

*DESCRIPTIVE ANALYSIS OF TEACHERS' RESPONSES TO PROBLEM
BEHAVIOR FOLLOWING TRAINING*

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The procedures described by Sloman et al. (2005) were extended to an analysis of teachers' responses to problem behavior after they had been taught to withhold potential sources of positive and negative reinforcement following instances of problem behavior. Results were consistent with those reported previously, suggesting that escape from child problem behavior may shape and maintain adult behavior that is potentially countertherapeutic.

DESCRIPTORS: descriptive analysis, escape, problem behavior, reprimands, teacher training

Training caregivers to implement general behavior-management strategies may help to reduce the incidence of behavior disorders in children with developmental disabilities. For example, a teacher might be taught to withhold potential sources of positive and negative reinforcement following instances of problem behavior (e.g., Lerman, Tetreault, Hovanetz, Strobel, & Garro, 2008). Nonetheless, teachers' correct use of behavioral interventions has been shown to decrease rapidly after initial training (e.g., Mortenson & Witt, 1998; Noell et al., 2000). Although the factors responsible for problems with treatment integrity have not been identified, results of several studies indicate that child behavior may play a role in some cases.

In particular, some findings suggest that child problem behavior may function as an aversive stimulus for caregivers (e.g., Carr, Taylor, & Robinson, 1991; Sloman et al., 2005; Taylor & Carr, 1992). Thus, any adult response that is

followed by the immediate reduction, termination, or avoidance of problem behavior may be established and maintained over time. In a direct evaluation of this hypothesis, Sloman et al. conducted descriptive analyses of caregiver reprimands by examining child–parent interactions in hospital and home settings. Levels of problem behavior were typically much higher prior to caregiver reprimands than following reprimands, suggesting a negative reinforcement contingency for caregiver behavior.

As a result of this negative reinforcement contingency, caregivers may deliver certain consequences for problem behavior despite having been trained to respond in a different manner. The procedures described by Sloman et al. (2005) may be useful for evaluating potential contingencies for adult behavior when problems with treatment integrity arise. Further understanding of these contingencies may help improve the long-term outcomes of parent and teacher training. However, the generality of the results reported by Sloman et al. remains to be established. The purpose of the current study was to extend the methods described by Sloman et al. to other types of consequences (e.g., escape from demands) and individuals (e.g., teachers and children with no prior history).

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METHOD

Participants and Setting

Participants were 3 certified special education public school teachers (Allison, Cathy, and Sara) and 2 children (Chris and Bonnie, both 4 years old) who had been diagnosed with autism and attended a university-based summer program. The ages of the teachers ranged from 31 years to 39 years, and they had 3 to 5 years of teaching experience. As part of their participation in the summer program, the teachers received some initial training on behavior-analytic teaching practices, as well as ongoing performance feedback while working with a child who attended the program. The 2 children were selected for the study because they reportedly engaged in problem behavior in task situations. In addition, the 3 teacher participants had never worked with these children nor would be working with them outside the context of the study. For the study, Allison and Cathy were paired with Chris, and Sara was paired with Bonnie. All sessions were conducted in an unused classroom that contained two child-sized desks, chairs, and materials needed to conduct teaching sessions. A video camera on a tripod was positioned at the opposite end of the room.

Response Measurement and Interobserver Agreement

All sessions were videotaped for later scoring by trained observers, who used laptop computers to record the frequency or duration of various teacher and child responses. Responses of the teacher included delivery of tasks, reprimands, tangible items, and escape. *Task delivery* was defined as presenting task-related instructions, prompts, and materials and was scored using duration recording. *Escape* was defined as the absence of all instructions, prompts, and materials for at least 10 s following task delivery. *Reprimands* were defined as statements of disapproval directed towards a child (e.g., “no,” “stop that,” “I don’t think so”). *Tangible delivery*

was scored when the teacher handed the child a tangible item that was not required to complete a task or instruction. Reprimands, tangible delivery, and escape were scored using frequency recording. Responses of the children, scored using frequency recording, included aggression (hitting, kicking, pushing, and pulling others), screaming, and throwing. A second observer independently scored at least 26% of the sessions for each participant, and interobserver agreement was calculated on point-by-point basis. Mean occurrence agreements for problem behavior and delivery of reprimands, tangible items, and escape were 97%, 100%, 93%, and 96%, respectively.

Procedure

Initial training. Prior to the study, the teachers participated in a 5-day training program on teaching techniques (see Lerman, Vorndran, Addison, & Kuhn, 2004, for a complete description of the training). Most relevant to the current study, the teachers were taught to ignore problem behavior and to refrain from delivering tangible reinforcers if problem behavior occurred during or after an instructional trial. In addition, for problem behavior that occurred during an instructional trial, the teachers were taught to work through the task by continuing the prompt sequence and then to present another instructional trial immediately.

Teaching sessions. After the initial training, each teacher was assigned to work with one of the child participants and another child who did not engage in problem behavior. Teachers were asked to work with two children to more closely simulate classroom situations. At the beginning of the study, teachers were given a list of tasks and reinforcers for each child. All necessary materials and reinforcers were available in the room. Teachers were told to teach some or all of the tasks to each child and to respond to problem behavior in a manner that they thought was appropriate. No other instructions or feedback was given. Sessions were 10 min long. One session was conducted each day, 5 days per week, for a total of 18 or 19 sessions.

Data Analyses

The percentage of problem behavior during tasks that was followed by escape and the percentage of all problem behavior that was followed by reprimands or tangible items (within 10 s) were calculated for each teacher to obtain a measure of treatment integrity. Data analyses described by Sloman et al. (2005) were conducted for the teacher's most common response to problem behavior (reprimands, task escape, or tangible items) to develop hypotheses about possible reinforcing consequences for teacher behavior. First, the mean instances of problem behavior that occurred 10 s prior to and 10 s following teacher behavior across sessions were compared to determine if problem behavior was generally lower after teacher behavior than before teacher behavior. To examine possible consequences for teacher behavior more closely, these data were used to calculate the percentages of teacher behavior that were associated with (a) fewer instances of problem behavior after the teacher behavior than before, (b) more instances of problem behavior after the teacher behavior than before, and (c) identical instances of problem behavior before and after the teacher behavior. Third, we compared the conditional probability of problem behavior within 10 s of an initial instance of problem behavior (Conditional Probability 1) to the same probability given the occurrence of an intervening teacher behavior (Conditional Probability 2). For Conditional Probability 1, the number of problem behaviors that were followed by another problem behavior within 10 s was divided by the total number of problem behaviors. For Conditional Probability 2, the number of problem behaviors followed by teacher behavior and another instance of problem behavior was divided by the total number of problem behaviors that were followed by another problem behavior within 10 s. A potential negative reinforcement contingency would be indicated if the probability of problem behavior was lower given an intervening teacher behavior than given no teacher behavior. Finally, the

frequency distribution of problem behavior within 10 s before and 30 s after instances of the consequence was examined to determine if problem behavior was more likely to occur immediately prior to teacher behavior than following teacher behavior. For all analyses, the delivery of escape was considered to have occurred 10 s prior to the scoring of escape on the data record, in that escape was not scored until instructions had been absent for 10 s.

RESULTS AND DISCUSSION

As shown in Figure 1, Allison and Cathy were more likely to deliver escape than either reprimands or tangible items following Chris's problem behavior. Sara was most likely to deliver reprimands following Bonnie's problem behavior. However, both escape and reprimands were included in Sara's analysis because a moderate proportion of problem behavior was followed by escape, and one goal of the study was to extend the procedures described by Sloman et al. (2005) to this consequence. The mean instance of problem behavior was higher immediately prior to escape (all participants) and reprimands (Sara) than following these consequences (Figure 1). In addition, the majority of escape or reprimands resulted in a decrease in problem behavior. For all participants, the conditional probability of problem behavior within 10 s of an initial instance of problem behavior given an intervening interval of escape (Conditional Probability 2) was lower than the conditional probability of problem behavior within 10 s of an initial instance of problem behavior (Conditional Probability 1). However, the opposite relation was obtained for Bonnie's problem behavior and Sara's reprimands. Thus, in general, these results suggested that an immediate decrease in child behavior was a consequence for teacher behavior (either escape or reprimands).

Figure 2 shows the frequency of problem behavior up to 10 s before and 30 s after instances of escape or reprimands. The data for

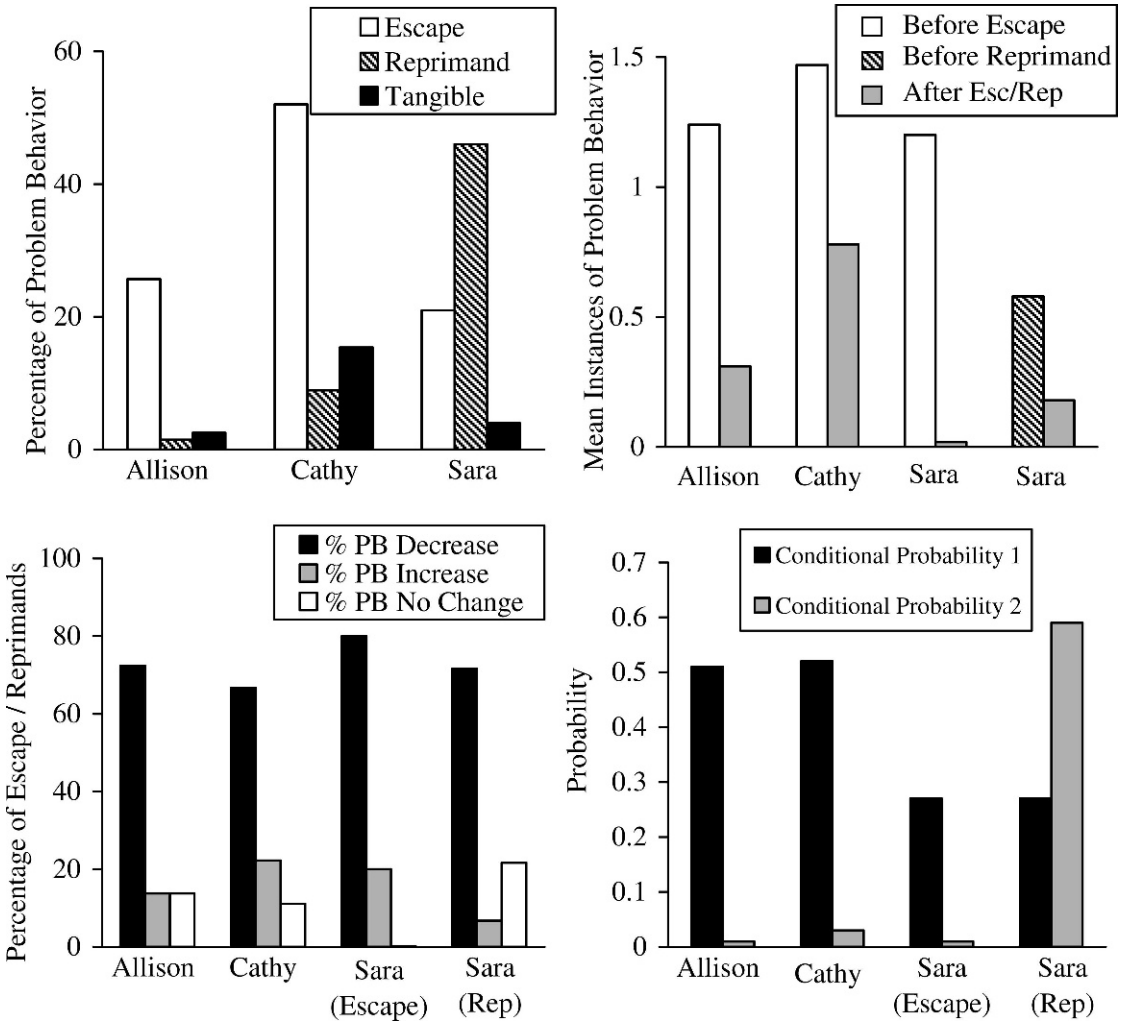


Figure 1. Percentage of task-related problem behavior that was followed by escape and the percentage of all problem behavior that was followed by reprimands or tangible items for each participant (top left). Mean instances of problem behavior 10 s before and 10 s after escape (all participants) or 10 s before and 10 s after reprimands (Sara only; top right). Percentage of escape (all participants) or reprimands (Sara only) that was associated with an increase, decrease, or no change in problem behavior (bottom left). Conditional probability of problem behavior within 10 s of an initial problem behavior (Conditional Probability 1) and the conditional probability of problem behavior within 10 s of an initial instance of problem behavior given an intervening escape (all participants) or an intervening reprimand (Sara only; bottom right).

Allison and Cathy were separated by topography of problem behavior to further analyze the results (Sara delivered consequences only after throwing). Again, results generally showed that more problem behavior occurred 3 s to 5 s prior to escape or reprimands than during the 5 s after escape or reprimands. However, this

pattern was not evident in some cases (e.g., Chris's screaming with Cathy; Sara's escape data). Results for Sara's reprimands were nearly identical to those reported by Sloman et al. (2005).

These findings replicate and extend those of Sloman et al. (2005), suggesting that a negative

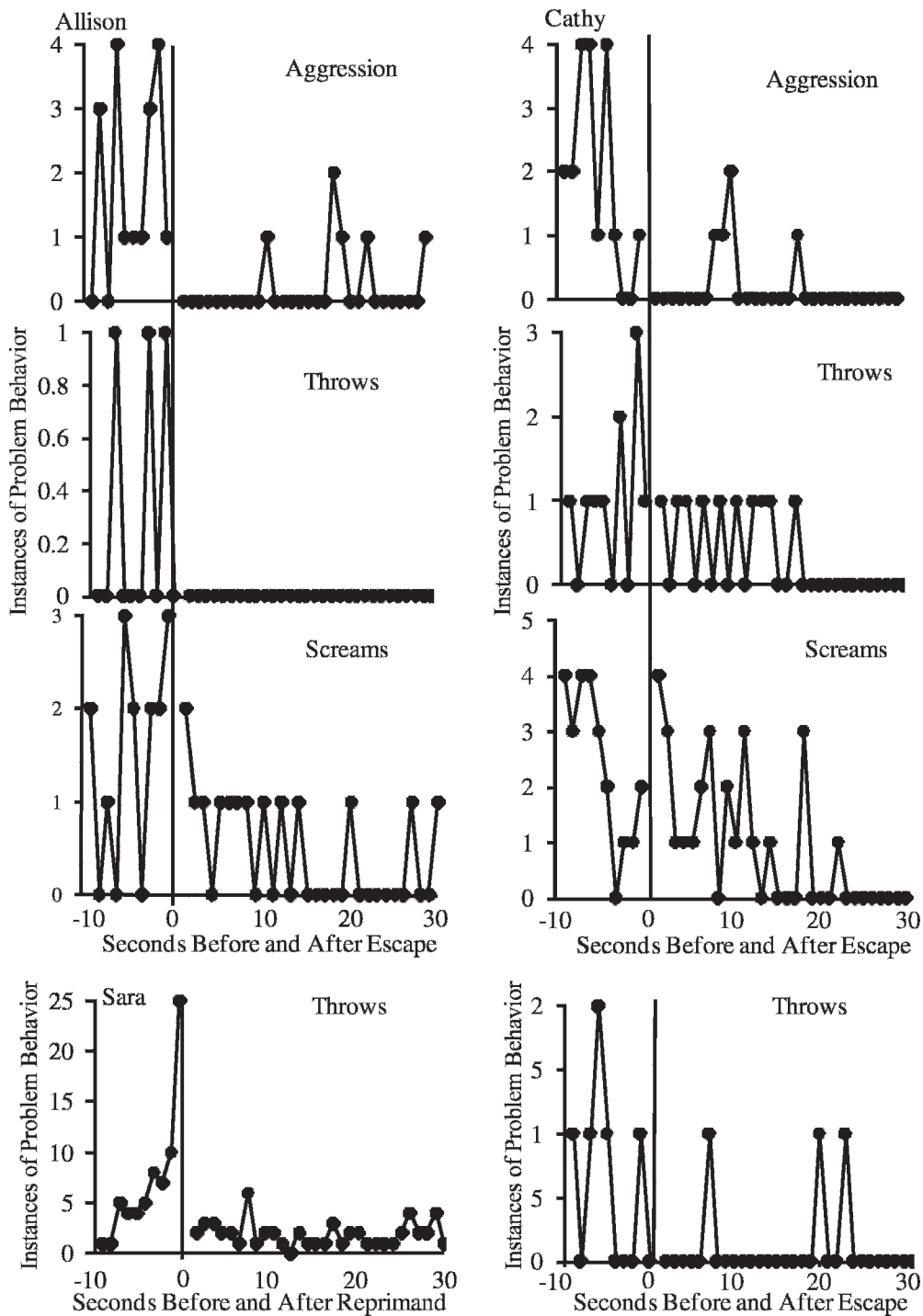


Figure 2. Total frequencies of Chris's aggression, throws, and screams 10 s prior to and 30 s after an escape delivered by Allison and Cathy (top six panels). Total frequency of Bonnie's throws 10 s prior to and 30 s after an escape (bottom left) or a reprimand (bottom right) delivered by Sara.

reinforcement contingency may exist between caregiver responses (i.e., removal of task demands and reprimands) and child problem behavior. All teachers delivered at least one type of consequence after a substantial proportion of problem behavior, even though they were explicitly taught to withhold potential sources of positive and negative reinforcement when problem behavior occurred. Thus, along with other factors (e.g., failure of training to produce generalization), child behavior may have been responsible for the problems with teacher integrity. The correlational data presented in this study implicate child behavior as a possible source of reinforcement for teacher behavior; however, these hypotheses remain speculative in the absence of direct manipulation.

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