

EFFECTS OF A CLASSWIDE TEACHER-IMPLEMENTED PROGRAM TO PROMOTE PRESCHOOLER COMPLIANCE

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We used a multiple baseline design across skills to evaluate the effects of a program to teach a classroom of children to respond to their name and a group call (i.e., precursors) as well as to peer mediate these precursors to promote compliance with a variety of multistep instructions. Teachers taught these skills via classwide behavior skills training and a lottery-based reward contingency. Results showed that precursors to compliance, peer mediation, and compliance increased as a function of classwide teaching, and the teachers found the procedures and their effects to be highly acceptable.

Key words: classwide teaching, compliance, peer mediation, precursors

Teaching children to respond to a call of their name is a skill-based tactic that has been shown to improve compliance with individual instructions (Kraus, Hanley, Cesana, Eisenburg, & Jarvie, 2012). Because of this effect, we refer to effective responding to a call of a child's name as a *precursor*. Beaulieu, Hanley, and Roberson (2012) extended this research by showing that teaching children to respond to both individual name and group calls (e.g., "everyone") improved children's compliance with individual and group instructions. Beaulieu, Hanley, and Roberson (2013) then showed the positive effects of teaching children to peer mediate the teaching (i.e., to remind their peers to engage in precursors and to praise their peers following correct precursors). The largest and most durable improvements in compliance and precursors were observed when peer mediation was taught. However, all teaching was conducted in a dyadic format by an experimenter; therefore, it is unknown whether teachers would be able to implement the teaching procedures with their entire class. Furthermore, both Beaulieu et al. (2012, 2013) studies used single-step instructions; it remains unknown

whether the procedures would improve compliance with multistep instructions. Therefore, the objectives of the current study were to extend Beaulieu et al. and to determine if the procedures were manageable, effective, and acceptable at the classwide level when implemented by teachers who issued multistep instructions in a community-based preschool.

METHOD

Participants

The community-based preschool classroom consisted of 16 typically developing 4- to 5-year-old preschoolers and two teachers. Five of the 16 children left the preschool during the evaluation (for reasons unrelated to the study), and five of the remaining 11 children exhibited high levels of compliance during baseline; therefore, we did not include these children in our data analyses. The remaining six children exhibited low to moderate levels of compliance during baseline and were included in our data analyses. All children in the classroom, regardless of whether they were a part of our data analyses, experienced the classwide teaching of precursors and peer mediation. We obtained approval for the project through an institutional review board and informed consent from the parents of the children as well as the teachers.

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Measurement

We used paper and pencil to collect trial-based data on precursors, peer mediation, and compliance following individual name calls and group calls. Data were collected 4 to 5 days per week. Teachers were instructed to implement the prescribed contingencies all day, but data were collected only during morning activities. A *precursor* consisted of a child stopping their activity, looking at the teacher, saying “yes,” and waiting for a response from the teacher after the child’s name call or a group call. We defined *peer mediation (praise)* as a child independently emitting praise or hand gestures (e.g., fist bumps) to a peer who engaged in a correct precursor within 6 s. We defined *peer mediation (reminder)* as a child independently emitting a reminder to a peer to engage in a precursor within 3 s after an incorrect or absent precursor (e.g., “Sam, Mary just called you,” or tapping a peer on the arm and pointing to the teacher). We defined *compliance* as a child initiating completion of the instruction within 3 s and completing the instruction within 30 s. Most instructions involved multiple steps (e.g., “Get your pencil from your cubby and bring it to the table.”).

Two observers simultaneously but independently collected data on at least 26% of trials across all conditions and measures. We calculated trial-by-trial agreement; an agreement was scored if the observers scored the same trial in the same way. Mean agreement was at or above 91% (range, 81% to 100%) for all responses.

Design and Procedure

We used a multiple baseline design across skills. Classwide teaching occurred in the classroom during the typical school routine. We asked teachers to deliver typical instructions, but taught them to first say a child’s name or a group call and wait up to 6 s before delivering an instruction.

Baseline (and after classwide behavior skills training). Each child experienced 10 trials that were interspersed across 2 to 3 days. Baseline

trials were similar to those in Beaulieu et al. (2012). Five trials were individual name calls, and five trials were group calls. The five individual name calls consisted of a teacher calling a child’s name, waiting up to 6 s, and issuing an instruction. The five group calls consisted of the teacher calling one of the group calls, waiting up to 6 s, and issuing an instruction. We used a variety of teacher-selected statements as group calls (“everyone,” “Class 4,” “girls,” “boys,” and the different center locations including “circle,” “housekeeping,” and “building”). The classroom teachers delivered praise, but never tokens, after correct precursors, peer mediation, and compliance. They ignored (i.e., continued with the trial) any incorrect or absent precursor and peer mediation. After noncompliance, the teacher reissued the instruction (repetition of the instruction following noncompliance was the consequence delivered before our evaluation; therefore, we retained this consequence).

Teaching precursors. The teachers taught precursors using behavioral skills training (BST) with a group-oriented and lottery-based reward contingency. The teachers were considered proficient with BST when they completed five role-plays with the first author and 10 role-plays with the children in their classroom with 90% or greater accuracy; this process occurred on the first day after baseline and took less than 45 min per teacher. At the start of the day (during circle time), the lead teacher described the expected skill. The teacher then modeled the skill with the second teacher and selected several children to role-play in front of the class. The teacher praised correct precursors. When incorrect precursors occurred, the teacher issued descriptive feedback and allowed the child to practice the skill once more. The teacher then instructed the group to respond to the group calls (e.g., “Class 4”) and provided practice in the same manner. Teaching was then embedded throughout the day.

If a child engaged in a correct precursor following an individual name or group call, the teacher praised the child and usually delivered a

token with the child's initials on it. We asked teachers to deliver tokens on an intermittent schedule, because we suspected that this would increase the ease and practicality of the procedure while child responding was still maintained. We did not specify the intermittent schedule parameters because we wanted to retain the flexibility of the procedure. We suggested that teachers deliver tokens when it was most convenient for them. We emphasized the importance of providing tokens some of the time for the target behaviors of each child. If the child did not engage in a correct precursor, the teacher first praised, and sometimes rewarded, any other child who engaged in a correct precursor (after a group call) and then described the situation-specific behavior to the child who erred and role-played until the child engaged in a correct precursor.

At the end of the school day, one to three tokens (teachers' discretion) were selected from the token bin. The selected child chose a reward from a menu that was designed by teachers based on inferred child preferences (e.g., picking the song for circle time). If a group token was selected, the teacher allowed the class to engage in 5 min of free activity or a song and dance period.

When noncompliance occurred, the teachers implemented three-step prompting, which consisted of issuing a vocal, model, and physical prompt successively (e.g., Wilder & Atwell, 2006). The teacher praised all peer mediation and ignored all absent peer mediation.

Teaching peer mediation. Peer mediation was taught using BST, and teaching was embedded throughout the day. The teacher provided praise or praise plus a token (on an intermittent schedule) if a child engaged in peer mediation. Tokens were delivered only for independent peer mediation and were not delivered for precursors. The teacher did not provide corrective feedback after incorrect precursors. If a child engaged in an incorrect precursor, the teacher prompted another child to remind the child to engage in the precursor. The teachers continued to implement

three-step prompting and delivered intermittent praise following correct precursors and compliance.

Treatment Integrity

We collected data with respect to whether teachers delivered the prescribed consequence following or absent a precursor, compliance or noncompliance, and peer mediation or absent peer mediation. We collected interobserver agreement data on treatment integrity for at least 20% of trials across teachers, conditions, and measures. The mean interobserver agreement for treatment integrity across all measures and conditions was 96% (range, 80% to 100%). During the teaching precursors condition, we observed a total of 59 opportunities and observed 97% integrity. During the teaching peer mediation condition, we observed a total of 126 opportunities and observed 97% integrity.

Social Validity Assessment

Teachers completed a two-question survey using a 7-point Likert scale at the conclusion of our evaluation ("Did you like the teaching procedures you used to promote compliance?" and "Are you satisfied with the level of compliance observed?") to assess the acceptability of the teaching and the satisfaction with the children's performance.

RESULTS AND DISCUSSION

Figure 1 depicts the overall effects of the teaching package on precursors, compliance, and peer mediation for all six children who were included in the data analysis. In baseline, precursors and peer mediation were not observed for any children, and the average compliance with multistep instructions was 52% ($SD = 11.7$). After teaching precursors and inclusion of three-step prompting, we observed an increase in precursors ($M = 53\%$; $SD = 16.3$) and compliance ($M = 83\%$; $SD = 12.1$), and peer mediation remained at zero. After teaching peer mediation,

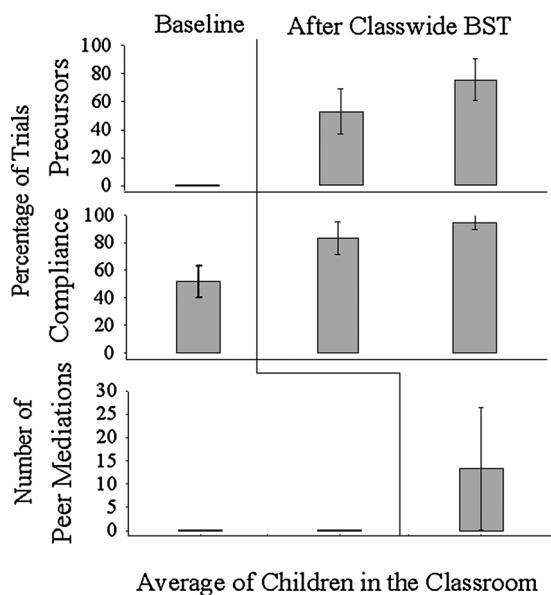


Figure 1. Average percentage of precursors, compliance, and number of peer mediation for the six children across baseline and after classwide behavioral skills training (BST). Error bars denote the standard deviation.

we observed more precursors ($M=77\%$; $SD=15$), compliance ($M=95\%$; $SD=5.2$), and peer mediations ($M=13$; $SD=13.1$).

Figure 2 depicts the individual data for the six children. During baseline, precursors and peer mediation were not observed on any trials with any children, and compliance was only observed intermittently ($M=4.8$ trials; range, 4 to 7). After precursor teaching and three-step prompting but before teaching peer mediation (i.e., the first 10 trials after baseline), we observed improvements in the number of trials with precursors across all children ($M=5.6$ trials; range, 3 to 7) and in the number of trials with compliance across all children except one (Mia). The last 10 trials on each graph reflect performance after peer mediation was taught. We did not observe any peer mediation until after teaching peer mediation, when we observed the highest number of trials with precursors ($M=7.5$ trials; range, 6 to 9), compliance ($M=9.2$ trials;

range, 9 to 10), and peer mediation ($M=6.6$ trials; range, 0 to 10).

Children had the opportunity to engage in peer mediation during more than 10 trials because each time a teacher issued a trial with one child (i.e., each time a teacher called a child's name or a group call), another child had the opportunity to peer mediate on that trial. The overall range of peer mediations observed was 0 to 35 with a mean of 13.3. We also collected data on peer mediation exhibited by the five children whose compliance data were not analyzed due to high baselines of compliance. The range of peer mediation exhibited by these children was 1 to 16 with a mean of 5.4. In other words, the children who engaged in lower compliance during baseline engaged in similar or more peer mediation after teaching as their same-aged peers. Both teachers agreed that the procedures and effects were acceptable; the mean score for both questions was 6.5 (range, 6 to 7 on a 7-point Likert scale), and they reported that they would use the procedures with their class the following year.

We extended Beaulieu et al. (2013) by demonstrating that precursors for individual name calls and group calls and peer mediation could be taught to an entire class by teachers in a community-based preschool and by observing compliance with multistep instructions. Our intervention fits within the response-to-intervention model as a Tier 1 intervention that allows classroom teachers to implement empirically validated procedures for all students in the classroom (National Center on Response To Intervention, 2010). Teaching children to peer mediate could be advantageous because it both fosters cooperative interaction between children and increases teaching opportunities when the teacher is unavailable, but it could be a hindrance if children began interfering with teacher instruction. We did not observe the latter.

Because we implemented precursor teaching and three-step prompting simultaneously, we cannot determine the isolated effects of either; however, the independent effects of both have

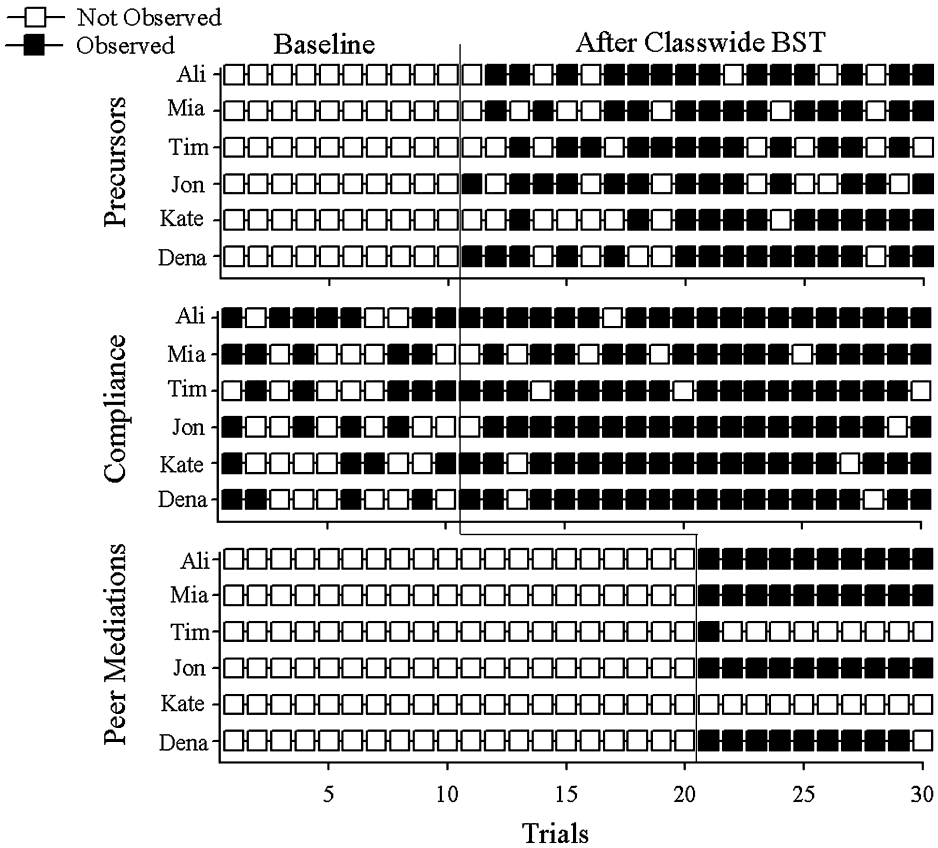


Figure 2. The number of trials with precursors (top), compliance (middle), and peer mediations (bottom) across conditions for all children. Open squares denote that the skill was not observed during the trial, and filled squares denote that the skill was observed during the trial.

already been demonstrated (Beaulieu et al., 2012, 2013; Kraus et al., 2012; Wilder & Atwell, 2006). Although we collected data after teaching was discontinued, we did not evaluate the maintenance of skills for an extended period of time. Beaulieu et al. (2013) showed, however, that precursors and compliance were maintained even when peer mediation support is provided intermittently. Nonetheless, maintenance might be affected differently when classroom teachers implement the evaluation; therefore, studies that involve more extensive observation after teaching are needed. Also, peer mediation was variable across children, suggesting that some children may require additional teaching opportunities, as described by Beaulieu et al. (2013). Nevertheless,

by showing that efficacious procedures for promoting peer mediation of compliance were successfully implemented and favored by teachers in a community-based preschool, we extended the literature from demonstrations of the efficacy of this compliance program to its effectiveness.

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