

*THE EFFECTS OF ANTECEDENT INTERVENTIONS AND
EXTINCTION ON TODDLERS' COMPLIANCE DURING TRANSITIONS*

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We compared the effects of two antecedent strategies commonly used in early childhood settings to increase compliance during activity transitions: a warning condition, in which children were informed of the transition 2 min before it began, and a condition in which children were allowed access to a toy during the transition. Both antecedent interventions were ineffective when implemented alone; however, when these strategies were combined with extinction, improvements in compliance were observed for all children.

DESCRIPTORS: compliance, extinction, transitions, warnings

Children in early education programs are required to transition frequently between activities. When these transitions involve termination of a preferred event (e.g., play) and initiation of a nonpreferred event (e.g., clean-up), children may be noncompliant. Two procedures used to facilitate transitions in these settings are providing warnings prior to transitions (e.g., “two minutes to clean-up”) and allowing children access to preferred objects during transitions. Although these techniques are commonly used, there is limited empirical support for these strategies, and existing research has been conducted primarily with individuals with developmental disabilities (e.g., Tustin, 1995). By contrast, there is a significant body of research supporting the use of extinction to decrease problem behavior and improve compliance (e.g., Zarcone, Iwata, Mazaleski, & Smith, 1994). Therefore, we evaluated the independent and combined effects of warnings, access to toys, and extinction on toddlers' compliance during transitions.

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METHOD

Participants and Setting

Participants were 3 typically developing children who attended a full-day toddler program. A maximum of 12 children, who ranged in age from 14 to 30 months, were enrolled in the program. Teachers led activities (e.g., blocks) in the play area, which was separated from the toileting area by a 0.9-m barrier equipped with two doors.

The experiment was conducted during the participants' typical toileting routine (i.e., diaper change, sitting on the toilet), which occurred once every 30 to 60 min. Just prior to some of these scheduled toileting visits, the experimenter entered the classroom and prompted children to transition from the play activity to the toileting area using the experimental procedures. During all other toileting visits, teachers implemented toileting routines in the usual manner.

Participants were selected based on teacher reports that the children consistently displayed noncompliance during transitions from a play activity to the toileting area. Sammy was a 14-month-old boy who followed some one-step instructions and communicated through simple signs (e.g., “more”). Mackenzie was a 22-month-old boy who followed some two-step instructions and communicated through vocal language. Stephanie was a 15-month-old girl

who followed two-step instructions and communicated through vocal language.

Response Measurement and Interobserver Agreement

Trained observers recorded the occurrence or nonoccurrence of compliance and problem behavior during each trial (transition). Each session consisted of five trials (one of Mackenzie's sessions consisted of four trials). Compliance was recorded when the child entered the toileting area within 20 s of the initial instruction without an additional prompt (extinction only). Problem behavior was recorded when a participant hit, kicked, bit, scratched, pushed, cried, screamed, whined, dropped to the floor, or ran away from the experimenter.

Interobserver agreement was assessed by having a second observer simultaneously but independently record data during a minimum of 27% (range, 27% to 33%) of trials for each participant. Agreement was scored if both observers recorded the occurrence or nonoccurrence of the same behavior during a trial. Agreement was calculated by dividing the number of trials with agreement by the total number of trials and multiplying by 100%. Mean agreement was 100% for compliance and 98.7% (range, 97% to 100%) for problem behavior.

Treatment Analysis

One to two sessions per day were conducted 4 to 5 days per week. The effects of the warning, toy, and extinction interventions were compared using a multielement design. The intervention identified as most effective in the multielement comparison was then compared with baseline in a reversal design.

Baseline. All trials began with an initial instruction (e.g., "Sammy, come to potty."). If the child complied, the experimenter provided immediate praise and proceeded with the toileting routine. If the child did not comply or engaged in problem behavior, the experimenter

discontinued the instruction and left the area. The child was then allowed to continue with the activity in which he or she was engaged.

Warning versus toy. In both conditions, consequences for problem behavior and non-compliance were identical to baseline. In the warning condition, a 2-min warning (e.g., "two minutes to potty") was given prior to the initial instruction. In the toy condition, following the initial instruction, the participant was informed that he or she could bring a toy during the transition. If the child did not immediately choose a toy, the experimenter selected a toy from the play area and handed it to the child.

Extinction. When extinction was implemented (extinction, warning plus extinction, and toy plus extinction), the initial instruction was followed by gestural and physical prompts if the child did not initiate the transition within 3 s of the previous prompt. In the extinction condition, no additional procedures were implemented. In the warning plus extinction condition, the 2-min warning was delivered; in the toy plus extinction condition, the child was allowed access to a toy during the transition.

RESULTS AND DISCUSSION

All children displayed zero or near-zero compliance and low to moderate levels of problem behavior during the baseline, warning, and toy conditions (Figure 1). During the extinction phase, compliance immediately increased in all conditions. Sammy's and Mackenzie's highest levels of compliance and lowest levels of problem behavior were observed during the toy plus extinction condition; Stephanie's highest levels of compliance and lowest levels of problem behavior were observed during extinction alone. All children's compliance decreased during the return to baseline and subsequently increased when one of the intervention conditions (toy plus extinction for Sammy and Mackenzie; extinction alone for Stephanie) was reintroduced. It should be noted that although Stephanie's problem behavior

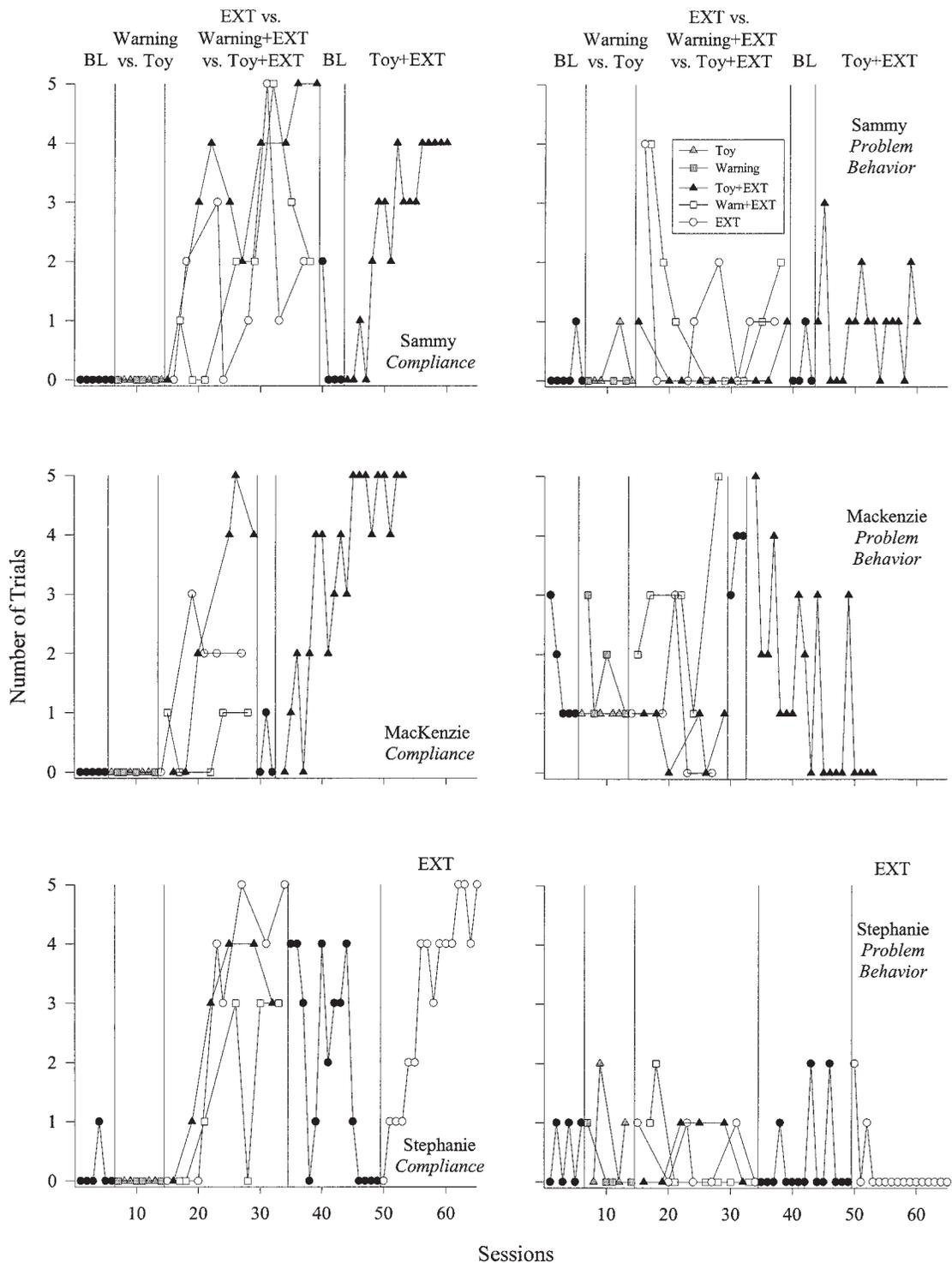


Figure 1. Sammy's (top), Mackenzie's (middle), and Stephanie's (bottom) compliance (left) and problem behavior (right) during baseline and treatment conditions.

was relatively low throughout the study, her longest period without problem behavior occurred after high levels of compliance were produced via extinction.

When antecedent strategies (warning and toy) were implemented alone, near-zero levels of compliance were observed for all participants. Yet, escape extinction increased compliance for all participants, adding to the large body of research indicating that extinction is an important intervention component (e.g., Hagopian, Fisher, Sullivan, Acquisto, & LeBlanc, 1998). Sammy's and Mackenzie's results indicate that the effects of extinction were enhanced through the inclusion of an antecedent intervention (access to toys) and are consistent with those reported in several other studies (e.g., Pace, Iwata, Cowdery, Andree, & McIntyre, 1993; Vollmer *et al.*, 1998). The effects of these interventions on problem behavior were less clear because 2 of the participants (Sammy and Mackenzie) displayed very low levels of problem behavior during all conditions.

One limitation of this study is that a functional analysis was not conducted to identify variables that maintained target behaviors. Thus, although extinction was shown to be a functional component of the intervention, it is unknown whether target behaviors were maintained by positive reinforcement (access to the play activity) or negative reinforcement (escape from the toileting routine) because, as implemented, the extinction procedure eliminated

both potential sources of reinforcement. An additional limitation of this study is that toys were not identified via a preference assessment, which might have enhanced the efficacy of the toy intervention. As a matter of practicality, we chose to allow children access to materials that were already present at the time of the transition.

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