

*DIFFERENTIAL REINFORCEMENT OF ALTERNATIVE BEHAVIOR AND
DEMAND FADING IN THE TREATMENT OF
ESCAPE-MAINTAINED DESTRUCTIVE BEHAVIOR*

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The escape-maintained destructive behavior of a boy with autism was reduced during instructional sequences with differential reinforcement of compliance (DRA), escape extinction without physical guidance, and demand fading. The procedure decreased destructive behaviors to near-zero levels and greatly increased compliance.

DESCRIPTORS: demand fading, developmental disabilities, functional analysis, escape behavior

One method of treating destructive behavior maintained by escape from demands involves discontinuation of reinforcement (i.e., escape extinction) by physically guiding the client to comply with the demand. However, implementation of physical guidance during instruction can result in extinction bursts, which can be problematic for caregivers depending on the client's size and the frequency and intensity of the behaviors. One commonly used but largely untested alternative to physical guidance is to "wait the child out" (escape extinction using continuation of verbal prompts until the child complies). A number of recently developed procedures could potentially enhance the effectiveness of this approach, including (a) gradually introducing demands (i.e., demand fading) into a situation in which the probability of problem behavior is low (Pace, Ivancic, & Jefferson, 1994) and (b) increasing the rate or quality of reinforcement for compliance relative to that available for problem behavior (Lalli & Casey, 1996). In this study, we used a com-

ination of these procedures to treat destructive behavior that was displayed during demand sequences by a boy who was extremely difficult to physically guide.

METHOD

Jon, an 11-year-old boy with autistic disorder and mild retardation, was hospitalized for the treatment of destructive behaviors consisting of aggression (hitting, kicking, head butting, pushing, pinching, throwing objects at others, and biting), self-injury (hand biting, head banging and hitting, and dropping to the floor), and disruption (destroying property, throwing objects, and kicking and banging on surfaces). Sessions were conducted in a room (3 m by 3 m) with a one-way mirror behind which trained observers recorded target responses on laptop computers. Functional analysis (assessment) and baseline sessions were 10 min in length. Treatment sessions continued until Jon completed a prespecified number of academic trials while seated at a table, and sessions ranged in length from 30 s to 68.6 min ($M = 11.2$ min). Reliability checks were conducted on 55% of functional analysis and treatment evaluation sessions, and the mean exact agreement coefficient was 97% (range, 67% to 100%).

This investigation was supported in part by Grant MCJ249149-02 from the Maternal and Child Health Service of the U.S. Department of Health and Human Services.

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A functional analysis, as described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994), was conducted with the following differences. Because of its severity, biting was blocked and ignored during all sessions. Also, a tangible condition was conducted, in which Jon was given preferred toys for 2 min prior to session onset. At the beginning of the session, the toys were removed and returned to Jon for 30 s contingent upon an occurrence of destructive behavior.

A combination reversal and multielement design was used to evaluate the treatment package (differential reinforcement of alternative behavior plus demand fading). Baseline was identical to the demand condition of the functional analysis. The treatment package consisted of differential reinforcement of compliance, continuous prompting without physical guidance, and demand fading. That is, verbal and gestural, but not physical, prompts continued once every 10 s independent of destructive behavior until Jon complied with the requests or left his seat. If Jon left his seat, he was allowed to escape the instructional sequence but was then reminded of the rules once every 2 min (i.e., "when you finish your work, we can play"). When Jon returned to his seat, the previous instructional sequence was reintroduced. Following compliance with a pre-specified number of instructions, the session ended, and Jon was allowed to leave the room and interact with the therapist and reinforcers that had been identified from the functional analysis (attention, tangible items) for 10 min. The number of demand trials Jon was required to complete per session was increased by one after two consecutive sessions in which the rate of destructive behavior was at least 90% below the initial mean baseline level. During Sessions 89, 95, 102, and 109, it was not practical to wait for Jon any longer because of conflicting scheduled events (e.g., meals). In those four sessions, Jon was physically guided through

the remaining demands before the session ended and was not given access to his reinforcers. In the next phase, escape extinction with physical guidance was introduced to determine if a burst of behavior would occur. During escape extinction with physical guidance, instructions were delivered using a three-step prompting sequence (verbal, gestural, physical). Prompts were delivered every 10 s, destructive behaviors were ignored, and compliance resulted in praise.

RESULTS AND DISCUSSION

During the functional analysis (top panel of Figure 1), destructive behavior occurred at relatively higher rates in social attention ($M = 6.6$), demand ($M = 4.6$), and tangible ($M = 2.8$) conditions, and relatively lower rates occurred in toy play ($M = 0.2$) and alone ($M = 1.2$) conditions. During the treatment evaluation (bottom panel), destructive behavior was highest in escape extinction with physical guidance ($M = 9$), next highest in baseline ($M_s = 3.2, 6.3,$ and 3.7 in the first, second, and third phases, respectively), and lowest during DRA plus demand fading ($M_s = 0.3, 0.5,$ and 0.6 in the second, fourth, and fifth phases, respectively). Low levels of compliance were observed in escape extinction with physical guidance ($M = 33.2\%$) and baseline phases ($M_s = 36.6\%, 31\%,$ and 24.6% , respectively), whereas substantially higher levels of compliance were observed for DRA plus demand fading ($M_s = 100\%, 90.8\%,$ and 100% , respectively).

In the current investigation, escape-maintained destructive behavior was reduced to near-zero levels and compliance improved during instructional activities without the use of physical guidance. The child's parents and teacher had indicated that a procedure including physical guidance was not possible because they could not successfully physically guide the child. And, in fact, escape extinc-

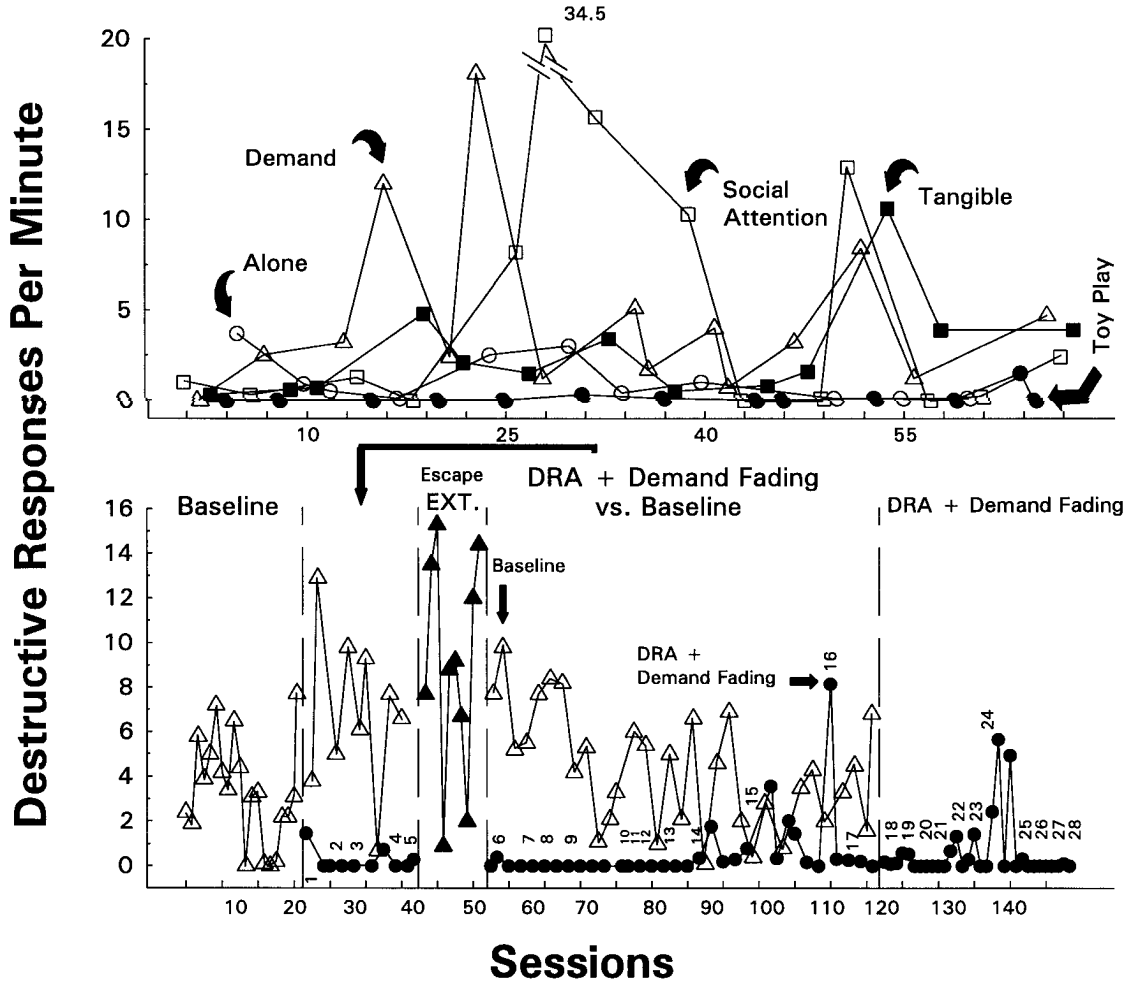


Figure 1. Responses per minute of destructive behavior during functional analysis (top panel) and during subsequent baseline and treatment conditions (bottom panel). The number of demands (the fading criterion) appears above the data points.

tion with physical guidance resulted in a marked increase in destructive behavior when implemented in the present investigation.

Several factors may have contributed to the success of the DRA plus demand fading procedure. First, compliance resulted in access to highly preferred items (social attention, tangible items) that had been identified through the functional analysis. Second, when latency to compliance was long, Jon did not have access to attention and the tangible items (i.e., deprivation) which may have established or increased the effective-

ness of these reinforcers over time. Third, the demand fading component may have increased the probability that Jon contacted reinforcement for compliance because the response requirement was initially low (i.e., Jon was required to comply with only one request). Finally, the response-reinforcer relationship for destructive behavior was discontinued by not allowing Jon to escape a task via aberrant behavior. These results support those of Pace et al. (1994) in that it may not be necessary to physically guide clients to complete a task in order to decrease

escape-maintained destructive behavior and increase compliance. However, we cannot rule out the possibility that destructive behavior would have eventually decreased using escape extinction with physical guidance had the phase been extended or had demand fading been added.

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Received December 27, 1995
Final acceptance May 14, 1996
Action Editor, Brian A. Iwata