

AN EVALUATION OF THE INTERACTION BETWEEN QUALITY OF ATTENTION AND NEGATIVE REINFORCEMENT WITH CHILDREN WHO DISPLAY ESCAPE-MAINTAINED PROBLEM BEHAVIOR

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The choice-making behavior of 2 typically developing children who engaged in problem behavior maintained by negative reinforcement was evaluated within a concurrent-operants assessment that varied the quality of attention across free-play and demand conditions. The results demonstrated that it was possible to bias responding towards academic demands for both participants by providing high-quality attention, despite the continuous availability of negative reinforcement. The current study extended brief clinical methods with typically developing children and demonstrated how different qualities of attention provided across concurrent schedules could bias responding.

DESCRIPTORS: brief experimental analysis, concurrent operants, establishing operations, noncompliance, quality of attention

The use of escape extinction (by itself or as a treatment component) in reducing problem behavior maintained by negative reinforcement has been demonstrated to be an effective and common practice (Piazza et al., 1997). However, side effects such as extinction bursts and changes in behavioral variability may occur (Lerman & Iwata, 1996). Practical difficulties with the physical implementation of escape extinction (e.g., if the individual is larger or stronger than the care provider) can also be of concern when recommending this treatment procedure to caregivers (Piazza et al.).

Previous research has attempted to obviate the difficulties of escape extinction implementation by identifying conditions under which partici-

pants would choose other reinforcers over escape. Results of these studies have demonstrated that it is possible to bias responding when arranging positive reinforcement contingencies against negative reinforcement contingencies (DeLeon, Neidert, Anders, & Rodriguez-Catter, 2001; Kodak, Lerman, Volkert, & Troscclair, 2007). However, these positive reinforcers have usually involved access to edible or tangible items.

Quality as a dimension of reinforcement has been shown to affect choice of reinforcers. Investigators have demonstrated that providing more potent reinforcers during breaks can influence choice responding (Golonka et al., 2000; Kodak, Lerman, Volkert, & Troisclair, 2007). Few studies to date have been published showing the effects of quality of attention on behavior maintained by negative reinforcement. The available studies demonstrate that children with disabilities often show a preference for specific aspects or qualities of attention and that the manipulation of quality can influence behavior (Fisher, Ninness, Piazza, & Owen-Deschryver, 1996; Kodak, Northup, & Kelley, 2007). The purpose of the current study was to examine how the quality of attention could bias choice responding toward academic tasks for 2 children with escape-maintained problem behavior.

This investigation was completed as a partial requirement for a PhD in school psychology by the first author through the College of Education at the University of Iowa. Eric W. Boelter is now at the Kennedy Krieger Institute. We thank Agnes DeRaad for her assistance with manuscript preparation, Linda Cooper-Brown and Nathan Call for their support and collaboration, and Mauro Mascotena (FLENI Argentina) for his assistance with data collection.

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doi: 10.1901/jaba.2009.42-343

METHOD

Participants, Setting, and Response Definitions

Participants were 2 typically developing children referred to a behavioral pediatrics clinic who displayed escape-maintained problem behavior during a brief experimental analysis, and who received low-quality attention from their parents during a free-play condition. Kurtis was an 8-year-old boy, and Carter was a 6-year-old boy. Both had been referred for noncompliance, aggression, and property destruction at home and school. All evaluations were completed within 120 min.

Age-appropriate academic task materials for each child were based on successes (80% correct or higher was the easy task) and failures (20% correct and lower was the difficult task) on five brief math probes conducted with each child prior to demand sessions.

The dependent variables for both participants were inappropriate behavior and time allocation. *Inappropriate behavior* was defined as noncompliance (task demand not completed within 5 s of prompt), task or property destruction (pushing, ripping, or throwing task materials), and aggression (any forceful movement ending in physical contact with another person with or without an object). *Time allocation* was defined as the duration of time a child was physically present in one of two concurrent-choice areas.

Parent and therapist behaviors were defined and scored as either high-quality (HQA) or low-quality (LQA) attention. *HQA* was defined as frequent eye contact (eyes or head oriented toward child or activity), physical contact or close proximity (<60 cm away), physical orientation toward the child, and enthusiastic praise for appropriate behavior. *LQA* was defined as infrequent eye contact (eyes or head oriented toward anything other than the child or activity), no physical contact and far proximity (>60 cm), negative verbal statements (e.g., "Hurry up, you are taking all day"), and flat or monotone vocal intonation.

Data Collection and Interobserver Agreement

All observations were conducted via video monitoring. Data were collected using a 6-s partial-interval recording system. Two trained data collectors independently scored the ongoing occurrence of each participant's inappropriate behavior and time allocation to each portion of the room. All sessions were 5 min in duration.

Interobserver agreement on occurrence of child behavior was calculated based on exact interval-by-interval comparisons for each session. For both participants, agreement was assessed for (a) a mean of 47% of all brief experimental analyses with a mean of 92% occurrence agreement (range, 90% to 95%), (b) a mean of 66% of choice assessment sessions with a mean agreement of 100%, and (c) interobserver agreement in consistency of HQA and LQA, which yielded a mean agreement of 100%.

Experimental Design

The study consisted of two phases: (a) brief experimental analysis, and (b) concurrent-operants (choice) assessment. The analysis was conducted using a brief multielement design based on Cooper *et al.* (1992). During the concurrent-operants assessment, choice options were alternated between each side of the room to control for location preference. Choice options were available on concurrent variable-time (VT) schedules of 15 s (e.g., VT 15 of HQA or VT 15 of LQA). Academic tasks presented to each child were the same difficult tasks used during the brief experimental analysis. Escape was always available during the concurrent-operants phase.

Procedure

During the brief experimental analysis, parents initially conducted the free-play, demand, and attention conditions. Staff conducted subsequent demand sessions (for Kurtis, one session included parent and staff) to verify that child behavior was sensitive to attention quality.

Parents were instructed by a therapist as to what contingencies to provide prior to each condition.

Free-play and attention conditions were conducted using procedures described by Cooper et al. (1992). During the free-play condition, each child received unrestricted access to attention and preferred activities (e.g., coloring books or toy cars that had been identified by a brief free-operant preference assessment), and no demands were presented. During the attention condition, attention was restricted, but less preferred activities continued to be available. If problem behavior occurred, the child was provided with approximately 15 s of attention in the form of a verbal reprimand. When parents were asked to provide attention to their children, they were observed to provide LQA during these two conditions. During the demand condition, the therapist delivered verbal prompts directing the child to complete an academic task. The therapist provided attention (either HQA or LQA) a mean of every 15 s (i.e., VT 15-s schedule of reinforcement), which included prompting, verbal praise, or task assistance as needed, whether or not the child was working on the academic demand. If problem behavior occurred, the therapist provided a 15-s break (with no attention). At the end of the 15-s break, the therapist re-presented the academic task and the instructions.

During the concurrent-operants assessment, the room was divided into two equal halves by placing a line of masking tape down the middle of the floor and desk. Two clinic therapists conducted sessions for the assessment, and each side of the room was associated with different contingencies (e.g., demands or free play) and alternating qualities of attention (i.e., HQA, LQA, or no attention [Kurtis only]). At the beginning of each condition, participants were asked to stand on the tape, their choices were described, and they were prompted to choose either side of the room. The therapist also explained that the participants could switch

from one side of the room to the other at any time during the session (i.e., escape was always available). All attention was provided on a VT 15-s schedule of reinforcement.

RESULTS AND DISCUSSION

During the brief experimental analysis (Figure 1), inappropriate behavior for both Kurtis and Carter occurred most frequently under demand conditions when their parents provided tasks with LQA, suggesting that inappropriate behavior was maintained, at least in part, by negative reinforcement in the form of escape from demands. Both demonstrated lower percentages of problem behavior when staff provided demands with HQA. The results further suggested that HQA may effectively compete with negative reinforcement.

The results of the concurrent-operants assessment for Kurtis (Figure 2) demonstrated consistent time allocation towards task demands associated with HQA. When provided with a choice between demands with HQA and free play with no attention, he allocated 100% of his time to the side of the room with demands. Carter also consistently chose the task associated with HQA.

In summary, the results of the concurrent-operants assessments demonstrated that choices made by children who display problem behavior could be biased towards academic tasks and appropriate behavior by providing HQA. The current study extended previous research by demonstrating that escape extinction may not be necessary if an alternative form of reinforcement is concurrently available (Lalli et al., 1999). These results also suggest that quality of attention, as a dimension of reinforcement, may be a low-cost and underestimated treatment component.

The current study replicates and extends results of Call, Wacker, Ringdahl, Cooper-Brown, and Boelter (2004) by demonstrating that changes in variables during academic tasks can influence behavior with typically developing children, and that the quality of attention can

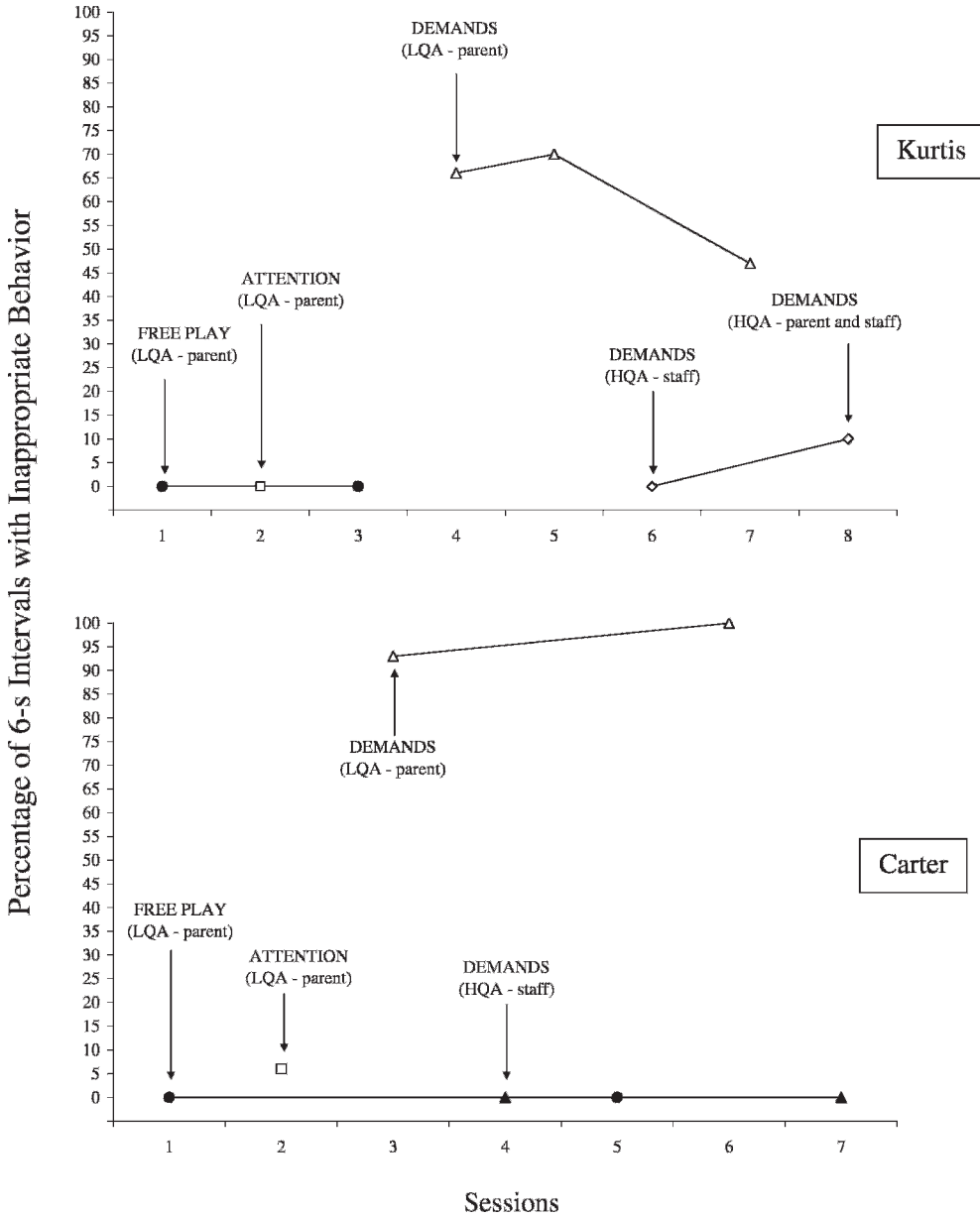


Figure 1. Brief experimental analysis results for Kurtis (top) and Carter (bottom). LQA = low-quality attention; HQA = high-quality attention.

also influence choice and levels of problem behavior in a demand context. These findings provide relevant implications for classroom settings in which manipulating qualities of teacher attention might also influence student choice responding toward academic tasks instead of problem behavior.

There were several limitations to the current study. First, data were limited to one or two 5-min sessions across both phases, which did not allow for an analysis of steady-state responding. Second, because initial treatment sessions (concurrent-operants assessments) were conducted by clinic therapists (as opposed to

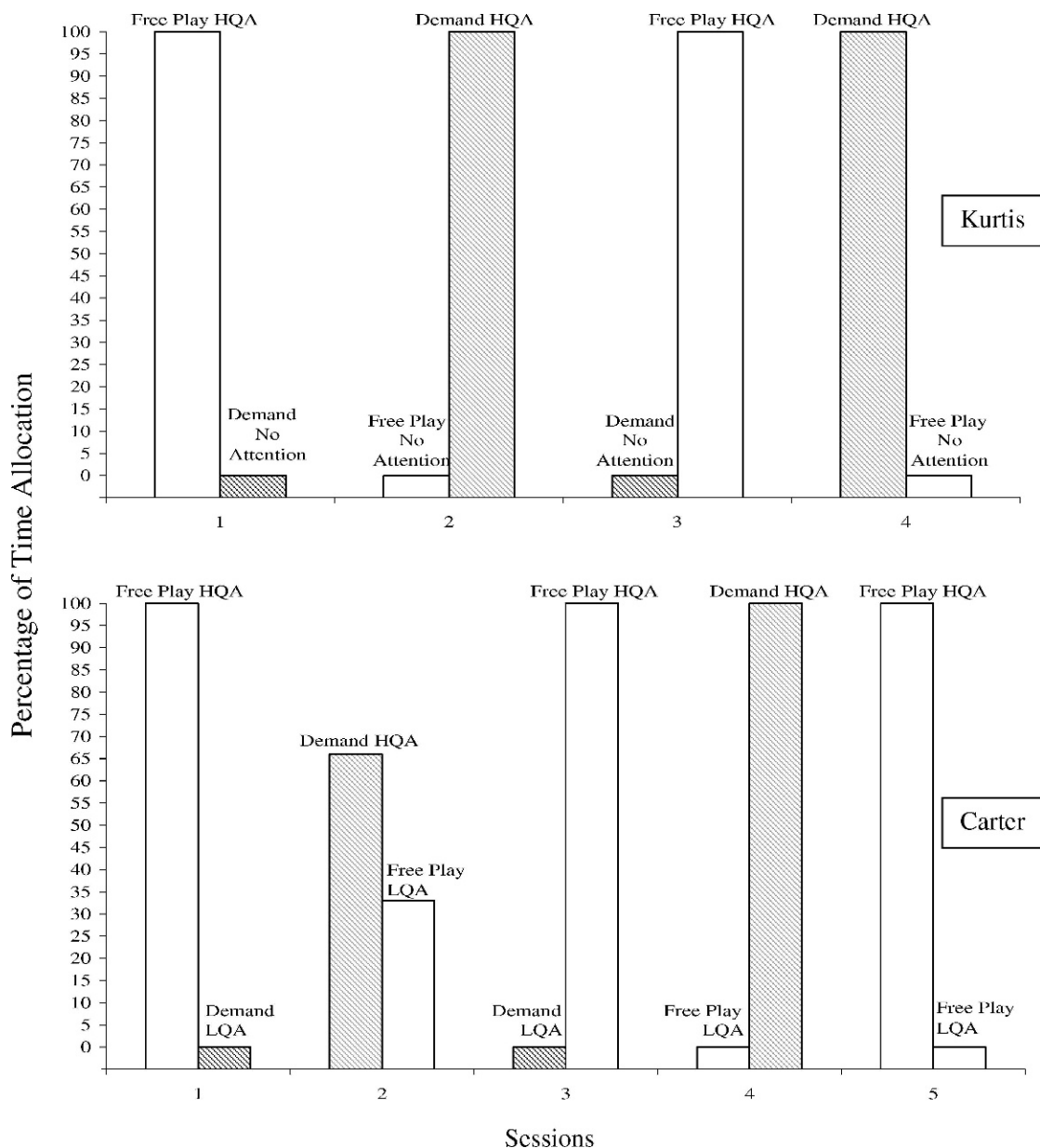


Figure 2. Concurrent-operants assessment results for Kurtis (top) and Carter (bottom) showing the effects of HQA and LQA on time allocation across free-play and demand conditions. Bars with diagonal lines represent demand conditions, and choice options were alternated across sides of the room.

parents during the brief experimental analysis), reductions in problem behavior could be attributed to changes in therapist rather than to changes in the quality of attention (Ringdahl & Sellers, 2000). Third, although the findings of this study led to direct treatment recommenda-

tions, treatment integrity for parent implementation of procedures was not recorded.

Future investigations might use concurrent-operants assessments to further isolate qualities of attention (e.g., physical proximity or contact, intonation of vocal interactions) delivered by

care providers. The child's preferences for schedules of reinforcement (dense or lean) for each of these qualities could also be determined. Information from these types of investigations may ultimately provide a more thorough assessment of specific dimensions of reinforcement that may alter preference for academic demands, successfully competing with negative reinforcement.

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Received May 8, 2007

Final acceptance February 13, 2008

Action Editor, Tiffany Kodak