USING EXTINCTION TO PROMOTE RESPONSE VARIABILITY IN TOY PLAY

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We report the effects of extinction and positive reinforcement on the number of untrained topographies emitted by children with toys. Baseline showed no appropriate toy play. Participants were then trained individually on one topography for each toy. Previously reinforced topographies of toy play were placed on extinction, resulting in the induction of untrained topographies.

DESCRIPTORS: extinction, induction, response variability, toy play

Response variation has been studied in laboratory (Machado, 1989) and applied settings (Carr & Kologinsky, 1983; Duker & van Lent, 1991; Pryor, Haag, & O'Reilly, 1969). Carr and Kologinsky (1983) and Duker and van Lent (1991) trained participants with developmental disabilities to request specific items and then discontinued reinforcement for the requests emitted most frequently. Data from both studies showed that the experimental manipulations increased response variability. Similarly, Pryor et al. (1969) showed that when reinforcement (food) was discontinued for previously reinforced topographies with two porpoises, novel responding occurred immediately. In this study, we used extinction and positive reinforcement of untrained responses to promote response variability in 2 participants' toy play.

METHOD: Participants and setting. Helen and James were 4 and 5 years old, respectively, with mild developmental delays. Preference assessments (Green, Reid, Perkins, & Gardner, 1991) identified social interaction with adults as being preferred.

Dependent measures and data collection. Observers used a 10-s partial-interval recording procedure to score the first occurrence of each topography of toy play. Interobserver agreement, assessed during 32% of the sessions, was calculated on an interval-by-interval basis and averaged 80% or higher for all topographies. Topographies for playing with an airplane included taxiing, circular, horizontal, upside down, and vertical movements for a minimum of 5 s; takeoffs, landings, and airplane noise; placing a passenger on the plane; and spinning the propeller. Topographies for playing with an animal or doll included walking, dancing, and using limbs for a minimum of 5 s; showing affection or talking to or for the toy; and feeding, grooming, and dressing the toy.

Procedures. During baseline, the therapist provided the participant with a toy and said, "Let's play." The therapist provided praise on a fixed-interval (FI) 15-s schedule for appropriate sitting (defined as sitting, with or without the toy, within an arm's length of the therapist and no aberrant behavior). One session was conducted daily, and sessions ended when 60 s had elapsed without appropriate toy play.

One 15-min training session was subsequently conducted for the horizontal movement (airplane) and for walking the animal or the doll for each participant. The therapist used modeled and physical (hand-over-hand) prompts to train the participants. Probe sessions were started the day after training with the respective toys. No prompts were used during probes. During probes, the therapist (a) provided descriptive praise following the first occurrence of the trained topography (during the first session) or the newest (during subsequent sessions) topography of the defined response class, (b) placed the topography on extinction after three additional reinforcement deliveries on an FI 30-s schedule, (c) repeated the first two steps for each untrained topography that occurred during the session, (d) terminated a session after 60 s without a new untrained topography, and (e) started a session by reinforcing the newest untrained topography from the previous session. We used a multiple probe across participants design to evaluate the effects of extinction on untrained toy play.

RESULTS AND DISCUSSION: Neither child engaged in appropriate toy play (with either toy) during baseline. The participants were trained on one topography for each toy and then varied their responding when the trained, and subsequent untrained, topographies were placed on extinction. In the first extinction session (Session 4), Helen emitted the trained response and one untrained topography. Other untrained topographies with the airplane were observed in Extinction Sessions 5, 6, 8, 11, 14, and 16 (two topographies). For James, untrained topographies with the airplane were observed in Extinction Sessions 13, 16 (two topographies), 17, 18, 21 (two topographies), 23, and 25. Helen's untrained topographies with the doll were observed in Extinction Sessions 4, 6, 7, 10, 12, and 14. For James, untrained topographies were observed in Extinction Sessions 12, 15, 17, 18 (two topographies), 19, and 20.

This study supports previous research in suggesting that response variability can be viewed as an operant dimension of behavior (Carr & Kologinsky, 1983; Duker & van Lent, 1991; Machado, 1989; Pryor et al., 1969). Response variability was observed when previously reinforced topographies were placed on extinction, suggesting that induction may be the mechanism responsible for the occurrence of untrained topographies. In addition, this study extends earlier work on creativity that showed children varied their blockbuilding forms (Goetz & Baer, 1973) when reinforcement was provided for responses not observed in previous sessions. Collectively, these studies suggest that organisms' behavioral repertoires can be expanded through the strategic use of extinction and reinforcement procedures.

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