

*ASSESSMENT AND TREATMENT OF ELOPEMENT  
MAINTAINED BY ACCESS TO STEREOTYPY*

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We evaluated a treatment for elopement maintained by access to stereotypic door play. First, we conducted a functional analysis of elopement that produced undifferentiated results. Next, we conducted an assessment in which we evaluated the relation between elopement and door play. Results suggested a functional relation between the 2 behaviors (i.e., elopement was maintained by contingent access to door play). Finally, we implemented functional communication training as a treatment for elopement in which access to door play was made contingent on a target appropriate communication response.

*Key words:* autism, elopement, functional communication training, stereotypy

As a core characteristic of the diagnosis, individuals with autism display restricted and repetitive behaviors, such as hand flapping or lining up objects, that are often referred to as *stereotypy* (American Psychiatric Association, 2000). Although not specific to the diagnosis, many individuals with autism also display forms of destructive behavior (e.g., self-injurious behavior [SIB], aggression). A separate but potentially relevant body of literature relates to individuals with autism and related disorders who engage in multiple topographies of problem behavior (e.g.,

hand flapping and self-hitting). Several previous investigations have illustrated how these two forms of behavior may enter into a reinforcement contingency whereby destructive behavior is reinforced by contingent access to stereotypy. Fisher, Lindauer, Alterson, and Thompson (1998) reported an example in which two individuals with autism engaged in destructive behavior (i.e., breaking objects into small pieces). The participants used the smaller materials to engage in stereotypic behavior (e.g., tapping an object on the wall). Thus, these two responses formed a chain in which destructive behavior was positively reinforced by access to materials that were used to engage in automatically reinforced stereotypic behavior.

In the current study, we hypothesized that a child with autism engaged in elopement due to a history in which elopement produced access to a second response (stereotypic door play). We developed an assessment in which elopement produced access to stereotypy and then imple-

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mented functional communication training (FCT) as a treatment for elopement in which access to stereotypy was made contingent on a communicative response.

## METHOD

### *Participant and Setting*

John, a 5-year-old boy with autism, was enrolled in a day-treatment program for the assessment and treatment of multiple problem behaviors including elopement. His parents reported that he had several one-word vocal responses in his repertoire (e.g., “play,” “door”), but these were rarely observed. All sessions were conducted in either an “analogue” hallway or a “natural” hallway. The analogue hallway (3 m by 4 m) was an enclosed area that contained four accessible doors that were either unlocked or locked, depending on the condition in effect. The natural hallway consisted of the halls in the area of the building that housed the day-treatment program and contained 15 accessible unlocked doors.

### *Response Measurement and Interobserver Agreement*

Trained observers used laptop computers to record frequency data on elopement, door play, door-play attempts, and card touches. All sessions were 10 min except for several sessions during delay fading (see below). Approximately four sessions were conducted per day during each phase of the study. The mean intersession time was 5 to 7 min. *Elopement* was defined as moving more than 1.5 m away from a therapist. *Door play* was defined as repeated opening and closing a door while watching the door. It is notable that John rarely crossed the threshold of the door; rather, he tended to watch the door while it was opening or closing. *Door-play attempts* were defined as pushing and pulling on door handles of locked doors. *Card touches* were defined as any part of John’s hand touching a red card (10 cm by 20 cm). All frequency measures were converted to a response rate (responses per minute) for the purpose of data analysis.

Data on interobserver agreement were collected for 38% of all sessions; agreement was calculated by dividing each 10-min session into 60 intervals (10 s each), dividing the number of intervals with exact agreements by the number of intervals with agreements plus disagreements, and converting the ratio to a percentage. Mean agreement was 99% (range, 90% to 100%) for elopement, 90% (range, 73% to 100%) for door play, 99% (range 90% to 100%) for door-play attempts, and 97% (range, 92% to 100%) for card touches.

### *Procedure*

*Elopement/door-play evaluation.* Following a functional analysis of elopement with undifferentiated results (available from the first author), we evaluated a hypothesized relation between elopement and door play with a reversal (ABAB) design. All sessions were conducted in the analogue hallway. During the free-access condition, the therapist and John were seated in chairs in the hallway. In addition to serving as a baseline (A) for comparison to a condition in which the therapist blocked door play, a secondary purpose of the free-access condition was to establish rates of door play in the absence of programmed consequences (Fisher *et al.*, 1998; Vollmer, Marcus, & LeBlanc, 1994). During this condition, the four doors in the hallway were unlocked. No other materials were present, and there were no differential consequences arranged for elopement or door play. However, 30 s after each occurrence of elopement, the therapist physically guided John back to the chair if he had not returned already. The blocking condition (B) was conducted in an identical manner except that the four doors in the hallway were locked, thereby eliminating access to door play. Otherwise, there were no differential consequences arranged for elopement. Thirty seconds after each occurrence of elopement, the therapist physically guided John back to the chair if he had not returned already.

*FCT treatment evaluation.* A reversal (ABAB) design embedded within a concurrent multiple baseline across settings (i.e., analogue hallway,

natural hallway) was used to evaluate FCT as a treatment for elopement. The baseline condition in the analogue hallway setting was identical to the free-access condition described previously. Baseline sessions conducted in the natural hallway were identical to the free-access condition implemented in the analogue hallway, except that the therapist and John walked around the building. When John engaged in elopement in the natural setting, he was allowed 30-s access to door play following which the therapist said, "It's time to keep walking," and guided John to continue walking with no additional attention provided.

During FCT in the analogue hallway, the therapist and John were seated in chairs as in the baseline condition. A card touch was chosen as the communication response because it allowed us to control John's access to the communicative response during FCT (e.g., physical guidance) and delay training. The therapist held a card approximately 0.3 m in front of John; if he touched the card, the therapist immediately delivered praise and said, "You can go and play with the door," walked him to one of the four doors, and provided 30-s access to door play. Following the 30-s reinforcement interval, the therapist guided John back to the chair and again presented the card. The therapist did not block elopement but did block door play following any occurrence of elopement (i.e., door play was available only following the FCT response, and John was able to elope throughout the session). The procedures for FCT in the natural hallway were similar to FCT in the analogue hallway except that the therapist and John walked around the building. The therapist held the card next to him so that it was available to John. Contingent on the occurrence of card touches, the therapist immediately delivered praise and said, "You can go and play with the door," walked him to the closest appropriate door, and provided 30-s access to door play. Following the 30-s reinforcement interval, the therapist said, "It's time to keep walking," and guided John to continue walking

while making the card available. The therapist blocked door play following any occurrence of elopement by standing between John and the door and redirecting him back to walking, but John could elope at any time.

*Delay fading.* Access to the communication card in both the analogue and natural hallways was restricted to make the treatment more practical for caregivers to implement (Roane, Fisher, Sgro, Falcomata, & Pabico, 2004). During fading, the therapist set a timer indicating the delay and held it so that it was visible to John as they sat or as they walked. When the timer sounded, the therapist immediately held the card out and permitted access to the reinforcer contingent on card touches. The delay value was increased following two consecutive sessions in which rates of elopement were 80% below the baseline mean ( $M_s = 1.8$  and 1.9 responses per minute in the analogue and natural settings, respectively; criterion was 0.4 for both settings). Delay fading was discontinued at a 10-s delay in the analogue hallway (due to time constraints of John's admission) and after achieving the terminal goal of 10 min in the natural hallway. The duration of sessions was extended to 630 s during 10-min delay sessions to allow John the opportunity to communicate appropriately during the session. If necessary, the reinforcement interval (30 s) continued beyond the 630-s session.

## RESULTS AND DISCUSSION

Figure 1 (top) shows the results of the elopement/door-play evaluation. Rates of elopement were elevated during the free-access condition ( $M = 1.3$  responses per minute) relative to rates during the blocking condition ( $M = 0.4$ ). Rates of door play were elevated during the free-access condition ( $M = 2.4$  responses per minute), whereas rates of door-play attempts decreased during the blocking condition ( $M = 0.8$ ). Furthermore, in the free-access condition, door play occurred within 10 s of elopement 89% of the time, and the mean

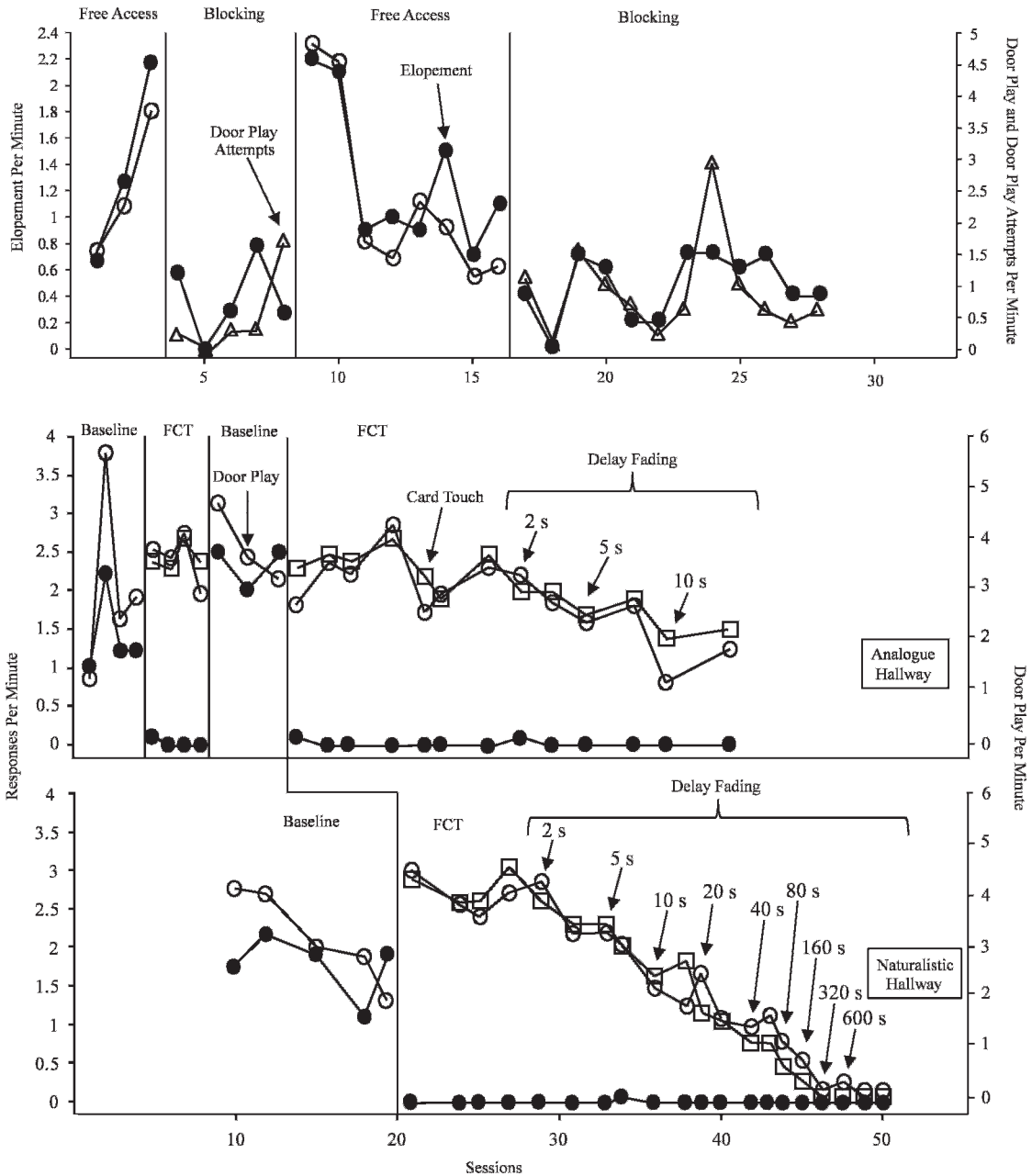


Figure 1. Rates of elopement, door play, and door-play attempts during the elopement/door-play evaluation (top) and during the treatment analysis in the analogue hallway (middle) and natural hallway (bottom).

amount of time that elapsed between occurrences of elopement and door play was 3.2 s (range, 0.3 s to 14 s). These data suggest that John consistently engaged in door play when he eloped and that he tended to do so soon after eloping.

Figure 1 (middle and bottom) shows the results of the FCT treatment evaluation and delay fading in the analogue and natural hallways, respectively. Rates of elopement were elevated during the baseline condition across the

analogue and natural settings and were near zero during FCT. During FCT, rates of card touches were elevated across the analogue and natural settings. Similar rates of door play were observed during baseline and FCT, respectively. Further, during baseline, door play occurred within 10 s of elopement 88% of the time. The mean latency to door play following occurrences of elopement was 3.4 s.

The results of the elopement/door-play evaluation suggested that elopement was positively reinforced by access to playing with the doors, which was maintained by automatic reinforcement. This hypothesis was further supported by the results of the treatment evaluation showing that FCT was effective at decreasing elopement when access to door play was provided contingent on appropriate communication and access to door play was blocked following occurrences of elopement. The results of the elopement/door-play evaluation also suggested that response blocking alone (during the blocking condition) was ineffective at reducing rates of elopement to clinically significant levels. It was not until the FCT component was implemented in conjunction with response blocking that elopement was reduced to near-zero rates. Following the study, John's caregivers were trained to implement the treatment successfully.

It should be noted that an evaluation of door play alone would have provided additional support for the relation between door play and elopement (i.e., low probability of elopement given continuous access to door play). Another potential limitation of the current results is that we did not directly address door play, which, in the current case, consisted of a behavior that was often socially unacceptable. However, this limitation was mitigated by the successful delay-fading procedures. Thus, although door play was not treated directly, ultimately the treatment package provided caregivers with the means to control the schedule and conditions under which it occurred.

Results of the current study were similar to those of Fisher et al. (1998) in suggesting that a problem behavior was maintained by access to a secondary, automatically maintained behavior. The current results also extend previous work by Charlop, Kurtz, and Casey (1990) in that stereotypy (door play) was used as a contingent reinforcer for appropriate behavior (card touches) during the treatment of problem behavior. These results also add to the elopement literature (e.g., Lang et al., 2010) by demonstrating that elopement was maintained by access to stereotypic behavior, a relation that may be common among individuals with autism and related disorders. Future research might evaluate various levels of procedural integrity and their relative impact on the effectiveness of methods such as response blocking for increasing delays to reinforcement.

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