

*ASSESSMENT OF THE RELATIVE EFFECTS OF ATTENTION AND
ESCAPE ON NONCOMPLIANCE*

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The current study presents a method for assessing the relative effects of attention and escape on noncompliance in preschoolers. Attention and escape conditions were alternated in a multielement design, and a contingency reversal procedure, in which one test condition served as a control for the other, was used to demonstrate control. For all 3 participants, noncompliance was maintained, at least in part, by social attention. Functional analyses of noncompliance such as the one described here may be valuable for developing function-based treatments.

Key words: compliance, functional analysis, noncompliance, preschoolers

Noncompliance with instructions is one of the most common problems for which children are referred for behavioral treatment (Bernal, Klinnert, & Schultz, 1980; Miles & Wilder, 2009) and has been reported in between 8% and 54% of young children (Crowther, Bond, & Rolf, 1981). Noncompliance may hinder social and academic development (Kalb & Loeber, 2003); conversely, compliance is rated as one of the most important school readiness skills by preschool and kindergarten teachers (Hains, Fowler, Schwartz, Kottwitz, & Rosenkotter, 1989). Given the prevalence and potential negative effects of noncompliance, it is important to develop methods to treat this problem behavior effectively.

Some parent-training packages recommend the use of specific treatment components without first identifying the function of a particular child's noncompliance. Although these packages usually include components that are designed to favor desirable behavior (e.g., recommending that attention be delivered only

following compliance), prescription of general treatment packages without knowledge of maintaining variables may result in the implementation of contraindicated treatments. For example, some parent-training packages recommend that parents respond to noncompliance with time-out (e.g., Eyberg & Boggs, 1989; Hembree-Kigin & McNeil, 1995; McMahon & Forehand, 2003), an intervention that would be effective for attention-maintained noncompliance but would exacerbate escape-maintained noncompliance. Likewise, escape extinction, which involves continued prompting, may inadvertently reinforce attention-maintained noncompliance.

Recent research on noncompliance suggests that, similar to other childhood behavior problems, variables responsible for its maintenance vary across individuals and can include both positive and negative reinforcement. Reimers et al. (1993) compared levels of noncompliance during attention and escape test conditions with those observed in a free-play control condition. Five of 6 children displayed the highest levels of noncompliance in the attention condition; the remaining participant's noncompliance was sensitive to escape. However, results are difficult to interpret because consequences in test conditions were arranged for noncompliance and other forms of inappropriate behavior (e.g., crying, hitting). In

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addition, no demands were presented in the free-play condition; therefore, there was no opportunity for noncompliance.

Wilder, Harris, Reagan, and Rasey (2007) evaluated 2 preschoolers' noncompliance when initiating a nonpreferred activity (escape condition), terminating a preferred activity (tangible condition), and initiating a preferred activity (control). For both participants, the highest levels of noncompliance were observed in the tangible condition in which noncompliance resulted in continued access to a preferred activity. That study highlighted the role of positive reinforcement (in the form of preferred activities) in the maintenance of noncompliance, but it was not designed to evaluate the role of attention.

Because attention and escape appear to be the most common consequences for noncompliance among young children (see Ndoro, Hanley, Tiger, & Heal, 2006), it is particularly important to understand the role of these variables in the maintenance of noncompliance. Thus, the purpose of the current study was to describe a method for evaluating the relative contributions of escape and attention in the maintenance of noncompliance. Our procedures were similar to the functional analysis described by Kern, Delaney, Hilt, Bailin, and Elliot (2002), which was designed to evaluate noncompliance of an adult woman and adolescent boy who had been diagnosed with developmental disabilities.

METHOD

Participants, Setting, and Materials

Three children who attended a university-affiliated early childhood program were included in the study based on teacher reports of noncompliance in the classroom. Sue was a typically developing 2-year-old girl, Lee was a typically developing 4-year-old boy, and Ben was a 4-year-old boy who had been diagnosed with Down syndrome.

Sessions were conducted in a room (3 m by 3 m) equipped with one-way observation in an

adjacent observation booth. The session room contained reading material for the experimenter, a small trash bin, and over 40 pieces of white paper (approximately 0.10 m by 0.13 m) scattered across the room.

Target Behavior, Data Collection, and Interobserver Agreement

Trained observers collected paper-and-pencil data on noncompliance and compliance. Compliance was recorded when more than half of at least one piece of paper passed the opening of the trash bin within 5 s of the instruction. Noncompliance was recorded if the child failed to meet this requirement. A 5-s latency was selected based on the proximity of the materials and simple nature of the task as well as descriptive data on mean latency to compliance among young children (Wruble, Sheeber, Sorensen, Boggs, & Eyberg, 1991).

A second observer independently collected data for a mean of 48% of sessions (range, 33% to 60%), with equal distribution across conditions. Interobserver agreement was calculated on a trial-by-trial basis by dividing the number of agreements by the total number of trials (i.e., 10) and converting the resulting ratio to a percentage. An agreement was defined as both observers recording the same response (i.e., noncompliance or compliance) for a trial. Mean agreement across children was 99% (range, 97% to 100%).

Procedure

Sessions lasted 5 min. Each session consisted of 10 30-s trials. Prior to the session, the experimenter briefly described the experimental contingencies while demonstrating the consequence for noncompliance and compliance. At the start of each trial, the experimenter assured that the trash bin was within arm's reach of the child and instructed him or her to "put the paper in the bin." The experimenter delivered the programmed consequences for compliance and noncompliance until the presentation of the next instruction (i.e., 25 to 30 s).

Attention. The attention condition was designed to test whether noncompliance was sensitive to the forms of attention likely to follow noncompliance under typical conditions (e.g., verbal and physical encouragement to complete the task). Contingent on noncompliance, the experimenter provided attention in the form of verbal cajoling (e.g., "Come on, you know you can do this!") while physically guiding the participant to complete the task. In other words, noncompliance resulted in experimenter attention but no escape from the task. If the participant complied, the contingencies were reversed; the participant received a break from the task but no attention. Specifically, the experimenter removed the trash bin, moved away from the participant, and looked at a magazine until it was time to present the next instruction 25 to 30 s later. Thus, experimenter attention was available only for noncompliance.

Escape. The escape condition was designed to test whether noncompliance was sensitive to escape from tasks. This condition was similar to the attention condition except that the contingencies for noncompliance and compliance were reversed. That is, contingent on noncompliance, the experimenter removed the task for the remainder of the trial and did not provide attention. Compliance resulted in experimenter attention in the form of praise (e.g., "You are doing such a good job!") and continued presentation of the task via physical guidance.

Experimental Design

The attention and escape conditions were alternated in a multielement design. Furthermore, control was demonstrated through a contingency reversal strategy (see Thompson & Iwata, 2005, for a discussion) in which one test condition served as a control for the other. If noncompliance was maintained by attention, one would expect (a) high levels of noncompliance in the attention condition in which noncompliance produced attention and (b) low levels of noncompliance in the escape condition in which noncompliance resulted in

the withdrawal of attention and compliance resulted in attention. The opposite pattern of results would have indicated that escape was more valuable.

RESULTS AND DISCUSSION

For all 3 participants, levels of noncompliance were consistently higher in the attention condition (Figure 1), suggesting that (a) noncompliance was maintained, at least in part, by social attention, and (b) attention was relatively more influential than escape in the maintenance of these individuals' noncompliance. Levels of compliance are not depicted because those are the inverse of noncompliance. Lee showed the greatest discrepancy in noncompliance across the two conditions, with noncompliance in a mean of 73% and 23% of intervals in the attention and escape conditions, respectively. Sue's levels of noncompliance were lower relative to Lee's, but her results were similar in that levels of noncompliance were higher in the attention condition ($M = 38\%$) than in the escape condition ($M = 10\%$). A greater degree of overlap was evident in Ben's data, with noncompliance in a mean of 55% and 36% in the attention and escape conditions, respectively.

The degree of overlap evident in Ben's data may be due to multiple treatment interference. If so, implementing these procedures within a reversal design may have produced more discriminated responding and allowed more conclusive statements regarding Ben's data. It is also possible that his noncompliance was sensitive to both attention and escape. However, because this assessment did not include a condition during which no differential consequences were provided for noncompliance, it is not possible to detect multiple control for any of the participants. It should be noted, however, that such a condition would be difficult to arrange because no response to noncompliance would constitute escape, and prevention of escape requires some interaction with the

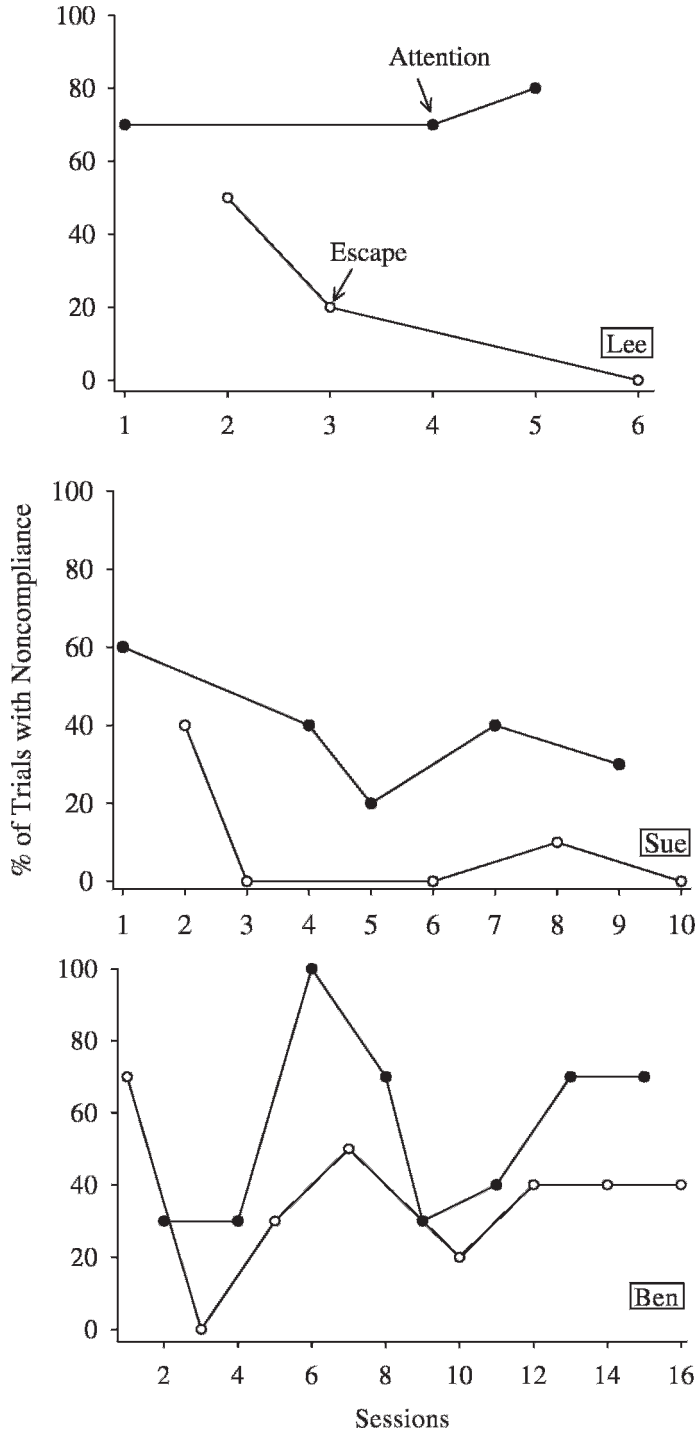


Figure 1. Percentage of trials with noncompliance for the 3 participants.

participant (i.e., attention). Although this assessment allowed only tests of the effects of attention relative to escape, higher levels of noncompliance were observed in the attention condition across all participants, suggesting that attention provided through repeated verbal and physical prompting contributed to noncompliance exhibited by these preschoolers.

These results are for the most part consistent with several widely used parent-training programs that recommend the use of time-out to reduce noncompliance (e.g., Eyberg & Boggs, 1989). Together, the current study and that of Wilder et al. (2007) suggest that positive reinforcement is likely to contribute to the maintenance of noncompliance in children of typical development, a behavior that, when considered topographically, may appear to be an escape response. However, because time-out would be ineffective if noncompliance was maintained by escape from instructions, treatments for noncompliance must be individualized based on the function of problem behavior.

The current study presents one method for examining the relative effects of attention and escape on an individual's noncompliance. Such an analysis may form the basis for treatment evaluations and recommendations. Additional research in this area is needed to inform those who design parent-training programs and preschool classrooms so that they can be maximally effective with these children.

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