

REINFORCING EFFICACY OF INTERACTIONS WITH PREFERRED AND NONPREFERRED STAFF UNDER PROGRESSIVE-RATIO SCHEDULES

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Research has not systematically assessed and validated preferences for staff in adults with developmental disabilities. Three adults with developmental disabilities (aged 32 to 43 years) identified preferred and nonpreferred staff using verbal and pictorial preference assessments. During break-point analyses with progressive-ratio schedules, all 3 had higher break points when working for positive social interaction with their preferred staff member than with their nonpreferred staff member.

DESCRIPTORS: adults with developmental disabilities, progressive-ratio schedules, preference

Identifying reinforcing stimuli for individuals with developmental disabilities is important because contingent access to these stimuli facilitates learning of tasks and appropriate behavior (Pace, Ivancic, Edwards, Iwata, & Page, 1985; Roane, Lerman, & Vorndran, 2001). Roane et al. evaluated responding under increasing schedule requirements using progressive-ratio (PR) schedules with 4 individuals with developmental disabilities. All of the participants systematically approached their most preferred sensory stimuli under increasing schedule requirements. PR schedules allowed efficient examination of shifts in reinforcer value under increasing schedule requirements because participants responded more in the presence of their most preferred stimuli.

Even though much research has been conducted on the reinforcing effects of sensory, edible, and tangible stimuli, only a few researchers have used preference assessments with staff members as the stimuli. Sturme, Lee, Reyer, and Robek (2002) assessed preferences for specific staff by using modifications of a paired-stimulus assessment. After presenting each participant with pairs of staff members

from whom to choose, the experimenters recorded the percentage of approach responses. Individuals with developmental disabilities showed preferences for certain staff over others. However, Sturme et al. did not conduct reinforcer assessments to evaluate the extent to which interaction with preferred staff functioned as reinforcement. Therefore, the current study compared verbal and pictorial preference assessments to assess client preferences for staff and used PR schedules to evaluate the extent to which interactions with preferred staff functioned as reinforcement.

METHOD

Screening Procedure, Participants, and Setting

The experimenter screened participants to identify individuals who showed a clear preference for certain staff members over others. First, the experimenter observed 6 participants in the course of their natural interactions with 12 different staff during at least five 10-min sessions using 15-s momentary time sampling. All 6 participants approached some staff more than others and approached some staff at least twice as often as they avoided those staff (operational definitions are available from the first author). Second, the experimenter conducted preference assessments with all 6 participants to confirm that clear preferences

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for certain staff existed. Three participants exhibited differentiated responding and continued in the study. Those 3 participants (and their 9 staff) who met criteria for the study are described below.

Mark was 32 years old and had been diagnosed with mild intellectual disabilities and autism. Greg was 43 years old and had been diagnosed with mild intellectual disabilities and intermittent explosive disorder. Charles was 32 years old and had been diagnosed with moderate intellectual disabilities and autism. The 9 direct-care staff participants worked in each of three classrooms with one of the 3 participants. Staff participants were 2 male and 7 female direct-care workers who ranged in age from 22 to 34 years with a range of 3 months to 4 years experience in the setting. The study took place in a day-habilitation facility for adults with developmental disabilities. The preference assessments took place in a vacated office. The break-point analyses took place in participants' classrooms.

Procedure

Preference assessments. Each participant sat 1 m across a desk from the experimenter. The experimenter presented complete verbal and pictorial paired-stimulus preference assessments (Fisher et al., 1992) to each participant twice. The experimenter presented the names (verbal assessment) or pictures (pictorial assessment) of the 3 staff members from each participant's classroom in all possible combinations of pairs during 2- to 5-min sessions. The experimenter presented the assessments in a counterbalanced order and the pairs of names or pictures within each assessment in a random order. During the verbal preference assessment, the experimenter asked the participant "Who do you like better, [Staff A name] or [Staff B name]?" In the pictorial preference assessment, the experimenter presented two photographs of 2 staff members and asked the participant to "point to whom you like better." A preferred staff member was one whom the participant selected

on at least 80% of trials. A nonpreferred staff member was one whom the participant selected on 20% or fewer trials.

Break-point analysis. Mark, Greg, and Charles participated in PR schedules with interactions with their preferred and nonpreferred staff members as the consequence for completing the ratio requirement in separate rapidly alternated conditions (i.e., multielement design). The experimenter asked the participant's head staff member to suggest a task that the participant performed independently. Mark and Greg answered one- or two-digit addition problems, and Charles sorted plastic forks and knives.

The experimenter conducted a single pre-experimental trial session during which the participant engaged in the task 7 to 63 times. Trial totals varied by participant due to participant functioning level and task difficulty. Each participant engaged in the task enough times to meet the ratio requirement of a PR 4 (7 total responses) while not exceeding the ratio requirement of a PR 32 (63 total responses) to avoid floor or ceiling effects. The experimenter reinforced target responding at each PR value break point with a high five and the verbal stimulus "good job."

During the break-point analysis, the experimenter sat 1 m directly across a table from the participant. Either the preferred or nonpreferred staff member stood 2 m to the left of the experimenter. After presenting the opportunity to engage in the task, the experimenter said "Okay [name], let's start working." The experimenter instructed each staff member to give a high five while smiling and saying "good job" to the participant when the participant completed the requirement of the PR schedule. The PR schedules were FR 1, FR 2, FR 4, FR 8, FR 16, FR 32, and FR 64. The break point was the PR schedule completed after a participant stopped responding on his assigned task for 2 min. The experimenter conducted the procedure with the same participant and staff member only once on any day.

Dependent Measures

During the preference assessments, observers viewed or listened to each participant's responses to the question "Who do you like better, [Staff A name], or [Staff B name]?" or the statement "Point to whom you like better," and recorded each response using pencil and paper. During the break-point analysis, the experimenter and a facility supervisor recorded the terminal PR break point for each session.

Interobserver Agreement

Interobserver agreement was calculated as the number of agreements divided by the total number of agreements and disagreements, multiplied by 100%. An agreement for the preference assessment was defined as recording the same preference for a trial and an agreement for a break-point session was defined as recording the same break point. During the preference assessments, a facility supervisor was present with the experimenter on 50% of the trials, and agreement was 90%. During the break-point analysis, the two observers independently recorded the PR break point for all sessions, and agreement was 100%.

Procedural integrity. During 50% of the break point analyses, the experimenter and a facility supervisor recorded whether the staff members delivered the appropriate verbal praise and high five to the participant within 2 s. Agreement definitions and formulas were identical to those described above. Integrity of the independent variable was 100% for all 3 participants, and agreement between the observers was 100%.

RESULTS AND DISCUSSION

The results of the preference assessments are presented in Figure 1. Mark chose his preferred staff member (Amelia) during 80% of trials during both the verbal and pictorial assessments and his nonpreferred staff member (Ruben) during 16% of verbal trials and 10% of pictorial trials. Charles chose his preferred staff member (Keith) during 82% of verbal trials and 80% of

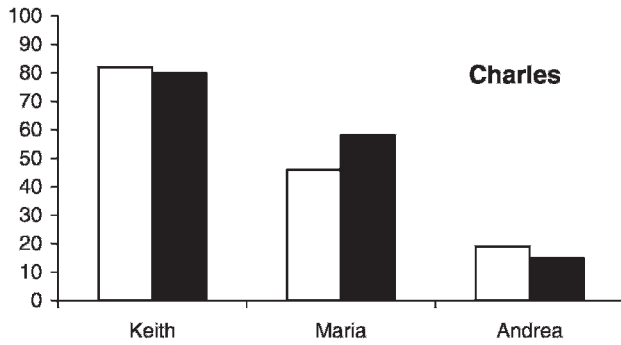
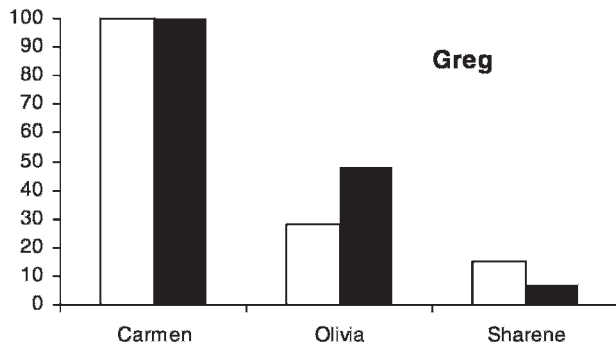
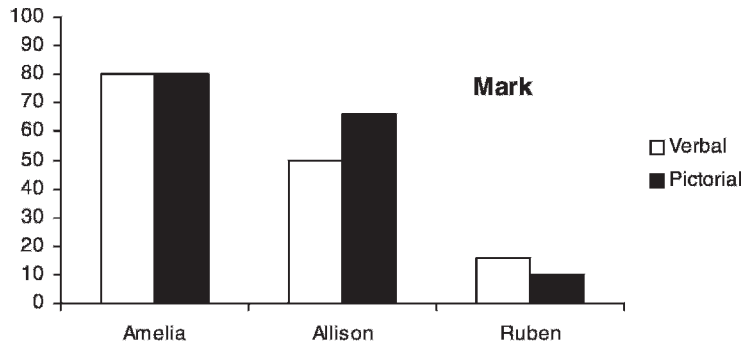
pictorial trials, and he chose his nonpreferred staff member (Andrea) during 19% of verbal trials and 15% of pictorial trials. Greg chose his preferred staff member (Carmen) during 100% of trials for both assessments and his nonpreferred staff member (Sharene) during 15% of verbal trials and 7% of pictorial trials.

Figure 2 depicts responding in the break-point analysis. All 3 participants demonstrated higher PR break points on arbitrarily selected tasks when working for interactions with their preferred staff members. Mark's PR break points ranged from PR 32 to PR 64 with his preferred staff member compared to break points of PR 8 with his nonpreferred staff member. Greg's PR break points ranged from PR 2 to PR 8 with his preferred staff member and remained consistent at PR 1 with his nonpreferred staff member. Charles's PR break points ranged from PR 2 to PR 8 with his preferred staff member and ranged from PR 2 to PR 4 with his nonpreferred staff member.

These results systematically replicate those of Cohen-Almeida, Graff, and Ahearn's (2000), who demonstrated consistent agreement between verbal and pictorial preference assessments in identifying relatively more and less potent reinforcers. This study also extends previous research using PR schedules by providing evidence that data obtained from preference assessments may predict the relative reinforcing efficacy of stimuli (Roane et al., 2001) in that each participant completed more tasks (i.e., higher break points) for contingent access to social interactions with preferred staff relative to nonpreferred staff. This experiment demonstrated that participants had preferences for different staff members. However, this study did not identify the reasons for those preferences. Clinicians should attend to client preference for staff to enhance the effects of intervention programs.

Future research should investigate the factors that affect preference for different staff members. Direct observations of naturally occurring

Percentage of Trials Selected



Staff

Figure 1. Percentage of selections of staff during verbal (white bars) and pictorial (black bars) preference assessments.

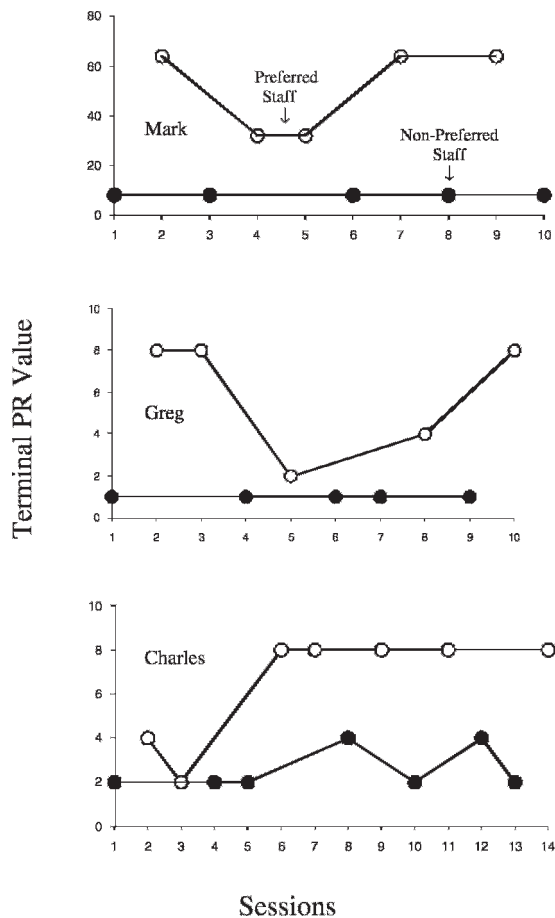


Figure 2. Terminal PR schedule value (break points) for each participant when completing tasks for contingent interactions with preferred (open circles) and nonpreferred (filled circles) staff.

interactions may reveal qualitative aspects of staff responding (e.g., volume, tone of voice, content of interactions, degree of physical contact) that affect preference. In addition,

novelty or familiarity with a given staff member may enhance or detract from preference even when the quality of the interactions is held constant. Finally, future studies might examine the effects of interventions to enhance the reinforcing value of staff (e.g., pairing non-preferred staff with primary reinforcers, teaching staff to emit the behaviors that preferred staff emit, pairing staff with known reinforcing stimuli) and might incorporate socially important tasks as instrumental responses.

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