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Abstract

Classroom management skills are critical for teachers. Yet teachers receive little training in classroom management, and empirical research on teacher training in classroom management is lacking. This study was conducted to investigate the effects of explicit training and performance feedback on teachers' implementation of three classroom management skills: prompts for social behavior, academic opportunities to respond, and specific praise. Researchers used a multiple baseline design, introducing training and then performance feedback in a staggered fashion across the three teacher behaviors. Results indicate that there was not a functional relationship between explicit training and teacher behavior; however, introducing performance feedback following training was functionally related to an increase in the level, trend, or stability of teachers' use of each skill.

Keywords

classroom management, teacher training, performance feedback

Effective classroom and behavior management practices are critical skills for all teachers, especially for teachers who serve students with challenging behavior (e.g., students in an alternative educational setting). Implementation of various evidence-based classroom and behavior management practices is associated with improved student outcomes (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Given the importance of classroom and behavior management, it is surprising that teachers typically receive little training in this area (Begeny & Martens, 2006). According to a 2006 national teacher survey of 1,001 K-12 teachers across the United States, one in five first-year teachers did not feel adequately prepared to maintain order and discipline in the classroom (Markow, Moessner, & Horowitz, 2006). Thus, in-service teachers are likely

to require additional training or professional development in classroom management, which becomes the responsibility of school-based or outside trainers (e.g., administrators, consultants).

To determine the most effective way to provide this professional development, trainers may turn to the research literature; however, the empirical research in this area is lacking. Currently, there are 12 articles on “teacher training” in “classroom management” (quotations indicate exact search terms used), published in

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peer-reviewed journals in English, indexed in PsycInfo (the major social science index). Of the 12 articles, only one describes applied experimental research on teacher training in classroom management. In addition to that study, there is a limited literature base supporting the efficacy of teacher training in specific classroom management skills (e.g., using praise). The next section summarizes this literature.

Teaching Teachers to Use Classroom Management Skills

Teachers can be taught to implement classroom management skills to encourage appropriate academic and social student behavior. For example, Madsen, Becker, and Thomas (1968) demonstrated that providing workshops, written instructions, coaching, prompting, opportunities to self-monitor, and performance feedback can increase teachers' use of specific classroom management behaviors (implementation of classroom rules, planned ignoring, and praise). In addition, they noted that teachers might be more likely to implement trained strategies that are effective (i.e., those that resulted in desired student outcomes; e.g., praise) than trained strategies that are ineffective (i.e., did not result in desired student outcomes; e.g., ignoring). Therefore, training in classroom management should (a) include explicit instruction, (b) provide performance feedback, and (c) focus on critical classroom management skills (i.e., teacher behaviors that have been demonstrated to effect desired change in student behavior).

Explicit instruction in classroom management skills. A limited evidence base suggests that explicit teacher training, in vivo practice, coaching, and support in classroom management strategies can affect both teacher behavior (e.g., increase a teacher's use of praise) and student behavior (e.g., decrease disruptive student behavior) in school-based settings (Abbott et al., 1998; Hiralall & Martens, 1998; Madsen et al., 1968; The Metropolitan Area Child Study Research Group & Gorman-Smith, 2003; Rollins et al., 1974). For example,

Hiralall and Martens (1998) successfully trained four preschool teachers to implement direct instruction strategies (gaining student eye contact, providing explicit instructions, modeling, and providing feedback) to manage student behavior during an art activity. Study results indicated that training and in vivo practice, with scripted protocols, resulted in all teachers implementing the management strategies with high fidelity, and teachers maintained use of these skills after 1 month (although use of skills for three teachers decreased slightly at follow-up).

From a behavioral perspective, effective instruction, or training, should be designed to promote "socially significant behavior changes" (Cooper, Heron, & Heward, 2007, p. 615) and should employ the following strategies: (a) "teach the full range of relevant stimulus conditions and response requirements," including how to generalize (p. 626); (b) increase the similarity between the training and generalization setting; (c) increase reinforcement in the generalization setting; and (d) mediate generalization (e.g., promoting self-management; Cooper et al., 2007). Thus, teacher training should include the following components:

1. explicit instruction using a range of training examples that sample the range of classroom conditions and desired teacher behaviors,
2. practice activities that allow teachers to practice desired behaviors to build skill fluency, and
3. strategies that promote self-management (mediate generalization).

In other words, effective training programs provide knowledge and opportunities to practice. However, many researchers have demonstrated that "training by itself does not result in positive implementation . . . or intervention outcomes" (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005, pp. 40-41).

Performance feedback. Research indicates that training will likely need to be supplemented with performance-based feedback to effect

the desired change in teacher behavior (Sloat, Tharp, & Gallimore, 1977; Speidel & Tharp, 1978; Tate, Thompson, & McKarchar, 2005). Performance feedback is a tool that consultants, administrators, and other school personnel can use to increase teachers' use of classroom management skills. Successful performance feedback interventions for teachers incorporate the following critical components: review of data on teacher performance, praise for correct implementation, corrective feedback on procedures used incorrectly or infrequently, problem solving, and addressing questions (Coddling, Skowron, & Pace, 2005; Cossairt, Hall, & Hopkins, 1973; Noell et al., 2000). In the current study, explicit training and performance feedback are the two independent variables.

Selecting skills to target with training. As mentioned, teachers should be trained in effective behavior management strategies, which are likely to result in reinforcement for the teacher (i.e., increases in appropriate and decreases in inappropriate student behavior) when implemented in the classroom (generalization) setting. Effective classroom management comprises a variety of evidence-based practices designed to (a) maximize structure; (b) post, teach, monitor, review, and reinforce a small number of positively stated expectations; (c) actively engage students; (d) include a continuum of strategies to recognize appropriate student behavior; and (e) include a continuum of strategies to respond to inappropriate student behavior (Simonsen et al., 2008). More specifically, Simonsen et al. (2008) identified 20 individual practices (e.g., praise, providing opportunities to respond [OTRs]) that were demonstrated to increase students' appropriate academic and social behavior, decrease students' inappropriate behavior, or affect both appropriate and inappropriate behavior; each practice is a critical and potentially effective teacher behavior.

Because this was a research study, targeted classroom management skills also had to be appropriate for research. That is, the selected teacher behaviors must be amenable to (a) operational definition (i.e., defined in

observable, measurable, and specific terms), (b) objective observation (i.e., two observers would be able to agree on the presence or absence of the behaviors), and (c) change (i.e., they must occur, or be expected to occur, at a high enough frequency that change can be observed). Within the array of evidence-based strategies, there are at least three basic classroom management skills that meet these criteria: giving prompts for appropriate social behavior, providing students with OTRs, and delivering specific praise contingent on appropriate behavior.

Research Supporting Teachers Use of Prompts, OTRs, and Specific Praise

The following sections provide definitions, examples, and empirical support for the three targeted classroom management skills, which are the dependent variables in the current study.

Prompts for social behavior. Prompts and precorrections are specific cues that provide students with information about the behavior desired in specific situations, especially where there have been problematic behaviors in the past. Teacher-delivered prompts may be verbal, nonverbal, or both; for example, a teacher may prompt students to raise their hands by raising his or her hand (a nonverbal model) and saying, "Remember how to get my attention appropriately during a lesson" (an indirect verbal statement). For a teacher-delivered cue to serve as a prompt for social behavior, it must be presented *before* the behavior is expected (rather than after), and it must *specify* the desired social behavior.

Research indicates that prompts (or precorrections) for rule-following behavior, when paired with active supervision (i.e., moving around, scanning the environment, and interacting with students), resulted in decreases in inappropriate student behavior (a) in a sixth-grade general education classroom (De Pry & Sugai, 2002), (b) during unstructured activities at recess (Lewis, Colvin, & Sugai, 2000), and (c) across other nonclassroom settings (e.g., entering school; Colvin, Sugai, Good, &

Lee, 1997). Similarly, precorrections, when paired with other strategies (e.g., positive practice, reinforcement, and active supervision), resulted in improved student behavior in hallway settings (Oswald, Safran, & Johanson, 2005).

OTRs. An academic OTR is a teacher behavior that invites or solicits a student response. There are various ways that teachers can provide OTRs, and the invited student responses may be verbal (e.g., answering a question), gestured (e.g., raising their hand if they agree with a statement), or written (e.g., writing a response). For example, a teacher may present an OTR during a geography lesson by asking students to take out their individual whiteboards and write down the name of the country that borders the United States to the south.

Research demonstrates the positive effects of teachers increasing OTRs, including (a) decreases in disruptive behavior and (b) increases in on-task behavior, academic engagement, and the number of correct responses (Carnine, 1976; Sutherland, Alder, & Gunter, 2003; Sutherland & Wehby, 2001b; West & Sloane, 1986). In particular, the following instructional strategies have been demonstrated to increase OTRs in a classroom setting: direct instruction techniques, classwide peer tutoring, computer-assisted instruction, and guided notes (see Simonsen et al., 2008, for a more complete discussion).

Specific and contingent praise. Praise is a verbal statement that communicates positive feedback to a student. For praise to be effective, it should be specific (calling attention to the desired behavior) and contingent (occurring immediately after the desired behavior). For example, a teacher may provide specific praise for a student raising her hand by stating, "Sally, thank you for being respectful by raising your hand."

Research indicates that delivering contingent praise leads to an increase in both academic (e.g., correct responses, work productivity, and academic performance) and social (e.g., on-task behavior, compliance) behavior (Craft, Alber, & Heward, 1998; Ferguson & Houghton, 1992; Good, Eller, Spangler, &

Stone, 1981; Sutherland & Wehby, 2001a; Wilcox, Newman, & Pitchford, 1988; Wolford, Heward, & Alber, 2001). Similarly, increasing specific praise is associated with increases in students' on-task behavior (Sutherland, Wehby, & Copeland, 2000).

In summary, three classroom management skills that are amenable to research and important to target with training include providing prompts, OTRs, and contingent specific praise. Explicit training with performance feedback can effect positive change in teachers' use of classroom management skills. Additional research is needed to determine the most effective and efficient way to increase teachers' knowledge and application of classroom management skills. The current study may be among the first to demonstrate a clear functional relationship between (a) teacher training and performance feedback and (b) teachers' use of multiple critical classroom management behaviors.

Method

The purpose of the present study was to determine the efficacy of a specific teacher training protocol (prompt-occasion-reinforce training [PORT]), developed for this study, with respect to increasing desired teacher behaviors (i.e., use of specific classroom management skills). More specifically, we conducted this study to address the following research question: Is there a functional relationship between the PORT intervention (explicit training, with performance feedback) and teachers' use of trained classroom management skills (i.e., presentation of prompts, OTRs, and specific praise)?

Participants and Setting

This study took place at a public alternative school, located in a northeastern state, which primarily serves students with high incidence disabilities (e.g., emotional disturbance) who display intense and potentially aggressive problem behavior; in addition, the school serves a small number of students with low

incidence disabilities (e.g., autism, mild cognitive disabilities) who also display serious problem behavior. The clinical director of the school identified teachers whom he described as skilled but whom he felt could benefit from training in classroom management. Three teachers, who gave voluntary informed consent, participated in this study.

“Laura” is a certified special and general education teacher with a master’s degree and 16 years of teaching experience (10 years in regular education, 2 years in special education in a typical school setting, and 4 years in special education in an alternative education setting). Laura’s class consisted of approximately 5 students (attendance ranged from 3 to 7 students across the study), ages 11 to 14, with special education eligibility labels of autism and emotional disturbance. Students in Laura’s class exhibited both physical and verbal aggression.

“Lisa” is a certified special education teacher; she completed her sixth-year degree and 15 additional credits. Lisa has 13 years of teaching experience in special education (3 years as an inclusion teacher and 10 years in an alternative education setting). Lisa’s class included approximately 5 students (attendance ranged from 2 to 7 students across the study), ages 12 to 15, with special education eligibility labels of emotional disturbance (including students with *Diagnostic and Statistical Manual of Mental Disorders* [4th ed.; *DSM-IV*; American Psychiatric Association, 1994] diagnoses of conduct disorder) and mental retardation. Students in Lisa’s class also engaged in physical and verbal aggression.

“Bob” is a certified special education teacher with a master’s degree. Bob has 13 years of teaching experience in special education (2.5 years as an inclusion teacher and 10.5 years in an alternative education setting). Bob’s class consisted of approximately 5 students (attendance ranged from 2 to 7 students across the study), ages 14 to 18, with special education eligibility labels of emotional disturbance (including students with *DSM-IV* diagnoses of conduct disorder

and other psychiatric disorders). Students in Bob’s class demonstrated verbal aggression.

Design

Researchers used a multiple-baseline across-teacher behaviors design to explore the research question. Researchers introduced each phase of the intervention, or independent variables (training and performance feedback), separately and in a staggered fashion across three teacher behaviors (providing prompts for appropriate behavior, providing OTRs, and providing specific praise), or dependent variables, while simultaneously collecting data for all teacher behaviors. The staggered introduction allowed the researchers to demonstrate experimental control, showing that the behavior change was, or was not, functionally related to the introduction of the training and performance feedback for each specific behavior, rather than to other extraneous variables.

Intervention

The PORT intervention included two phases, or independent variables: explicit training and performance feedback. PORT intervention components were designed to promote socially significant behavior change; thus, the intervention employed the previously discussed critical elements of training (e.g., explicit instruction, activities, and self-management strategies to promote generalized behavior change) and performance feedback (e.g., data review, contingent praise, and error correction). Each intervention component is described in the Procedures section.

Measures (Dependent Data)

Direct observations were conducted repeatedly across time (during baseline, training, and performance feedback phases) to measure teachers’ use of each classroom management skill (prompts, OTRs, and praise statements). Ratings of social validity were obtained after

the intervention was completed. Each data source is described in turn.

Structured direct observations. Structured direct observation data were taken during teachers' morning activities (when all teachers indicated they used teacher-directed instruction) using a 10-second partial-interval recording system to measure teacher behavior. That is, an observer recorded whether the teacher engaged in each of the target behaviors (prompting, providing OTRs, specific praise) at any point during each 10-second interval. In addition, levels of general praise were recorded to allow exploration of the relationship between specific and general praise. Observations were conducted one time per day for each teacher and lasted 13.2 minutes on average (range = 5.0 to 15.0 minutes).

To ensure the reliability of the structured direct observation data, behavioral observers (a master's student and the clinical director of the participating school) were trained to collect data using 10-second partial-interval recording. Training consisted of (a) one meeting to introduce the partial interval recording form and discuss operational definitions of the behaviors included on the form and (b) two or more sessions of in vivo training (i.e., observing teachers in the classroom) with the form. In vivo training continued until the behavioral observers achieved the predetermined criterion (i.e., $\geq 90\%$) of interrater reliability. To prevent observer bias, both observers were kept blind to the skills being trained, and the clinical director was kept blind to the performance feedback sessions. As described previously, the master's student data collector provided the daily performance feedback, and she was not blind to the feedback teachers received.

Throughout the project, interobserver agreement (IOA) checks were completed for 15% of behavior observations, which were spread throughout the duration of study (occurring approximately once per week) and across all participating teachers to prevent observer drift. IOA was calculated by summing the number of agreements (i.e., when

both recorders indicated the presence/absence of each behavior within the 10-second interval) and divided by the total number of agreements and disagreements. The average IOA across the study was 93% (range = 83% to 99%).

Social validity measure. The PORT Acceptability Questionnaire was adapted from the Intervention Rating Profile-15 (IRP-15; Witt & Elliott, 1985) and was used to collect descriptive data on the social validity of the PORT intervention from the teachers' perspective after completion of both training and performance feedback components of the intervention. The PORT Acceptability Questionnaire consisted of five questions based on the IRP-15; scores on the IRP-15 have been found to be a reliable measure of the general acceptability of an intervention (Martens, Witt, Elliott, & Darveaux, 1985) and have been used to assess the acceptability of both academic and behavioral interventions implemented by teachers (e.g., Harris, Preller, & Graham, 1990; Reynolds & Kelley, 1997).

Procedures

Prior to collecting baseline data, investigators met with teachers to (a) obtain voluntary, informed consent and (b) gather information about teachers' current classroom management practices; the three teachers gave consent and identified that they all had positively stated expectations for their classrooms. In addition, teachers were asked to identify when they were most likely to deliver teacher-directed instruction to maximize the likelihood that observers would see the targeted teacher behaviors (prompting, providing OTRs, and praising). Following this initial meeting, baseline data were collected.

Baseline. During the baseline phase, structured direct observation data were collected during the time of day identified as the highest probability for teacher-directed instruction (morning). Trained behavioral observers used 10-second partial interval recording to collect data on the three target teacher behaviors: (a) prompting appropriate behavior,

(b) providing OTRs, and (c) providing specific and general praise.

Explicit training. Following baseline, explicit training was systematically introduced in a staggered fashion across the three teacher behaviors; the order of skills was randomly selected. First, teachers received training in how to prompt appropriate social behavior; second, they participated in training on how to occasion student responses by providing OTRs; and finally, they received instruction on how to reinforce appropriate student behavior with specific and contingent praise.

All training modules were delivered by two trainers (a university professor and an advanced doctoral student); training sessions took place after school for approximately 30 to 60 minutes and followed the same format. Each training module included three main components: discussion (explicit instruction), activities, and development of a self-management strategy. Each component was scripted and included on a handout for the teachers to maximize implementation fidelity.

The discussion followed a set sequence: (a) definition, (b) rationale (i.e., supporting research evidence), (c) examples, and (d) critical features of the skill. During the discussion, trainers presented the definitions and evidence presented in the introduction to this article. They also discussed a range of examples that highlighted the critical features of each skill, sampled the range of classroom contexts, and demonstrated the range of teacher behaviors. Trainers closed the discussion by stating critical features of each skill (e.g., “a prompt must be presented before the behavior is expected and specifically state the desired behavior”). As stated, each component of the discussion was included in a scripted handout that was distributed to each teacher.

Activities were designed to provide opportunities to contextualize and practice each skill. For prompting, trainers asked teachers to (a) identify their classroom expectations and classroom routines and (b) write these as row and column headings, respectively, in a matrix. Then, trainers instructed teachers to script one prompt (i.e., write a quotation they may use)

for expectation-following behaviors within each routine and rehearse the scripted prompts verbally, such that colleagues could share prompts that may be appropriate across classrooms. For OTRs, trainers asked teachers to write down specific strategies to increase academic OTRs for each classroom routine. Again, trainers invited teachers to share strategies for increasing OTRs with their colleagues. For specific and contingent praise, trainers asked teachers to complete and share the same matrix they developed for prompts but to script specific praise statements rather than prompts.

After completing activities, trainers asked teachers to identify a self-management strategy to increase the likelihood that they would implement each skill in their classroom. Trainers provided teachers with a definition of self-management: “We manage our own behavior in the same manner as we manage anyone else’s, ‘through the manipulation of variables of which behavior is a function’ (Skinner, 1953, p. 228); self-management is engaging in one response (the self-management behavior) that affects the probability of a subsequent behavior (the target or desired behavior).” Trainers further explained that there are three categories of self-management behaviors: self-manipulation of antecedents (e.g., increasing prompts, changing the environment), changing behaviors (e.g., self-recording, purposefully engaging a competing behavior), and self-manipulation of consequences (e.g., arranging reinforcement contingent on demonstration of desired behavior, preventing reinforcement in the absence of desired behavior).

Trainers asked each teacher to identify and implement a self-management strategy to increase the likelihood of him or her engaging in each classroom management skill. Laura reported that she chose a different self-management strategy for each skill. Laura wrote prompts on the board, which she read out loud, to increase the likelihood of prompting appropriate social behavior; she engaged in a different teaching strategy (a round-robin) to increase the likelihood of providing OTRs;

and she “just remembered” to give specific praise contingent on appropriate behavior. Lisa reported that she selected two different self-management strategies. She wrote scripted prompts on Post-it Notes and put them on her lesson plans to increase the likelihood of prompting appropriate social behavior, and she modified the activities she included in her lesson plans to increase OTRs. She did not employ a self-management strategy for increasing specific praise. Bob used the same self-management strategy for all skills: He wrote prompts on his board (i.e., “prompt,” “OTR,” “specific praise”) to increase the likelihood that he would use each skill.

Performance feedback. After teachers received training in the three skills, teachers were provided with daily feedback about their performance on each of the three target teacher behaviors following an initial meeting (as described previously). To demonstrate experimental control, performance feedback was introduced, in a staggered fashion, across the three behaviors in reverse order (first praise, then OTRs, and finally prompts).

Performance feedback consisted of two elements: an initial meeting for each skill and daily feedback. First, the research team (both trainers and the master’s student data collector) met with each teacher independently. During the meeting, researchers presented teachers with a one-page feedback sheet and reviewed the content. The feedback sheet contained (a) critical features of the skill; (b) an empty box for teachers to record examples of the skill; (c) bullet points that summarized the percentage of intervals in which the teacher was observed demonstrating the skill before training, after training, and during their last observation; and (d) a graph of the percentage of intervals in which the skill was observed across time. Teachers were invited to ask questions or discuss any concerns. Each meeting focused on one skill; thus, teachers participated in three separate meetings as each skill entered the performance feedback phase.

At the end of each meeting, teachers were asked their preference for receiving daily

feedback (the second component of the performance feedback); they were given options of (a) written feedback placed in their mailbox by the student data collector; (b) brief verbal feedback, delivered in person, by the student data collector; or (c) e-mail feedback provided by the student data collector. Two teachers requested brief verbal feedback via daily meetings, and one teacher requested e-mail updates. Daily meetings occurred in the morning, just before the next observation, and e-mail feedback was sent at the end of day (i.e., the afternoon before the next observation).

Regardless of the format of feedback, the student data collector provided the teacher with an updated copy of the handout, including updated graphs and specific feedback about how the teacher performed during the previous observation (i.e., the student data collector gave the teacher examples of how he or she used the skill during the previous observation and suggested other specific ways the teacher could increase his or her use of the skill during the next observation). As performance feedback was introduced for each skill, the student data collector continued to provide feedback on the previously targeted skill(s). For example, praise was the first skill on which teachers received performance feedback. When OTRs were added, the data collector provided teachers with two feedback sheets, one focusing on praise and one focusing on OTRs, and gave specific feedback on the teachers’ performance of both skills. Similarly, when prompts were added, teachers received three feedback sheets and specific comments on all three skills.

At the conclusion of the study, teachers completed a social validity scale for the PORT intervention.

Analysis

Visual analysis was used to examine the direct observation data collected in the multiple-baseline design. According to guidelines for visual analysis, provided by Horner et al. (2005), a functional relationship is evident if

(a) there is a clear separation in level among the phases (i.e., there is minimal or no overlap among the data paths associated with each phase), (b) the data are stable (i.e., there is minimal or no noise in the data) within phases, and/or (c) there is replication of the effect across at least three points in time (i.e., the effects are demonstrated across at least three behaviors). In other words, a functional relationship would be documented if behavior changed predictably, following the staggered implementation of the intervention, across three teacher behaviors. The results of the PORT acceptability measure are described below; because of the small sample size, no statistical analyses were performed.

Results

Direct Observation of Teacher Behavior Across Phases

Across teachers, baseline data were stable for both prompts and praise statements; there were no observed prompts for social behavior ($M = 0.0\%$ of observed intervals), and there were low levels of specific praise statements ($M = 1.4\%$, range = 0.0% to 9.1% of observed intervals). There was greater variability among all teachers for OTRs during baseline ($M = 22.0\%$, range = 0.0% to 67.8% of observed intervals). In general, teachers increased their use of prompting and praising appropriate student behavior, relative to baseline, following implementation of the PORT intervention; slight increases were observed for prompts and specific praise following training ($M = 1.2\%$, range = 0.0% to 21.1% of observed intervals, and $M = 4.7\%$, range = 0.0% to 16.7% of observed intervals, respectively), and the largest increases for prompts and specific praise were observed after performance feedback ($M = 5.4\%$, range = 1.7% to 10.0% of observed intervals, and $M = 14.9\%$, range = 1.4% to 28.3% of observed intervals, respectively). Results for OTRs are less consistent across teachers during both training and performance feedback ($M = 17.2\%$, range = 0.0% to 60.0% of observed intervals,

and $M = 34.9\%$, range = 0.0% to 61.7% of observed intervals, respectively). Descriptive data (means and ranges) for all participants, which should be interpreted with caution given the nature of autocorrelated data, are presented in Table 1; the following sections summarize the visual analysis of each teacher's data.

Laura. During baseline, Laura demonstrated no prompts, variable levels of OTRs, and relatively low and stable levels of specific praise (see Figure 1). Laura's use of general praise, a skill not targeted with training, was fairly high and variable throughout baseline, with a slight decreasing trend overall; the levels of general praise exceeded those of specific praise throughout the baseline phase.

Following the introduction of training, there was an immediate change in level for prompts (from 0.0% to 21.1% of intervals), which did not generalize to other behaviors. Similarly, there was an immediate change in level for praise (from 2.3% to 16.0% of intervals) after training; however, there was no clear change following training in OTRs. Throughout the training phase, data for prompts demonstrated a decreasing trend, yet prompts were demonstrated across most (75%) days during the training phase, and they were completely absent during baseline. Data for OTRs were highly variable and did not demonstrate a predictable pattern following training; in fact, there appeared to be a slight decreasing trend, with the last four data points in the training phase demonstrating a clear decreasing trend. Data for specific praise remained variable throughout the training phase, but the level was generally higher than during baseline; there was minimal overlap with baseline data, and her level of specific praise exceeded her level of general praise on 90% of observations.

With the onset of performance feedback, there were clear changes across all three behaviors. When performance feedback was introduced for specific praise, there was an immediate, albeit small, change in level and a clear increase in trend throughout the phase, which did not generalize to other trained

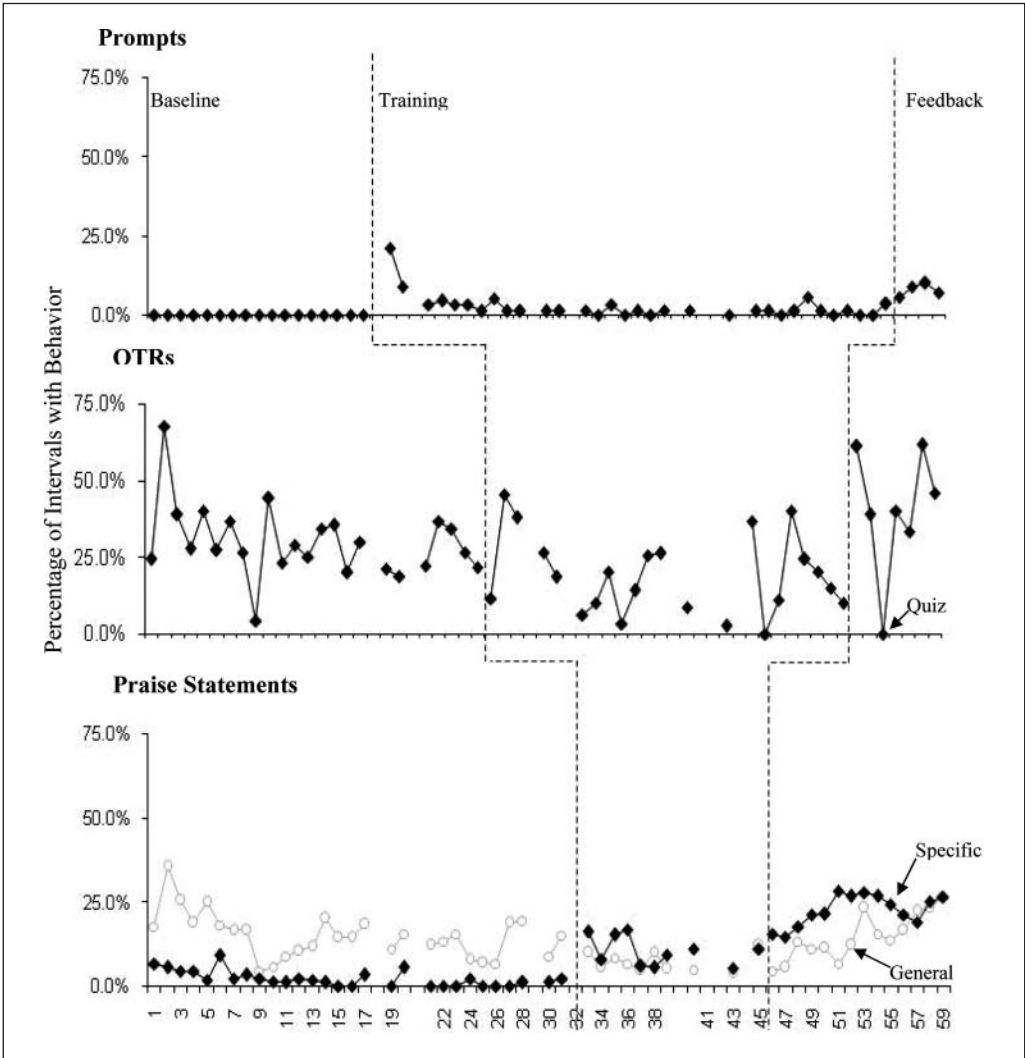


Figure 1. Percentage of Intervals in Which Laura Provided Prompts for Social Behavior, Academic Opportunities to Respond (OTRs), and Contingent Praise (Specific and General)
 Note: Two separate weeklong school breaks occurred between Observations 15 and 16 and Observations 39 and 40, and 2 weeks of statewide testing occurred between Observations 20 and 21.

behaviors. Although there was a clear increase in general praise throughout the feedback phase, the level of specific praise exceeded the level of general praise during 86% of observations. When performance feedback was provided for OTRs, there was an immediate change in level, which was maintained through the phase (with the exception of one data point, indicated on the graph, when a quiz was administered and no verbal OTRs

were provided). Similarly, when performance feedback was introduced for prompts, there was an increase in level, which was maintained throughout the phase.

Lisa. During baseline phase, Lisa engaged in low and stable levels of prompts and praise statements (see Figure 2). Her levels of OTRs, while higher than the other two behaviors, were somewhat variable, with no clear trend, and low overall (on more than half of the days,

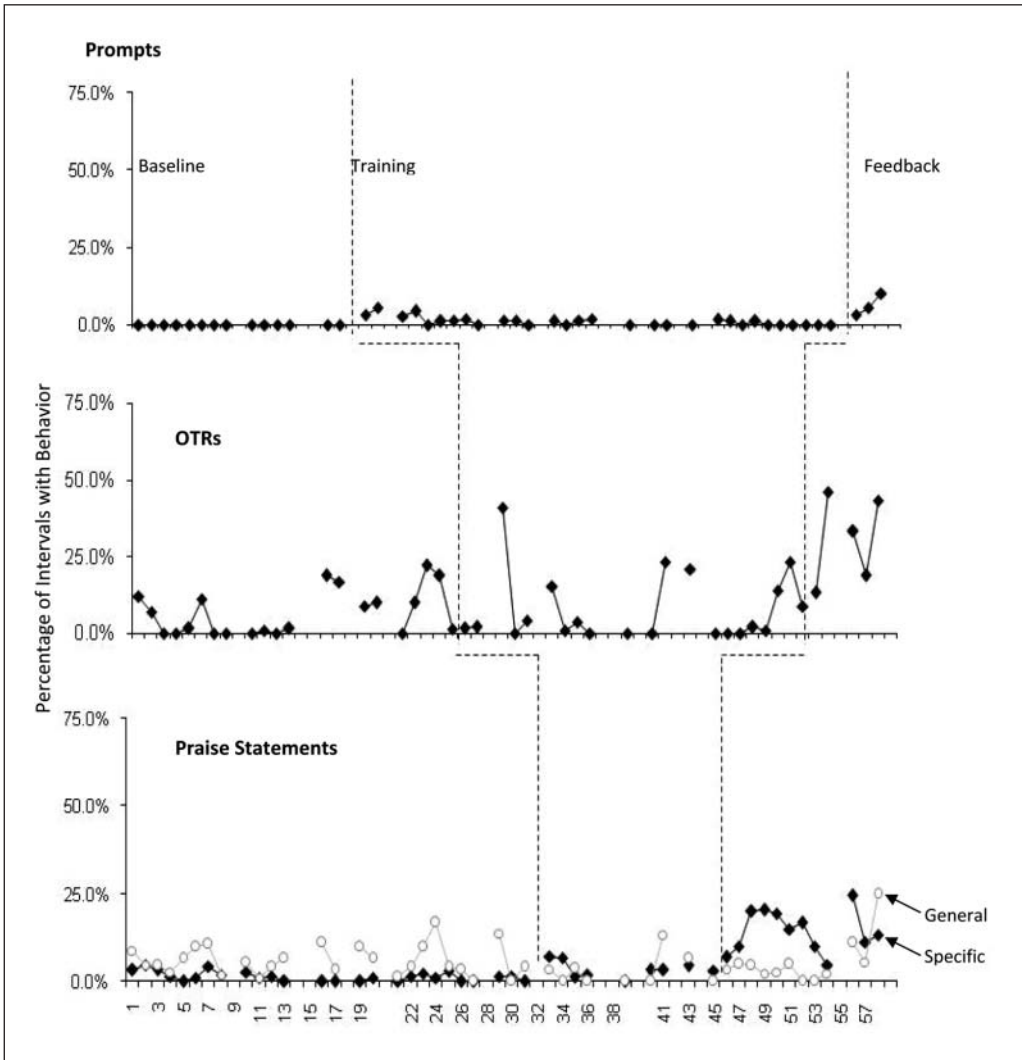


Figure 2. Percentage of Intervals in Which Lisa Provided Prompts for Social Behavior, Academic Opportunities to Respond (OTRs), and Contingent Praise (Specific and General)
Note: Two separate weeklong school breaks occurred between Observations 15 and 16 and Observations 39 and 40, and 2 weeks of statewide testing occurred between Observations 20 and 21.

she provided OTRs during fewer than 10% of intervals). General praise, which was not a trained skill, remained variable throughout the baseline phase, and her levels of general praise exceeded levels of specific praise on 70% of observations.

When training was provided, Lisa’s use of each skill increased slightly relative to baseline (see Table 1). The second day after training, there was a clear jump in level for

prompting (from 0.0% to 3.3% of intervals); however, there was an immediate decrease in trend, and she ended the training phase with no observed prompts for 6 days in a row. The third day after training, Lisa provided more OTRs than she was observed to provide during baseline (71%); however, for the majority of observations (71%) during the training phase, Lisa provided OTRs during fewer than 10% of intervals. Lisa’s use of specific praise

Table 1. The Percentage of Intervals in Which Each Behavior Was Observed, by Teacher, by Phase

| | | Phase of study | | | | | |
|-------|-----------|----------------|-------------|----------|-------------|----------|--------------|
| | | Baseline | | Training | | Feedback | |
| | | M | Range | M | Range | M | Range |
| Laura | Prompt | 0.0 | n/a | 2.4 | 0.0 to 21.1 | 7.8 | 5.6 to 10.0 |
| | OTRs | 29.9 | 4.4 to 67.8 | 19.5 | 0.0 to 45.6 | 40.1 | 0.0 to 61.7 |
| | S. Praise | 2.2 | 0.0 to 9.1 | 10.4 | 5.3 to 16.7 | 22.5 | 14.4 to 28.3 |
| Lisa | Prompt | 0.0 | n/a | 1.0 | 0.0 to 5.6 | 6.3 | 3.3 to 10.0 |
| | OTRs | 6.8 | 0.0 to 22.2 | 7.7 | 0.0 to 41.1 | 27.3 | 8.9 to 46.0 |
| | S. Praise | 1.4 | 0.0 to 4.8 | 3.4 | 0.0 to 7.1 | 14.3 | 4.6 to 24.4 |
| Bob | Prompt | 0.0 | n/a | 0.2 | 0.0 to 1.5 | 2.2 | 1.7 to 2.8 |
| | OTRs | 27.3 | 0.0 to 60.0 | 22.9 | 3.3 to 60.0 | 33.0 | 17.8 to 43.3 |
| | S. Praise | 0.6 | 0.0 to 5.0 | 1.1 | 0.0 to 4.4 | 7.9 | 1.4 to 23.3 |

Note: OTR = opportunities to respond; S. Praise = specific praise.

increased immediately following training (from 0.0% to 7.1% of intervals); however, her use of this skill remained inconsistent and relatively low. Lisa's use of general praise (not a targeted skill) remained variable, and there was not a clear difference between specific and general praise (i.e., specific praise exceeded general praise during only 55% of observations).

After Lisa received performance feedback, her use of each classroom management skill clearly increased in both level and trend. When performance feedback was provided for specific praise, Lisa achieved higher levels of praise than demonstrated during baseline and training phases (i.e., 83% of data points exceeded 7.1% of intervals—the highest level of performance observed during baseline and training phases). General praise, which was not a targeted skill, also increased at the end of this phase; however, the level of specific praise exceeded the level of general praise on 92% of observations. After Lisa was given feedback about OTRs, she achieved her highest level of OTRs; although the data were still variable, the amount of variability decreased, and her lowest rates of OTRs during the feedback phase were comparable to some of the higher data points in the previous two phases. Perhaps the clearest demonstration of a relationship between performance feedback and behavior occurred for prompts; there was an

immediate increase in both level (from 0.0% to 3.3% of intervals) and trend (increasing by ~170% each day) following feedback.

Bob. Like the other teachers, Bob was never observed prompting students during baseline. His rates of specific praise were low and stable, and his levels of general praise exceeded specific praise on 94% of observations (see Figure 3). His use of OTRs was variable throughout the baseline phase.

When training was introduced, there was a slight increase in level for prompts (from 0.0% to 1.1% of intervals), but his use of this skill remained low and inconsistent throughout the training phase. Following training on OTRs, there was an immediate increase in level (from 26.7% to 50.9% of intervals); however, there was a great deal of variability in the data, with the majority of data points overlapping with baseline, and a slight decreasing trend throughout the phase. Similarly, when Bob was provided with training on specific praise, there was a slight increase in level (from 2.2% to 4.4% of intervals), but his performance remained inconsistent and low. His rates of general praise remained variable, and during the majority of observations (93%), he provided more general than specific praise.

After Bob was provided with performance feedback, his use of each skill increased in level, trend, or stability. After Bob received feedback about his use of specific praise,

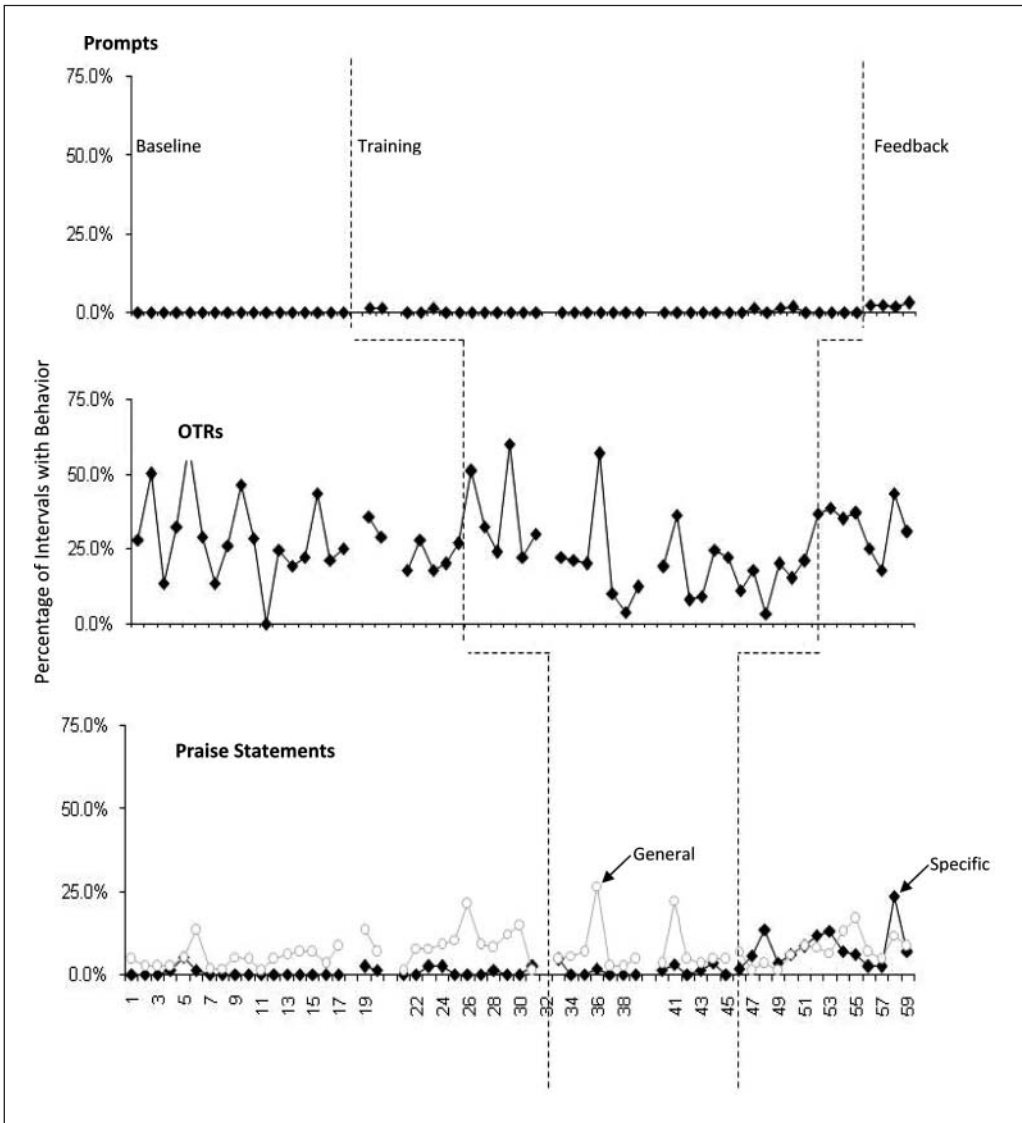


Figure 3. Percentage of Intervals in Which Bob Provided Prompts for Social Behavior, Academic Opportunities to Respond (OTRs), and Contingent Praise (Specific and General)
Note: Two separate weeklong school breaks occurred between Observations 15 and 16 and Observations 39 and 40, and 2 weeks of statewide testing occurred between Observations 20 and 21.

there was a clear increasing trend in his data. He became slightly more consistent with using specific praise; however, he provided more general than specific praise during 57% of observations. When Bob was given feedback about his use of OTRs, these data became more stable. Before feedback, he provided low levels of OTRs (fewer than 10% of intervals)

during 10% of observations; after feedback, his lowest level of OTRs was 17.8% of intervals. Following feedback about prompts, there was a clear and immediate increase in level (from 0.0% to 2.3% of intervals). Although this is a relatively low level of prompting, it remained stable through the end of the study.

In sum, there was not a clear functional relationship between explicit training and teacher's use of three classroom management skills across teachers. After teachers received performance feedback, however, there was a clear change in the level, trend, variability, or some combination thereof of data for each skill. In other words, for the teachers in this study, training was insufficient (i.e., it was not associated with behavior change). On the other hand, performance feedback, following training, was functionally related to behavior change (i.e., increase in use of trained classroom management skills).

Social Validity

All teachers completed a five-question acceptability measure, with each question rated on a 1 (*strongly disagree*) to 6 (*strongly agree*) scale, and a sixth item that prompted comments. In general, two teachers rated the intervention as acceptable; one teacher marked 3s for every response (including items that were stated negatively and would typically have received the opposite scoring); therefore, it is not clear if that participant understood the rating scale. Overall, teachers rated that the intervention (a) increased appropriate behaviors in their classrooms (M rating = 3.7, range = 3 to 4), (b) was relatively easy to implement (M rating = 4.0, range = 3 to 5), and (c) should be recommended to other schools for teacher training (M rating = 4.3, range = 3 to 5). They also provided ratings indicating that they disagree with the statement that PORT took more effort than it was worth (M rating = 2.3, range = 2 to 3). The ratings were less clear about whether or not PORT resulted in a decrease in students' inappropriate behaviors in their classrooms (M rating = 3.5, range = 3 to 4).

Discussion

This study was conducted to investigate the effects of PORT, an intervention comprising explicit training and performance feedback for teachers on implementation of three critical

classroom management skills: prompts for social behavior, academic OTRs, and specific praise. Researchers used a multiple baseline design to demonstrate experimental control, introducing training and then performance feedback in a systematic and staggered fashion across the three teacher behaviors. In general, results indicate that there was not a functional relationship between explicit training and teachers' demonstration of classroom management skills; however, introducing performance feedback following training was functionally related to an increase in the level, trend, or stability of teachers' use of each skill. Individual differences were noted and are explored in the following discussion of study results.

Interpretation of Study Results

More than any other teacher, Laura appeared to respond to the initial phase of PORT: explicit training. Direct observations indicated immediate increases in prompts and specific praise following training, but her rate of OTRs did not appear to be affected. Throughout the training phase, however, Laura's performance on all three skills decreased; still, prompting and praising were maintained at overall higher levels than baseline. With the introduction of performance feedback, Laura increased the consistency (stability) and frequency (trend) with which she engaged in each of the three behaviors—effects that were maintained through the end of the study. Laura commented that seeing the data gave her incentive to perform better than the previous day; for her, performance feedback was the most effective portion of the PORT intervention.

Lisa and Bob did not appear to benefit, in a clinically significant manner, from the training. There were few noticeable or sustained changes in behavior from baseline to training. Like Laura, both Lisa and Bob responded to performance feedback; however, their final performance of one or more skills was lower than optimal.

Lisa's most notable and sustained behavior change occurred for specific praise. She

commented that specific praise resulted in the “most improvement in [her] students” and “feels the most normal.” Although she shared that prompting remained a difficult skill, she did make marked improvements in the frequency with which she provided prompts (from 0% to 10% of intervals across the study). Lisa’s overall levels of OTRs remained relatively low (i.e., lower than 50% of observed intervals) throughout the study; after performance feedback, she increased her use of OTRs relative to baseline and training phases but still struggled to achieve high levels of OTRs. Throughout the training, she commented that her students’ behavior was more appropriate when they were assigned worksheets in the morning—even though this was the time of day she initially identified as teacher-directed instruction—and she was hesitant to change her classroom routine to increase OTRs. Thus, Lisa’s experience illustrates that teachers’ competing perceptions or learning histories (i.e., experiences associated with positive or negative outcomes) may interfere with their desired behavior change.

Bob demonstrated the least behavior change across the study; however, his behavior did increase in level (prompts), stability (OTRs), and trend (specific praise) following the introduction of performance feedback. Of all the teachers, Bob appeared to approach the training with the best attitude; at the first meeting, he told the trainers that they would see him improve greatly. At the end of the study, Bob wrote that he was “disappointed in [his] progress (graphs).” As Bob’s data illustrate, performance feedback may be related to behavior change; however, additional increases in behavior may be desired, and further intervention may be necessary to produce more clinically relevant changes for some teachers.

In sum, all teachers benefited from the PORT intervention. One teacher initially responded to explicit training but demonstrated the largest improvements after performance feedback. Two teachers appeared to receive little, if any, direct benefit from

explicit training, and performance feedback was required to effect a desired change in behavior. These results are consistent with previous research; explicit training should be supplemented by performance feedback to achieve desired outcomes (e.g., Sloat et al., 1977; Speidel & Tharp, 1978; Tate et al., 2005).

Individual learning histories and pre-training skill levels may have affected each teacher’s performance; these individual differences may need to be assessed and addressed in future research and practice. Given that the teachers (a) rated the PORT intervention, including both explicit training and performance feedback, acceptable and (b) improved their use of trained classroom management skills following both components of the intervention, PORT should be considered for further study.

Limitations of the Study

Study results should be interpreted in light of the following limitations. First, because training in each skill preceded performance feedback, it is only possible to make statements about the effects of performance feedback following training. In other words, the study design does not permit comparison between intervention conditions.

Second, this study took place in an alternative setting, and participating teachers each had more than 10 years of experience in regular education, special education in inclusive settings, special education in alternative settings, or some combination thereof. Thus, the participants in this study may not represent “typical” teachers. In addition, the sample size was small, and the three included teachers responded differentially to the intervention. Thus, generalization of study results beyond the study sample, without further replication, is inappropriate.

Third, there were limitations related to measurement. Teacher behavior was recorded by observers using partial interval recording. Although partial interval recording is appropriate for behaviors that are high frequency,

continuous, or both (e.g., Alberto & Troutman, 2009), the teacher behaviors recorded in this study occurred at relatively low levels and were discrete. Therefore, a frequency count may have been a more accurate measure of teacher behavior. Furthermore, IOA data were only collected on 15% of observations. This is below the standard set in single-subject research (i.e., generally 30% of observations), and readers should interpret results with caution.

Fourth, researchers did not collect treatment integrity data on the PORT intervention (teacher training and performance feedback). Thus, although training and feedback sessions followed a scripted protocol designed for this study, there are no objective data that document that researchers implemented the protocol as stated, and readers should again use caution when interpreting and generalizing study findings.

Fifth, teachers were allowed to select their own self-management strategy for each behavior. This lack of consistency with self-management may have affected the extent to which training affected teacher behavior (i.e., teachers' use of each classroom management strategy). Future research should address this limitation by requiring that all teachers implement a consistent self-management strategy.

Sixth, the performance feedback provided in this study was rather intensive. Feedback was based on structured direct observations, provided daily, delivered by an outside researcher, and data were paired with specific comments (i.e., praise and prompts) on the teacher's performance. This level of feedback would be difficult to provide without the additional resources of a research study. Research in related areas (e.g., increasing the fidelity with which behavior support plans are implemented) suggests that less frequent (e.g., weekly) feedback may be equally effective (e.g., Coddling, Feinberg, Dunn, & Pace, 2005; Mortenson & Witt, 1998). Therefore, future research should investigate the effects of altering these components (e.g., feedback based on informal observations, provided by a school administrator on a less frequent basis) to

identify the optimal features of performance feedback for classroom management.

Seventh, we did not directly measure student behavior. Although previous research demonstrates the effectiveness of increasing prompts (e.g., De Pry & Sugai, 2002), OTRs (e.g., Sutherland et al., 2003), and specific praise (e.g., Sutherland & Wehby, 2001a) on increasing appropriate (and decreasing inappropriate) student behavior, we cannot infer that changes in teacher behavior affected student behavior in this study.

Finally, there is a lack of research in teachers' use of discrete classroom management skills. In particular, there are no agreed-upon standards for the optimal rates of prompts, OTRs, and specific praise across various settings, student characteristics, and types of instruction. The limited research suggests that more prompts are better than fewer, increases in OTRs are associated with desired changes in student behavior, and positive interactions should outnumber negative interactions (e.g., Alberto & Troutman, 2009; Carnine, 1976; Colvin et al., 1997, Sutherland et al., 2003). Based on the limited research and the researchers' previous experience in alternative educational settings, researchers instructed teachers to (a) increase their performance relative to previous levels and (b) attempt to achieve the highest levels of OTRs (e.g., higher than 50% of observed intervals), the next highest levels of specific praise (e.g., higher than 30% of intervals), and use consistent, but lower, levels of prompts (e.g., higher than 5% of intervals). Given the lack of professional standards, it is difficult to judge the clinical significance of the behavior change. Clearly, further research is needed in this area.

Implications of the Study

This study demonstrated that performance feedback, following explicit teacher training, was associated with an increase in teachers' use of three explicit classroom management skills: prompts for social behavior, OTRs, and specific praise. Teacher training alone did not result in consistent or meaningful increases in

teachers' behavior. Thus, there are clear implications for practice and research.

Implications for practice. Given the results of this study and findings of previous research, school administrators and other personnel who consult with or supervise teachers should strongly consider augmenting typical professional development activities with performance feedback. Providing professional development, without performance feedback, mirrors the "train and hope" approach, which typically fails to promote generalized responding (i.e., teachers' use of the skills outside of the professional development context; Stokes & Baer, 1977; Sugai & Horner, 2006).

Implications for research. Additional investigation is clearly needed in the area of teacher training in classroom management. As previously discussed, researchers need to study and document the optimal levels of classroom management behaviors (i.e., professional standards for using prompts, OTRs, and specific praise) across various settings, student populations, and instructional activities. Similarly, researchers need to identify the critical features of performance feedback required to effect desired change in teachers' behavior and document the associated impact on student behavior. Related research on other aspects of teacher training in classroom management (e.g., identifying additional critical skills in classroom management, determining the smallest number of teacher behaviors required to achieve desired student outcomes) is also lacking and should be a priority.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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