

*BRIEF FUNCTIONAL ANALYSIS AND TREATMENT OF TANTRUMS  
ASSOCIATED WITH TRANSITIONS IN PRESCHOOL CHILDREN*

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A brief functional analysis was used to examine the influence of termination of prechange activities and initiation of postchange activities on tantrums exhibited by 2 preschool children. For 1 participant, tantrums were maintained by access to certain (pretransition) activities. For a 2nd participant, tantrums were maintained by avoidance of certain task initiations. Although advance notice of an upcoming transition was ineffective, differential reinforcement of other behavior plus extinction reduced tantrums for both participants.

DESCRIPTORS: brief functional analysis, preschool children, transitions

Transitions, defined as a change from one activity or setting to another, can evoke disruptive behavior in young children (Sainato, Strain, Lefebvre, & Rapp, 1987). In addition, because preschoolers may spend as much as 20% to 35% of their class time in transition from one activity to another, the ability to make efficient and problem-free transitions is an important skill for school readiness (Sainato & Lyon, 1983). Strategies to assess and treat disruptive behavior associated with transitions in young children are needed.

To date, one study has evaluated the utility of a functional analysis of aberrant behavior associated with transitions (McCord, Thomson, & Iwata, 2001). However, no study has examined the use of a functional analysis of disruptive behavior associated with transitions with persons who do not have a developmental disability. The purpose of this study was to replicate and extend the methodology used by McCord et al. to typically developing preschool children in an outpatient clinic setting.

## METHOD

### *Participants and Setting*

Amy, a 34-month-old girl, and Don, a 40-month-old boy, participated in the study. Amy lived at home with her parents and did not attend school. Don lived at home with his mother and sister and attended a preschool for 3 hr per day, 5 days per week. Both participants had age-appropriate language skills, and neither had been diagnosed with a disability. All sessions were conducted in a therapy room equipped with a one-way mirror at a university-affiliated clinic.

### *Data Collection and Reliability*

Amy's tantrums included saying "I don't want to" or "no" at a volume above normal conversational level, and whining, defined as a high-pitched, unintelligible cry. Don's tantrums also consisted of saying "no" at a volume above normal conversational level, and aggression, defined as forceful contact between Don's hand and his mother's body. During the functional analysis and treatment evaluation, a trained observer recorded the target behaviors during each trial via paper and pencil. A second observer independently collected data during 100% of stimulus preference assessment sessions, 83% of functional analysis sessions, and 68% of treatment evaluation sessions. Interobserver agreement was examined on a trial-by-

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We thank the parents of the participants for their cooperation.

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trial basis by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Agreement values were 100% for the preference assessment, 93% for the functional analysis, and 96% for the treatment evaluation. Data on appropriate therapist responses were collected during 33% of functional analysis sessions and 26% of treatment phase sessions and averaged 100%.

### *Procedure*

*Stimulus preference assessments.* Two paired-stimulus preference assessments (Fisher *et al.*, 1992) were conducted with each participant to identify a highly preferred edible item and a highly preferred activity. Each participant's parent was also asked to nominate an activity that was not preferred by participants; both parents independently chose picking up items off the floor. This activity and those identified via the preference assessment were used during the functional analysis.

*Brief functional analysis.* Participants were exposed to different transitions to identify which transitions occasioned tantrums. The therapist (Amy's father and Don's mother) was present in the room during all sessions. Four stimulus conditions were used (*i.e.*, preferred activity, nonpreferred activity, preferred edible item, interaction), each as the pre- and posttransition activity, resulting in eight kinds of trials. The parents reported that all of these transitions were problematic and occurred in the home.

Each transition was presented as a trial. A total of three trials of each transition were presented on separate days. Each trial consisted of a 2-min pretransition period, the transition itself, and a 2-min posttransition period. Tantrums that occurred during the pretransition periods were ignored. Each session consisted of eight trials (one for each type of transition). Participants received a 5-min break between trials. The order of trials within a session was determined randomly for each session. A description of the types of transitions follows.

*Activity initiations.* After 2 min, during which there was no programmed activity (*i.e.*, simply sitting in the room), a transition to an activity (either preferred activity, nonpreferred activity, preferred edible item, or interaction) was initiated. Amy's preferred activity was watching a video, and Don's was playing with toy cars. Both participants' nonpreferred activity was picking up items off the floor. During the preferred edible item condition, one type of food (gummy candy for Amy, sweet bread for Don) was continuously available in a bowl throughout the activity portion of the trial. If a participant finished all food in the bowl, the parent replenished the food. When the activity portion of the trial ended, the parent removed the bowl and any food in it. Both participants' interaction activity involved talking with a parent. Using a sequential hierarchy (*i.e.*, verbal, gestural, and physical), the therapist prompted the participant through the task as needed. If no tantrum occurred, the initiated activity continued for 2 min (remainder of trial). If a tantrum occurred, the initiated activity was immediately terminated and any materials present were removed.

*Activity terminations.* After 2 min, during which the participant engaged in the activity, the therapist prompted the participant to terminate the activity by using a sequential hierarchy of verbal, gestural, and physical prompts. No other activity replaced the terminated activity. If no tantrum occurred, participants simply sat in the room for the remainder of the posttransition period. If a tantrum occurred during the transition or posttransition period, the pretransition activity was resumed for the remainder of the trial.

*Treatment evaluation.* Based on the results of the brief functional analyses, transitions involving termination of a preferred activity (Amy) and initiation of a nonpreferred activity (Don) were used as contexts for treatment evaluations. Two interventions, advance notice of a transition and differential reinforcement of

other behavior (DRO) with extinction, were evaluated with each participant using reversal designs.

Each session included three trials of a transition. Amy's transition required her to turn off the television. Don's transition required him to pick up paper off the floor. Baseline sessions were identical to the functional analysis condition associated with the targeted transition; if tantrums occurred during a transition or during the 2-min posttransition period, the participant received access to the pretransition activity for the remainder of the trial.

During the advance notice intervention, participants were told by their parent immediately before each trial began that a transition was upcoming. Participants were also told what type of transition would be made (e.g., "the video will be turned off"). As in baseline, if a tantrum occurred during a transition or during the 2-min posttransition period, the participant received immediate access to the pretransition activity.

During DRO plus extinction, a large colored posterboard was placed in a salient location in the room to signal the presence of this intervention. Amy's trials were identical to those in baseline, except that tantrums did not result in access to the pretransition activity. The therapist used a sequential hierarchy of verbal, gestural, and physical prompts to assist Amy to turn off the television. Also, contingent on no tantrums during a transition, Amy's father enthusiastically praised her (e.g., "Thank you for not screaming or whining, Amy!"). Don's trials were also identical to those in baseline, except that tantrums did not result in termination of the posttransition activity (i.e., picking up paper). The therapist used a sequential hierarchy of verbal, gestural, and physical prompts to assist Don to pick up the paper. In addition, Don received access to his choice of three preferred items contingent on the absence of tantrums during a trial. Immediately before each trial, Don was informed that he

would be offered this choice contingent on no tantrums.

## RESULTS AND DISCUSSION

The top and middle panels of Figure 1 depict the percentage of trials in which tantrums occurred during the brief functional analysis for Amy and Don. The graphs depict the percentage of trials with tantrums during both the pre- and posttransition periods of each of the eight types of transitions. The transition that occasioned tantrums most often for Amy was termination of the preferred activity (100% of trials). Thus, this transition was chosen as the target transition during the treatment evaluation. Don exhibited tantrums most often during the pretransition period of the nonpreferred activity termination condition (100%). In addition, Don engaged in a tantrum during two of three posttransition periods in the nonpreferred activity termination condition. Thus, Don's tantrums occurred almost exclusively when he was picking up or was asked to pick up the paper. Pick-up initiation was therefore chosen as Don's target transition for the treatment evaluation.

The bottom panels of Figure 1 show the percentage of trials with tantrums during the treatment evaluation. For Amy, tantrums occurred during 100% of baseline and advance notice trials. During DRO plus extinction, tantrums gradually decreased. For Don, tantrums occurred during most baseline and all advance notice trials. During DRO plus extinction, tantrums did not occur.

Results suggest that brief functional analysis methods can be used to identify the maintaining variables for disruptive behavior associated with transitions exhibited by typically developing preschool children, thus providing a model for outpatient assessment and treatment of tantrums associated with transitions. Also, although some studies (e.g., Tustin, 1995) have found that advance notice of an upcoming transition can reduce aberrant behavior, this

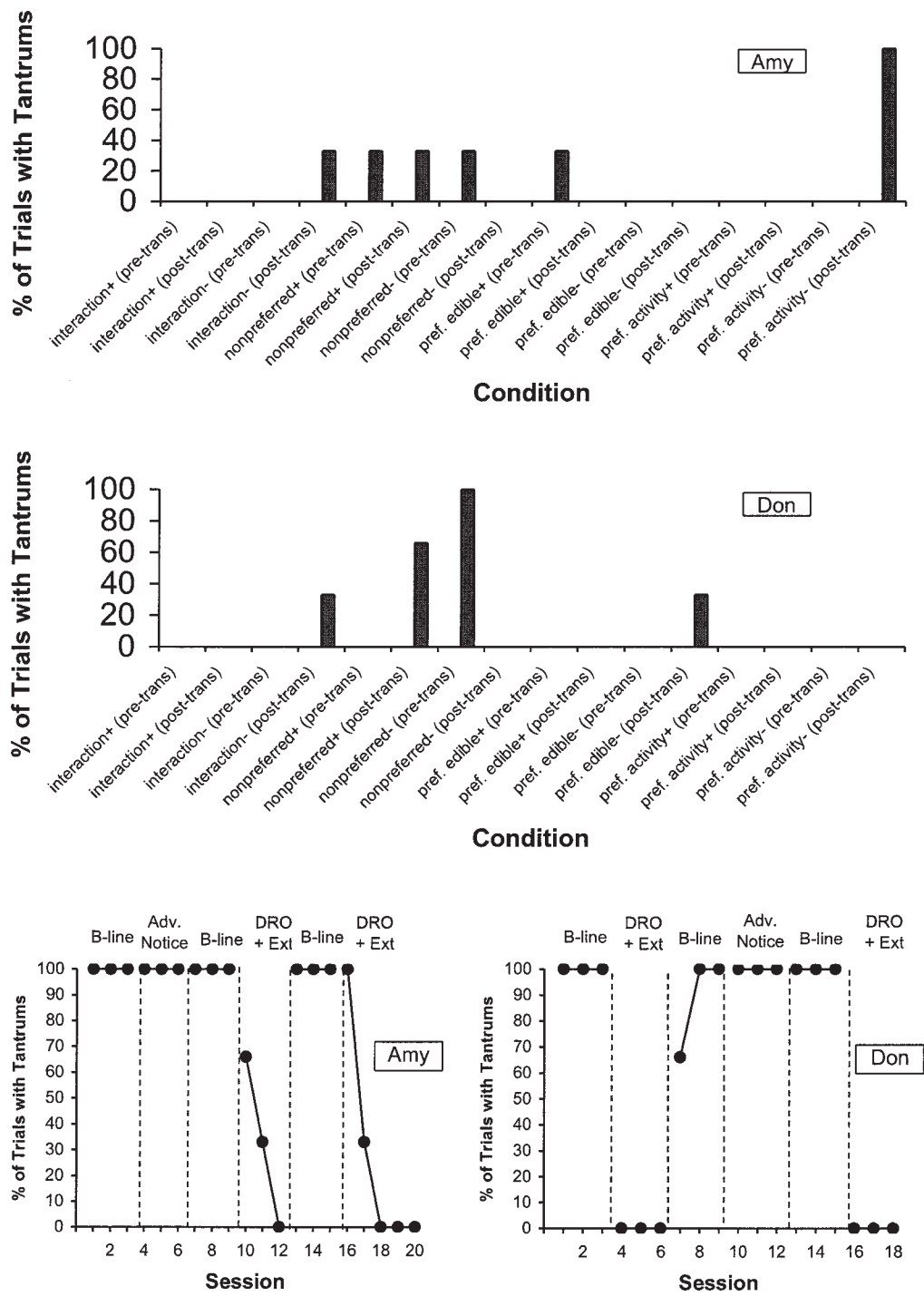


Figure 1. Percentage of trials with tantrums across all transition conditions of the brief functional analysis (interaction = verbally interacting with parent, nonpreferred = performing nonpreferred activity, pref. edible = eating preferred edible item, pref. activity = performing preferred activity, + = initiation, - = termination, pretrans = 2 min before transition initiated, posttrans = transition and 2 min after transition initiated). Also shown are the percentages of trials with tantrums across baseline and treatment phases of the treatment evaluation for Amy (bottom left) and Don (bottom right).

study supports previous research (McCord et al., 2001) showing that advance notice is not always effective. One difference between the current study and the Tustin study that may account for the discrepant results is that advance notice was provided *after* the activity had begun in the Tustin study.

The methodology of this analysis is distinct from standard functional analyses in that stimulus change was examined in both directions (e.g., preferred activity to no activity and no activity to preferred activity). Other analyses have examined change between nothing and access to an item. For example, in the tangible condition described by Moore, Mueller, Dubard, Roberts, and Sterling-Turner (2002), preferred items were given, removed, and returned at various times, arranging transitions in both directions. The current analysis differs in that transitions in both directions were programmed independent of responding, whereas more commonly, the transitions analogous to the termination transition are programmed contingent on the passage of time and the transitions analogous to the initiation transitions occur only contingent on the target behavior. Thus, unlike standard analyses, this analysis allows examination of behavior that results in a return to no activity, no attention, and so on.

It should be noted that Don's tantrums were perhaps less related to making a transition than to simply escaping the task. That is, because Don exhibited tantrums in both the posttransition period of nonpreferred activity initiation and the pretransition period of nonpreferred activity termination, escape from the task itself, rather than a transition per se, may have been maintaining his behavior. It should also be noted that because Don's tantrums never contacted the extinction component of the intervention, the treatment effects are likely attributable to DRO, perhaps in combination

with instructional control that may have resulted from the description of the contingencies to Don. Future research should directly examine the influence of rules when conducting functional analyses and function-based treatments with verbally competent participants. A final limitation of the study is that the effects of location change were not assessed. Neither Amy's nor Don's parents reported that location change was involved in problematic transitions. However, future research should assess location change as a contributing variable for tantrums associated with transitions.

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