assessment, the reinforcer evaluation began in the general education classroom. The target behavior for all 3 participants was on-task behavior. On-task behavior was defined as sitting appropriately at the desk (feet on floor, back straight, head up), working on the assigned task, and speaking only to ask task-related questions after raising the hand and being called on by the teacher. Data were collected using a 20-s whole-interval system. The interval was scored as a "yes" only when the participant maintained on-task behavior throughout the entire interval. Sessions were 10 min in length, and one to three sessions were conducted per day with each student.

*Experimental design.* Following an initial baseline in which on-task behavior produced no consequences, the effects of contingent high-, medium-, or low-preference stimuli were evaluated using an alternating treatments design. Baseline consisted of five 10-min sessions over a period of 5 days.

During the reinforcer evaluation, participants earned high-, medium-, or low-preference stimuli contingent on three consecutive observation intervals of on-task behavior. Each time the response requirement was met during a session, the participant was immediately given a small amount (e.g., one bite) of the stimulus being evaluated during that session. One stimulus was available during each session, and the order in which stimuli were made available from session to session was semirandom. Before each session, participants were informed which reinforcer would be delivered contingent on meeting the response requirement.

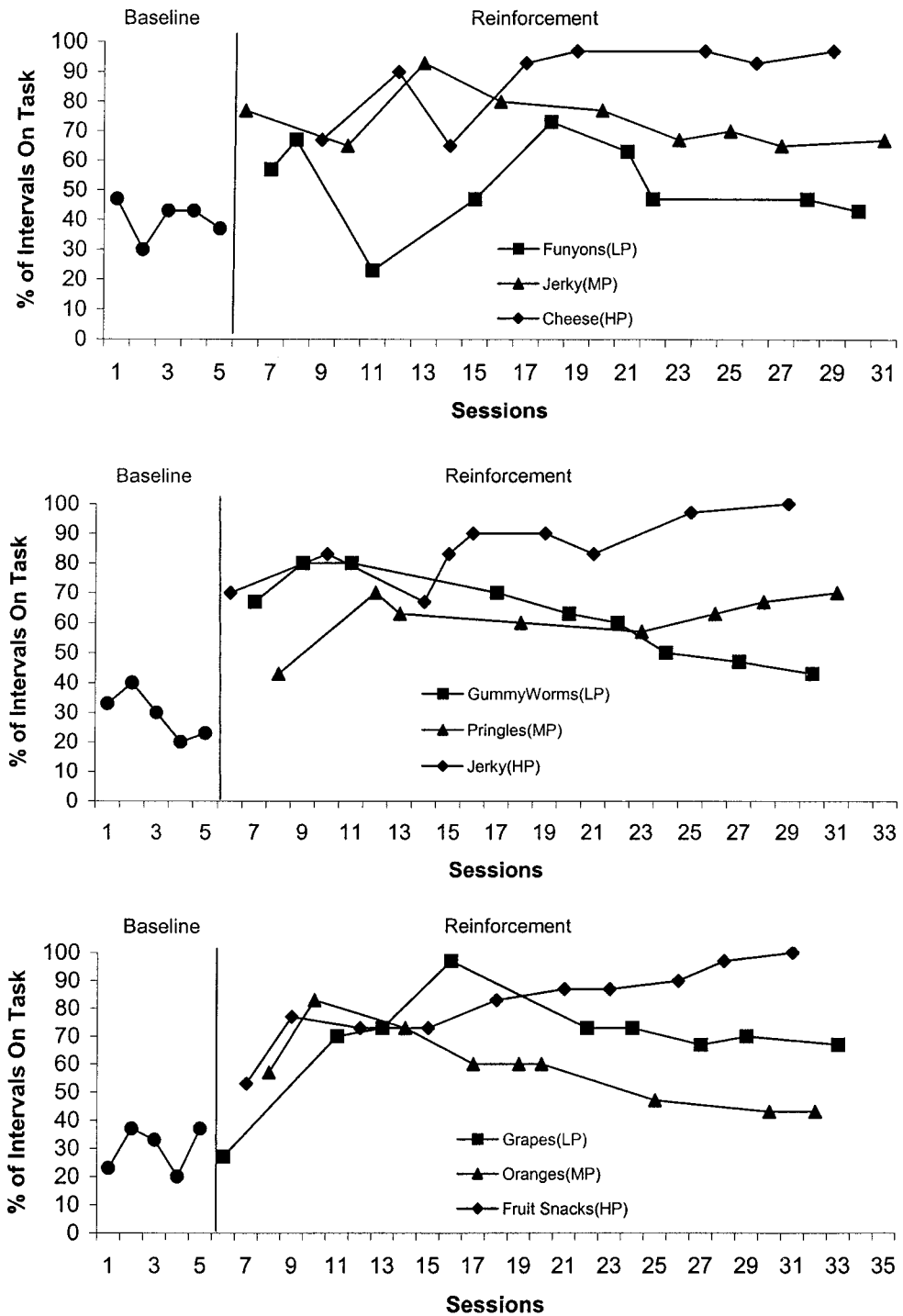


Figure 1. Results of the reinforcer assessment for Cris (top panel), Gabe (middle panel), and Tony (bottom panel). Data are presented as the percentage of intervals during the session that the participant engaged in on-task behavior.: LP = low-preference stimuli, MP = medium-preference stimuli, and HP = high-preference stimuli as determined by the preference assessment.

*Interobserver agreement.* A second observer collected data independently during 27% (Cris), 35% (Gabe), and 25% (Tony) of reinforcer evaluation sessions. An agreement was defined as both observers scoring a given interval as on task or off task. Agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying the result by 100%. Agreement was 100% for Cris, and averaged 89% (range, 85% to 100%) for Gabe and 87% (range, 83% to 100%) for Tony.

## RESULTS AND DISCUSSION

Based on the rankings provided by the preference assessment, stimuli were categorized as high (first), medium (second for Tony and third for Chris and Gabe), or low preference (fifth) (detailed results are available from the corresponding author). Edible items identified for use in the reinforcer evaluation were string cheese (high), beef jerky (medium), and Funyons® (low) for Cris; beef jerky (high), Pringles® (medium), and gummy worms (low) for Gabe; and fruit roll-ups (high), oranges (medium), and grapes (low) for Tony.

Results of the reinforcer evaluation are presented in Figure 1. Although data were initially somewhat undifferentiated for all 3 participants, the high-preference stimulus eventually produced the highest percentages of on-task behavior, and this effect ultimately persisted over time. The contrast between baseline (no edible items delivered for on-task behavior) and the reinforcement phase (edible items delivered contingent on on-task behavior) could account for the somewhat undifferentiated response patterns observed at the beginning of the reinforcement phase. That is, following a period when on-task behavior did not produce access to food, the contingent delivery of food during the reinforcement phase may have produced a general, undifferentiated increase in responding simply because a contingency was added. The differential reinforcing effects of

each became more evident only after repeated contact with the contingencies. For Cris and Gabe, the medium-preference stimulus produced the next highest percentages of on-task behavior, and for Tony, the low-preference item produced the second highest percentage of on-task behavior. These results systematically replicate previous research demonstrating the utility of a brief MSWO preference assessment (Carr et al., 2000) and extend these procedures to the new population of adolescents with emotional-behavioral disorders in a public school setting.

Two primary limitations of this study warrant mention. First, whereas an alternating treatments design was used to demonstrate the relative reinforcement effects of each stimulus, the magnitude of reinforcement effects was evaluated using an A-B design. A withdrawal or multiple baseline design would have more clearly demonstrated the magnitude of reinforcement effects. A second limitation is that only edible items were used in this study. Future researchers may investigate the generality of these findings by using these procedures with nonfood items or activity-oriented stimuli.

In conclusion, based on the data presented in the present study, brief MSWO preference assessments can provide a way to accurately and efficiently predict reinforcers for individuals with emotional-behavioral disorders in educational settings. For practitioners who use positive-reinforcement-based techniques with this population, this may be a useful tool to increase the effectiveness of their interventions by identifying potent reinforcers.

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