

# Increasing Secondary Teachers' Behavior-Specific Praise Using a Video Self-Modeling and Visual Performance Feedback Intervention

Shannon M. Hawkins<sup>1</sup> and L. Juane Heflin<sup>1</sup>

## Abstract

Teachers working with students with emotional/behavioral disorders (EBD) in elementary schools can be helped to increase use of an important behavioral strategy, behavior-specific praise statements (BSPS). Unfortunately, teachers' behaviors return to baseline levels when researchers leave, and little is known about the use of praise on high school students. To investigate strategies to promote maintenance of behavior change, an intervention combining visual performance feedback and video self-modeling was implemented with three teachers of high school students with EBD. A multiple baseline with embedded withdrawal design demonstrated a functional relation between the intervention and increased use of BSPS; however, only one teacher continued to give BSPS when the intervention was withdrawn. Implications for practice and future research are discussed.

## Keywords

behavior-specific praise, emotional/behavioral disorders, video self-modeling, visual performance feedback

Once only recommended, educators now are required to use empirically based interventions in the education of students with emotional/behavioral disorders (EBD). Policy and legislation in the No Child Left Behind Act (NCLB) of 2001, from the Institute of Education Sciences (IES), and in the Individuals with Disabilities Education Act (IDEA, 2004) mandate that educational programming be founded on evidence of effective practice (U.S. Department of Education, 2002). However, researchers document that teachers do not consistently implement evidence-based interventions in classrooms serving students with special needs (Duchnowski, Kutash, Sheffield, & Vaughn, 2006; Greenwood & Abbott, 2001; Landrum, Tankersley, & Kauffman, 2003). The absence of evidence-based interventions appears to be particularly problematic in classrooms serving students with EBD (Gunter & Denny, 1998; Shores, Jack, et al., 1993; Wehby, Symons, Canale, & Go, 1998).

One example of an evidenced-based intervention that has been shown to improve academic and behavioral outcomes of students with EBD is teacher praise (Van Acker, Grant, & Henry, 1996; Wehby, Symons, & Shores, 1995). Teacher praise is a naturalistic and nonintrusive consequence that has been shown to be effective in classroom management (Beaman & Wheldall, 2000; Richardson & Shupe, 2003) and for increasing task engagement while reducing problem behavior (Ferguson & Houghton, 1992;

Gorman-Smith, 2003; Sutherland, 2000). Unfortunately, the rate of teacher praise in classrooms for students with disabilities remains low. Gable, Hendrickson, Young, Shores, and Stowitschek (1983) documented 4.4 praise statements per hour in classrooms serving students with EBD and Learning Disabilities (LD). Shores, Gunter, and Jack (1993) found that teachers provided praise for student compliance 2% of the time, even though students complied with teacher requests 80% of the time. Rates as minimal as one praise statement per hour were documented by Shores, Jack et al. (1993). When Wehby et al. (1995) reviewed 379 direct observation sessions from 67 classrooms serving students with EBD across four states, they found rates of between .02 and .04 praise statements per hour. Gorman-Smith (2003) documented that teachers gave 1 praise statement for every 20 reprimands. The low rates of praise for students with EBD are insufficient, considering that teacher praise can serve as a powerful motivator for behavior (Beaman & Wheldall, 2000).

Researchers suggest that the type of praise can differentially affect behavior. Brophy (1981) and Chalk and Bizo

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<sup>1</sup>Georgia State University, Atlanta, GA, USA

## Corresponding Author:

Shannon M. Hawkins, 2025 Andover Dr., Atlanta, GA 30360  
Email: [shawkins@student.gsu.edu](mailto:shawkins@student.gsu.edu)

(2004) argue that teacher praise is most effective when it is descriptive. Behavior-specific praise describes to the student the behavior that is being reinforced, thereby helping students recognize which behaviors are desirable and expected and enforcing the connection between desirable behavior and positive consequences. Increased behavior-specific praise has been shown to support increased on-task behavior in elementary students with EBD (Sutherland, Wehby, & Copeland, 2000), and decrease disruptive behavior (Reinke, Lewis-Palmer, & Martin, 2007).

### Increasing Teacher Use of Praise

Given that teacher praise is an empirically validated instructional strategy, concerted effort has been made to increase its use. Prompting and self-monitoring strategies (Sprick, 1981), and videotaped self-monitoring techniques (Gable et al. 1983; Gunter & Reed, 1996; Lago-Delello, 1998; Shores, Gunter, & Jack, 1993) have been recommended as effective for increasing teachers' rates of praise. Peer coaching using observation and feedback also have been found to increase the precision with which teachers implement curriculum-based measurement (Fuchs & Fuchs, 1993), reduce undesired teacher behavior and increase desired teacher behavior (Pierce & Miller, 1994), and facilitate improvements in classroom management techniques (Hasbrouck & Christen, 1997). Supervisor feedback has been used to teach preservice teachers to attend to and praise appropriate student behavior, which has a collateral effect of increasing the preservice teachers' satisfaction with their own performance (Rathel, Drasgow, & Christle, 2008).

Reinke et al. (2007) investigated the use of a visual performance feedback (VPF) intervention to support three elementary school teachers in general education classrooms increase their use of behavior-specific praise. Before they participated in the VPF intervention, the three teachers provided behavior-specific praise inconsistently and minimally even after they participated in a brief group meeting that focused on increasing their use of behavior-specific praise. The VPF intervention, which consisted of a graph charting the frequency of behavior-specific praise the teachers gave, was given to the teachers without verbal feedback and was found to increase their rates of behavior-specific praise. Analysis of follow-up data revealed that the increased use of behavior-specific praise during the VPF phase was not maintained once VPF was removed.

Sutherland et al. (2000) studied the effect of an observation-performance-feedback intervention on the rate of a teacher's behavior-specific praise statements (BSPS) and the effect of the increased rates of a teacher's BSPS on the on-task behavior of a class of students with EBD. The intervention was directed at the teacher and consisted of informing the teacher of the benefits of BSPS on the on-task behavior of the students, setting a criterion level goal of six BSPS per

lesson, giving prelesson reminders, and providing post-lesson praise (including BSPS for the teacher's use of BSPS). An ABAB design was used to document the functional relation between the intervention and increased rate of teachers' use of BSPS. When the intervention was withdrawn, the rate of BSPS decreased, as did the students' on-task behavior.

Even though the teachers in the Reinke et al. (2007) and Sutherland et al. (2000) studies learned about the positive effects of teacher praise, they did not maintain their target levels of praise when the researchers returned to collect maintenance data. In social validity measures, teachers often report they will probably not use interventions after research investigations are concluded, even if the interventions were effective in improving student behaviors (Conroy, Stichter, Daunic, & Haydon, 2008). Clearly, interventions are needed that result in teachers continuing to provide high rates of BSPS in the absence of external oversight.

### Increasing Maintenance of Teacher Praise

One technique that may increase use and maintenance of teacher praise is video self-modeling (VSM). Video self-modeling encourages individuals to imitate behaviors by observing themselves effectively exhibiting a behavior (Dowrick, 1999). In VSM, undesired or unsuccessful behaviors are edited out as a videotape is made to show the learner performing the target behavior successfully (Buggey, 2007; Kehle, Bray, & Chafouleas, 2001; Siegle & McCoach, 2007). Video self-modeling has been effective for improving functional skills in students with disabilities (Hitchcock, Dowrick, & Prater, 2003), and skills learned using VSM are maintained over time (Bellini & Akullian, 2007). Although VSM has been used to affect parents' behavior toward their children (Meharg & Lipsker, 1991), the strategy has not been used in the professional development of teachers to increase behavior specific praise.

Because BSPS is an evidence-based strategy, research is needed to document interventions that are successful not only for increasing teachers' use of BSPS but that also show maintenance across time. The purpose of this study was to assess the effects of a VSM and VPF intervention on the rate and maintenance of teachers' BSPS for high school students with EBD during academic time.

## Method

### Participants

After obtaining approval from the University Institutional Review Board, the first author described the study at a faculty meeting in an alternative school serving students with EBD and asked teachers to volunteer to participate in the study.

**Table 1.** Class Composition and Observation Times

Teacher	Number of students	Ages	IQ	Diagnoses	Medications	Observations
Cantelli	10	15 to 19 years	$M = 72$ (range = 63–95)	Adjustment disorder with mixed disturbance of emotion and conduct Anxiety disorder ADHD Bipolar disorder Borderline personality traits CD Depression History of psychosis, including hallucinations Intermittent explosive disorder PTSS Reactive attachment disorder Schizophrenia	Adderall Clozapine Concerta Depakote Droperidol Geodon Lamictal Risperdal Seroquel Trazodone Zoloft	Monday, Wednesday, Friday: 11:05 a.m. to 1:30 p.m. Tuesday and Thursday: 2:00 p.m. To 2:25 p.m.
Thomas	8	15 to 19 years	$M = 65$ (range = 40–90)	ADHD Bipolar disorder Borderline personality traits CD Depression	Concerta Depakote Droperidol Geodon Prozac Risperdal Seroquel	Tuesday and Thursday: 11:05 a.m. to 11:30 a.m. Monday and Wednesday: 2:00 p.m. To 2:25 p.m. Friday: 9:30 a.m. to 10:00 a.m.
Williams	9	14 to 17 years	$M = 76$ (range = 70–91)	Anxiety disorder ADHD Bipolar disorder CD Depression Intermittent explosive disorder PTSS	Adderall Concerta Depakote Geodon Lamictal Risperdal Ritalin Seroquel Zoloft	Monday through Friday: 10:30 a.m. to 10:55 a.m.

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; PTSS = posttraumatic stress syndrome.

The first three volunteers who returned informed consent were selected to participate in the study. Ms. Cantelli was a 29-year-old female with a bachelor's degree in psychology, a master's degree in interrelated special education, and 3 years of teaching experience with students who had EBD. Ms. Thomas was a 32-year-old female with a bachelor's degree in social science and communication, a master's degree in interrelated special education, and 7 years of teaching experience with students with EBD. Mr. Williams was a 28-year-old male with a bachelor's degree in sociology, a master's degree in social work, and 2 years of teaching experience with students with EBD. Table 1 provides information regarding the composition of each of their classrooms, including student diagnoses and medications, as well as schedules for observation.

### Setting

The study was conducted in three self-contained classrooms serving high school students with severe emotional/behavioral

disorders (SEBD), based on Georgia eligibility criteria. The classrooms were situated in a school from the Georgia Network for Educational and Therapeutic Services (GNETS; previously known as the PsychoEducation Network) in a metropolitan area in Georgia. The school serves students from multiple school districts and demographics about the student body are not available as data are reported to the state according to the students' home districts. However, the school is located in a county in which reported income is less than \$50,000 for almost 60% of the residents and the majority of the population is either African American (58%) or Caucasian (30%). The high school uses the Student Achievement Model (SAM) to address the behavioral, emotional, social, and psychological needs of students (Criste & Neal-White, 2005). The Student Achievement Model uses a developmental perspective to view student behavior, encompasses brain-based research, uses Life Space Crisis Intervention techniques and proactive teaching, emphasizes teaching of replacement behaviors, and incorporates a comprehensive token economy to motivate students. Two paraprofessionals worked with the lead teacher in

each of the classrooms. The paraprofessionals were not included in the study and interacted with students in a typical manner throughout the study.

### Dependent Variables

The three behaviors that were measured as dependent variables were BSPS, non-behavior-specific praise statements (NBSPS), and reprimands. Although BSPS were the focal behavior for the study, it seemed warranted to contrast BSPS with NBSPS and to compare them with reprimands as an incompatible behavior. Frequency data were recorded using pencil and paper.

**Behavior-specific praise statements.** Behavior-specific praise statements were documented by frequency. They were defined as contingent verbal praise given by the teacher that specified the desired behavior for which the student was being praised. Examples of a BSPS include “Jackie, you did a nice job following my instructions,” “You are doing a nice job working on your project,” and “Good, you are using the steps of the writing strategy to complete your assignment.”

**Non-behavior-specific praise.** Frequency count was used to document NBSPS. These were defined as verbal praise given by the teacher that did not specify the desired behavior for which the student was being praised. Examples of NBSPS include “That’s good,” “Nice job,” and “Great.”

**Reprimands.** A frequency count was used to document reprimands, defined as criticism or a verbal expression of disapproval by the teacher addressed to a student. Examples of reprimands include “You are acting immature,” “Stop talking right now,” and “I’m not going to tell you again to stop bothering Jackie.” Reprimands did not include corrective feedback such as “You need to open your math book.”

### Independent Variable

During the VSM and VPF intervention, the interventionist (first author) met with an individual teacher about 10 min before each classroom observation session to provide feedback. Using a line graph, the interventionist gave the teacher VPF on the frequency of BSPS during previous sessions and then showed the edited videotape of the teacher’s BSPS from the previous session. The interventionist used BSPS to describe the quantity and quality of the teacher’s BSPS. Components of the teacher’s praise that made the praise behavior specific were pointed out on the videotape and described in a complimentary manner. For example, after showing a teacher a specific clip of the videotape in which the teacher praised a student for using a word problem solving strategy, the interventionist stated, “You did a nice job giving Michael praise that focused on his correct use of the word problem solving strategy. You specifically described how his use of the steps of the strategy enabled him to

achieve the correct answer.” During the intervention meetings, the interventionist also solicited feedback from the teachers and asked if they had any questions.

### Design

The functional relation between the VSM and VPF intervention and the teachers’ BSPS was investigated using a multiple-baseline across participants with an embedded withdrawal design (Kazdin, 1982). The withdrawal was included to investigate whether increased rates of praise would maintain in the absence of VSM and VPF. Teacher data were calculated and graphed on a daily basis to determine the effectiveness of the intervention as well as to document when participants met the criteria for phase change. Data collection and intervention continued until all three teacher participants completed all phases of the study.

### Procedures

*During the baseline phase, intervention phases, and withdrawal phase, the interventionist directly observed the participants in the three classrooms.* Ten-minute systematic observations occurred during morning and afternoon classes and during different academic subjects based on the times that were convenient for the teacher participants and their classes. Although occurring in different academic content areas, each lesson incorporated a combination of teacher lecture, interactive discussion, and individual work. The use of 10-min observation periods was determined to be adequate for sampling the teacher behavior (Kennedy, 2005) and reasonable for accurate recording (Smith, Madsen, & Cipani, 1981). Specific observation periods for each class are identified in Table 1.

**Prebaseline.** To familiarize class members (teachers, paraprofessionals, students) with the video camera and an outsider’s presence, the interventionist spent an hour a day in the classrooms, 4 days a week, for 4 weeks before data collection began. The interventionist set the video camera in a location that allowed the teacher to be recorded, but kept the faces of the students off the videotape. The video camera was recording to help the class members become familiar with the videotaping process; however, the tape was not used to collect data during this prebaseline period.

**Baseline.** During baseline, lessons were videotaped to collect data on teachers’ use of BSPS, NBSPS, and reprimands as well as to create clips of teachers using BSPS. Classroom lessons and activities proceeded in a manner that was typical of that class. To get an accurate record of praise behavior, teachers were not fully informed of the purpose of the study until after baseline data were collected. During the informed consent process, teachers were told that the purpose of the study was to investigate the effect of

positive behavioral supports on the academic and social behavior of students. They were also given the option to discontinue participation after baseline data were collected and they were told the true purpose of the study. All three teachers agreed to continue participation.

**Intervention.** Teacher participants received the intervention in alphabetical order, with Ms. Cantelli receiving the intervention first, Ms. Thomas receiving the treatment second, and Mr. Williams receiving the intervention last. The VSM and VPF intervention was implemented for Ms. Cantelli after baseline data for her BSPS were stable. Stability was defined as 50% or less variability around the mean for three consecutive days and absence of trend (Horner et al., 2005).

To create an achievable goal for increasing the number of BSPS statements given, each teacher's criterion level was determined by adding the highest number of BSPS given during a single session in baseline, to 50% of the baseline mean for BSPS, and then rounding to the nearest whole number (Kazdin, 1982). Criterion for mastery during intervention was defined as a teacher reaching criterion for 3 consecutive sessions across a minimum of 5 sessions (Gelfand & Hartman, 1975; Sidman, 1960). For example, Ms. Cantelli had to reach criterion for 3 consecutive sessions across 5 sessions in intervention prior to the implementation of the intervention with Ms. Thomas. Once Ms. Thomas reached criterion for 3 consecutive sessions across 5 sessions, the intervention was implemented for Mr. Williams.

At the first pre-observation meeting during intervention, the interventionist disclosed the behavior targeted in the study (teacher praise) and reviewed the documented rate of behavior-specific praise the teacher provided during baseline. The interventionist used edited videotaped clips to point out when the teacher gave students BSPS and gave the teacher behavior-specific praise for occurrences of teacher BSPS. The interventionist also pointed out and praised the specific components of BSPS, including teacher statements that (a) helped students to recognize which student behaviors were desirable and being reinforced and (b) helped students make the connection between desirable behavior and positive consequences.

During each subsequent pre-observation meeting, the interventionist reminded the teacher of the description of behavior-specific praise and its benefits, showed the graphed data with the teacher's individual criterion level, and provided examples of BSPS from the previous lesson. Using the videotape, the interventionist identified examples of when the teacher used BSPS and gave the teacher behavior-specific praise for using BSPS. The teachers were given the opportunity to ask questions and share their experience of the study.

**Withdrawal.** After mastery (i.e., meeting criterion for at least 3 consecutive sessions across 5 sessions in intervention), the pre-observation meeting was eliminated. The interventionist continued to videotape lessons to record

data on teacher behavior but did not meet with the teacher to provide feedback on his/her use of BSPS.

**Reinstatement of intervention.** After 5 days of withdrawal, the pre-observation meeting with VSM and VPF was reinstated. The intervention was continued until teachers once again reached criterion for 3 consecutive sessions across 5 sessions.

**Maintenance probe.** Follow-up data were collected 10 school days after the end of the second intervention phase. The interventionist remained away from the classroom for approximately 2 weeks, and then returned to collect maintenance data during a single probe. The teachers did not receive the intervention prior to the maintenance probe because the purpose was to determine if teachers maintained increased BSPS levels without ongoing intervention.

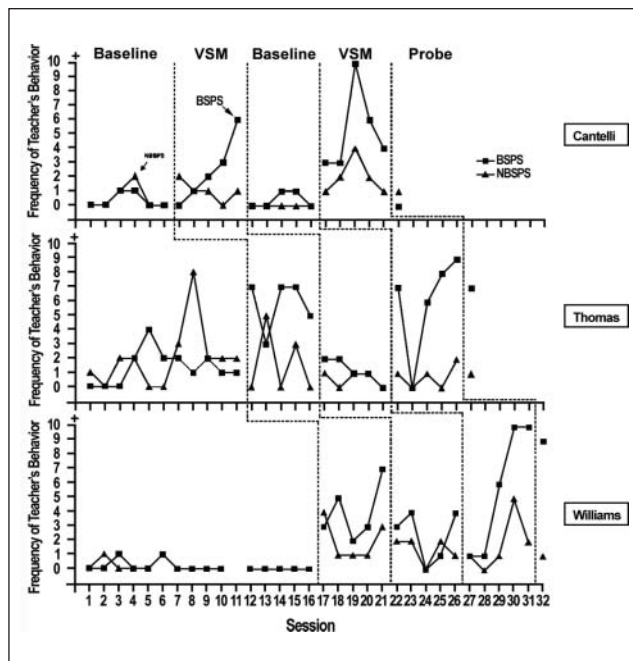
### *Interobserver Agreement*

The two authors collaborated to generate the target behaviors and data collection procedures. Interobserver agreement was assessed for BSPS, NBSPS, and reprimands during 20% of the observation sessions (across all phases). The first author and second author scored sample video clips together until the interobserver agreement exceeded 90%. Then the second author viewed randomly selected videotapes of the 10-min lessons in a private location, recording frequency with pencil and paper. Interobserver agreement calculations for each category were computed by dividing agreements by agreements plus disagreements and multiplying by 100%.

For Ms. Cantelli, the mean agreement was 100% for the occurrences of BSPS, 100% for the occurrences of NBSPS, and 100% for the occurrences of reprimands across all phases. For Ms. Thomas, the mean agreement was 98% for the occurrences of BSPS (range = 86%–100%), 100% for the occurrences of NBSPS, and 100% for the occurrences of reprimands across all phases. For Mr. Williams, the mean agreement was 100% for the occurrences of BSPS, 100% for the occurrences of NBSPS, and 100% for the occurrences of reprimands across all phases.

### *Treatment Fidelity*

An audio recorder was used to record all pre-observation meetings during both phases of intervention to allow collection of fidelity data. The second author listened to randomly selected audiotapes and completed a fidelity checklist that listed critical steps for correct implementation of the VSM and VPF intervention. Fidelity was calculated by dividing the number of steps completed by the total number of steps and then multiplying by 100%. Treatment fidelity was calculated for 27% of the intervention sessions for Ms. Cantelli and analyzed to conclude that the VSM and VPF



**Figure 1.** Number of behavior-specific praise statements (BSPS) and non-behavior-specific praise statements (NBSPS) per session given by each teacher

intervention was implemented with 96% fidelity (during one pre-observation meeting, the interventionist neglected to ask Ms. Cantelli if she had any questions or concerns about the study). Treatment fidelity was calculated for 30% of the intervention sessions for Ms. Thomas and it was determined that the VSM and VPF intervention was implemented with 96% fidelity (during one pre-observation meeting, the interventionist did not have the edited videotape available but read the typed examples aloud). Treatment fidelity was calculated for 20% of the intervention sessions for Mr. Williams and the VSM and VPF intervention was found to be implemented with 100% fidelity.

## Results

Figure 1 depicts the number of BSPS and NBSPS per session given by Ms. Cantelli, Ms. Thomas, and Mr. Williams. As shown, all teachers increased their rate of BSPS when intervention was applied. Because the reprimand rate was low, these data are not included in the graph.

### Ms. Cantelli

The mean frequency of BSPS during the baseline phase was .3 (range = 0–1). Ms. Cantelli's criterion was 2, and the mean frequency of her BSPS increased to 2.4 (range = 0–6) during the first intervention phase. During the withdrawal phase Ms. Cantelli's mean frequency of BSPS decreased to

.4 (range = 0–1), and during the second intervention phase the frequency increased to 5.2 (range = 3–13). Ms. Cantelli gave no BSPS during the maintenance probe session.

The mean frequency of NBSPS during the baseline phase was .5 (range = 0–2), and the mean frequency increased to 1 (range = 0–2) during the first intervention phase. During the withdrawal phase Ms. Cantelli gave 0 NBSPS, and during the second intervention phase the mean frequency increased to 2 (range = 1–4). Ms. Cantelli gave 1 NBSPS during the maintenance probe session.

The mean frequency of reprimands during the baseline phase was 0 and .2 (range = 0–1) during the first intervention phase. During the withdrawal phase Ms. Cantelli gave no reprimands, and during the second intervention phase the mean frequency was .8 (range = 0–2).

### Ms. Thomas

The mean frequency of BSPS during the baseline phase was 1.4 (range = 0–4). Ms. Thomas' criterion was 5, and the mean frequency of her BSPS increased to 5.8 (range = 3–7) during the first intervention phase. During the withdrawal phase, Ms. Thomas' mean frequency of BSPS decreased to 1.2 (range = 0–2), and during the second intervention phase the mean frequency increased to 6 (range = 0–9). Ms. Thomas gave 7 BSPS during the maintenance probe session.

The mean frequency of NBSPS during the baseline phase was 2 (range = 0–8), and the mean frequency was 1.6 (range = 0–5) during the first intervention phase. During the withdrawal phase, Ms. Thomas' mean frequency of NBSPS was .6 (range = 0–1), and during the second intervention phase the mean frequency was .8 (range = 0–2). Ms. Thomas gave 1 NBSPS during the maintenance probe session.

The mean frequency of reprimands during the baseline phase was .8 (range = 0–4) and .4 (range = 0–2) during the first intervention phase. During the withdrawal phase Ms. Thomas' mean frequency of reprimands remained at .4 (range = 0–1), and during the second intervention phase she gave no reprimands.

### Mr. Williams

The mean frequency of BSPS during the baseline phase was .1 (range = 0–1). No data were reported for session 11 because Mr. Williams was absent on that day. Mr. Williams' criterion for BSPS was 1, and his mean frequency increased to 4 (range = 2–7) during the first intervention phase. During the withdrawal phase Mr. Williams' mean frequency of BSPS decreased to 2.4 (range = 0–4), and during the second intervention phase the mean frequency increased to 5.6 (range = 1–10). During the maintenance probe session Mr. Williams gave 9 BSPS.

The mean frequency of NBSPS during the baseline phase was .1 (range = 0–1), and the mean frequency increased to

2 (range = 1–4) during the first intervention phase. During the withdrawal phase Mr. Williams' mean frequency of NBSPS decreased to 1.4 (range = 0–2), and during the second intervention phase the mean frequency increased to 1.8 (range = 0–5). During the maintenance probe session Mr. Williams gave 1 NBSPS.

The mean frequency of reprimands during the baseline phase was .8 (range = 0–2) and .4 (range = 0–2) during the first intervention phase. During the withdrawal phase Mr. Williams' mean frequency of reprimands was .8 (range = 0–2), and during the second intervention phase the frequency was .2 (range = 0–1).

### Percentage of Nonoverlapping Data

Visual analysis was corroborated by calculating the percentage of nonoverlapping data points (PND; Scruggs & Mastropieri, 1998). Although criticized as being susceptible to variances in data (Marquis et al., 2000), PND has emerged as a useful metric for evaluating the effects of interventions in single-subject research (Olive & Smith, 2005). Percentage of nonoverlapping data points was computed for each baseline by dividing the number of data points in intervention greater than the highest baseline data point by the total number of data points in the treatment phase and multiplying by 100% (Scruggs, Mastropieri, & Casto, 1987). Because this investigation used an embedded withdrawal design (ABAB) with two baselines, the two PND scores were summed to compute a single PND of the intervention effect for each participant (Lee, Simpson, & Shogren, 2007; Scruggs & Mastropieri, 1998). For example, Ms. Cantelli's PND score would be (3 of 5) + (5 of 5) = 8 of 10, or 80% for the implementation and reinstatement of the intervention.

According to Scruggs and Mastropieri (1998), PND results greater than 90% reflect highly effective outcomes with effective treatments demonstrated via PND of 70% to 90%. The PND calculations for Ms. Cantelli, Ms. Thomas, and Mr. Williams were 80%, 90%, and 80% respectively, documenting that the VSM and VPF intervention was an effective treatment for increasing the occurrence of BSPS for all three teachers.

### Social Validity

Following the conclusion of the investigation, questionnaires developed by the researchers were used to solicit participating teachers' perceptions of and satisfaction with the intervention. Each teacher responded to 13 questions using a 5-point Likert scale and two open-ended questions regarding their experiences with the intervention and the use of praise with high school students with EBD.

As shown in Table 2, analysis of the teacher responses on the social validity survey indicated all three teachers believe that behavior-specific praise is an important behavior support

and indicated that they would tell their colleagues about the strategy. Two of the teachers strongly agreed that they liked being in a research study, liked being monitored, and liked being given feedback. The teacher who was ambivalent about being in a research study disagreed with the statements about liking being observed and strongly disagreed that watching the videotape was helpful. This teacher's experience appears to have been negatively influenced by the use of VSM. In an attempt to determine if another strategy could have been better, one question assessed whether the teachers would have preferred self-monitoring of their praise to the interventionist monitoring their praise giving behavior. On that question, Ms. Cantelli and Ms. Thomas strongly disagreed that they would have preferred to keep track of their BSPS, whereas Mr. Williams neither agreed nor disagreed that he would have preferred to keep track of his BSPS. Interestingly, all three teachers agreed or strongly agreed that they would continue using BSPS in the future and would use the strategy with other students in their school.

### Discussion

This study examined the effect of a VSM and VPF intervention on the frequency of teachers' BSPS of students with EBD. The impetus of this study was to extend the research of Sutherland et al. (2000) by examining the effect of adding a VSM and VPF component to the observation-feedback intervention and assessing the rates of BSPS during academic instruction. Although it is accepted that positive comments should be given more often than critical feedback (Kalis, Vannest, & Parker, 2007) and that teacher expectations of students may influence the frequency of positive comments (Van Acker et al., 1996), a standard as not been established for the optimal number of BSPS needed to facilitate student learning. Because BSPS are given contingent on student behavior, determining an ideal goal could be elusive. The authors of this study operated under the assumption that the use of positive comments can assist in the establishment of an environment conducive to learning (Beaman & Wheldall, 2000; Gable, Hester, Rock & Hughes, 2009) and that BSPS may differentially enhance student effort (Chalk & Bizo, 2004).

Results from this study are consistent with previous findings on the effect of an observation-feedback intervention on teachers' behavior-specific praise. All three teachers increased their frequency of BSPS when the intervention was applied. Two of the teachers in this study (Ms. Cantelli and Mr. Williams) had baseline praise frequencies that were consistent with those found by Shores, Jack, et al. (1993) and Wehby et al. (1995). Ms. Thomas gave more praise statements in baseline as compared with her colleagues and to the figures cited in previous studies. Similar to the results of Sutherland et al. (2000) and Reinke et al. (2007), two of the teachers (Ms. Cantelli and Ms. Thomas) reduced their

**Table 2.** Responses for Teacher Social Validity Survey Likert-Scale Questions

Response	1 <i>Strongly disagree</i>	2 <i>Disagree</i>	3 <i>Neither agree nor disagree</i>	4 <i>Agree</i>	5 <i>Strongly agree</i>
I believe behavior-specific praise statements (BSPS) helps the students in my class.	0	0	0	2	1
Behavior-specific praise statements improve my interactions with my students.	0	0	1	2	0
I would tell other teachers about BSPS to assist them with student behaviors in their classes.	0	0	3	0	0
Behavior-specific praise statements improve my interactions with my students.	0	0	1	2	0
I would use BSPS with other students in my school when appropriate.	0	0	0	2	1
I will continue to use BSPS in my class in the future.	0	0	0	2	1
I liked participating in the research project.	0	0	1	0	2
I liked working on my praise giving behavior.	0	1	0	0	2
I liked it that another adult was noticing me giving my students BSPS.	0	1	0	0	2
Watching a videotape of me giving BSPS was helpful.	1	0	0	0	2
I enjoyed having two observers in my classroom.	1	0	1	0	1
I would have preferred to keep track of my BSPS rather than have an observer record my praise statements.	2	0	1	0	0
I would like my supervisor to give me BSPS.	0	0	1	0	2
I believe BSPS is useful when working with high school students with Emotional and Behavioral Disorders (EBD).	0	0	0	2	1

rates of BSPS during the withdrawal phase when the interventionist was not providing feedback on their behavior.

Student age may have influenced two teachers' willingness to provide BSPS. Although there is research that praise affects younger children's behavior (Gunter, Jack, Shores, Carrell, & Flowers, 1993; Sawyer, Luiselli, Ricciardi, & Grower, 2005; Sutherland et al., 2000; Sutherland, Wehby, & Yoder, 2002; Van Acker et al., 1996), there is a paucity of research on the effects of praise with secondary students. Sutherland, Copeland, and Wehby (2001) suggested age and personality of an individual student may affect whether the delivery of praise should be given privately or publicly. All praise in this study was given publicly. Regarding student age and personality, Ms. Cantelli told the interventionist that praise was not effective for some high school students, and only worked with certain students. On her social validity questionnaire, Ms. Cantelli wrote, "Teachers must be aware of the individual needs and behaviors of each student. There are some students who have negative reactions to praise, so be cautious." Failure to continue to use BSPS with this population might also be attributed to adult perceptions of students' learning histories. On her social validity questionnaire, Ms. Thomas wrote, "I believe for BSPS to really impact students, it needs to be consistent and continue for much longer than the duration of the research, perhaps from birth until now."

In contrast to the findings of Wehby, Dodge, Valente, and Conduct Problems Prevention Research Group (1993) and Wehby et al. (1995), few reprimands were given in these classrooms for students with EBD. Ms. Cantelli, Ms. Thomas, and Mr. Williams gave varying but low numbers of reprimands ( $M = .5, 1.3, \text{ and } .6$  respectively) during the 10-min observation sessions. The low rates of reprimands may have been due to the high rates of student on-task behavior. During baseline, data on students' on-task behavior were collected in vivo and checked for reliability during 20% of the sessions (91%–100% across the three classrooms). The overall mean percentage of on-task behavior during academic instruction was found to be high and so on-task behavior was not targeted as a dependent variable. Percentage of student time on-task during baseline for Ms. Thomas' students ( $M = 73\%$ ) and Mr. Williams' students ( $M = 77\%$ ) was comparable to the percentage of student on-task behavior typically found in general education classrooms, in which levels of task engagement usually range from 75% to 85% (Rich & Ross, 1989; Walker & Severson, 1990).

The low level of reprimands and high levels of on-task behavior may have been influenced by the setting. These students were in self-contained classrooms within a center-based environment. As such, the class sizes were smaller than those in general education classrooms, and there were more adults available for support. Each of the classrooms



had one teacher and two paraprofessionals who had been trained to implement SAM. Reprimands and on-task behavior also could have been influenced by the presence of the interventionist, and on some days, two researchers, in the classroom. To reduce teacher and student reactivity to the observers, the first author spent 16 days (an hour each time) in each of the classrooms prior to initiating baseline data collection.

This study extends the work of Sutherland et al. (2000) by adding video self-modeling and visual performance feedback components to the observation and feedback intervention. Given previous research that documents the benefit of having children and parents view tapes presenting personal competence at skills (Buggey, 2005; Hitchcock, Prater, & Dowrick, 2004; Mechling, Pridgen, & Cronin, 2005; Meharg & Lipsker, 1991; Miklich, Chida, & Danker-Brown, 1977; Schunk & Hanson, 1989), the authors wanted to see if VSM would promote maintenance of the teachers' behavior change when the intervention was withdrawn. For two of the teachers, VSM did not affect continued use of the strategy. Mr. Williams did continue to give high numbers of BSPS in the absence of the intervention; however, he was the one who asked to see the video clips multiple times and appeared to watch closely. The other two teachers made comments about not wanting to see themselves, with Ms. Cantelli making derogatory comments about how she looked on the videotapes. Ms. Thomas told the interventionist she would rather read the BSPS she gave during observations from a typed sheet of paper than watch herself give BSPS on video. Because of Ms. Thomas' disregard for the video, the interventionist read Ms. Thomas' BSPS out loud and did not use the video during the last three intervention pre-session meetings. Ms. Thomas gave more BSPS for two of those three sessions than she did at any other time in the study. Adults' reactions to seeing themselves on tape could influence the effectiveness of VSM.

### *Limitations of the Present Study*

One limitation of this study is that all three teachers volunteered to participate in the study. The teachers in this study may have volunteered because they were more confident in their teaching abilities than the teachers who did not volunteer. Teachers who are not as confident in their teaching abilities may typically have higher levels of student off-task behavior in their classrooms and may achieve greater increases in student on-task behavior if they are supported using a VSM and VPF intervention. Similarly, it is possible that a lower number of BSPS may occur during specific types of activities (e.g., independent work time may not generate equal number of opportunities to praise as do interactive discussions). Although collecting data during only one type of instruction (i.e., interactive discussion) may be desirable, it was not possible in this alternative setting.

Given the nature of the students' disabilities, classroom sessions were structured so that the activities changed frequently. All three teachers cycled quickly through lecture, discussion, and opportunities for independent work to maintain student attention. To collect 10 min of interactive discussion would have required observation of discontinuous segments of the class period.

Another limitation of this study was that the VSM and VPF intervention necessitated a lot of time and effort to implement, whereas only one teacher maintained high rates of BSPS as a result of the intervention. The VSM component required the interventionist to review and edit videotapes for several hours each evening to prepare for the pre-observation meetings. Even though Ms. Thomas gave 7 BSPS during her maintenance probe, her praise giving behavior decreased during two withdrawal phases. Ms. Cantelli did not like watching herself on video and did not sustain improvements during withdrawal phases or the maintenance probe. The effectiveness of the VSM intervention may be limited when participants do not want to watch themselves on video. In addition, the authors could have asked more pointed questions in the social validity assessment to account for teacher resistance to or resonance with the intervention. Ms. Cantelli may have continued to use BSPS if she believed the intervention was age appropriate and student specific.

Finally, it could have been prudent to conduct more than one maintenance probe. Although this is a common practice, it is possible that the teachers were having an unusual day when the interventionist returned to check for maintenance of behavioral change. A better indication may have been to return at least twice to check for maintenance, and to observe a third time if the results were widely discrepant.

### **Summary and Future Research**

Future researchers need to investigate how to bridge the research-to-practice gap by supporting teachers to sustain effective practices in the classroom. Results from this study can be interpreted to conclude that the addition of a VSM and VPF component to an observation-feedback package may have influenced one teacher (Mr. Williams) to maintain increased rates of BSPS during the withdrawal phase and maintenance probe, but did not have the same effect on the other two teachers (Ms. Cantelli and Ms. Thomas). It also would be interesting to document the rate of BSPS across an observational period longer than 10 min. The authors of the current study found that their presence did not appear to affect teacher behavior, possibly because of the 4-week desensitization period that was used and the ongoing daily interactions across a 5-month period. If the authors' presence had influenced the teachers' behavior, the rates of BSPS would not have reverted to baseline levels during the withdrawal phase.

Although the three teachers in this study reported they preferred an outside observer recording their praise to the method of self-monitoring, self monitoring may be added as a component to the VSM performance feedback intervention to promote maintenance of behavior change. Kalis et al. (2007) found the use of self-monitoring increased teacher praise and sustained the increased praise for an additional three sessions after the removal of the intervention in a high school classroom for students with EBD.

Investigations of the effectiveness of praise with secondary students need to be conducted as well. Given that the majority of EBD research is conducted with K–8 students, extending the research population would generalize the validity of praise interventions. However, the possibility that praise effectiveness is related to the developmental stage of students may be a factor that should be considered. The effectiveness of teacher praise as a reinforcer may not be as powerful for adolescents as for younger students. Piaget (1970) reasoned that as students progress through the social-emotional development of adolescence, their primary concern for pleasing authority figures transfers to managing peer relationships and negotiating developmental tasks. Younger children simply internalize adult statements; related changes in social-emotional development gradually enable older students to begin to reflect on and analyze adults' moral and evaluative statements. As a result, the behavior of adolescent students who do not value adult praise, or do not respect the teacher providing the praise may not be reinforced by teacher praise.

Different individuals may perceive and be affected very differently by identical teacher statements given with the intention to provide reinforcement or encouragement and under the same circumstances (Brophy, 1981). The effectiveness of praise depends on the individual meanings and significance older students give praise statements. Future researchers need to evaluate the effects of developmental and individual factors to assess high school students' reactions to praise. In the future, researchers should add questions to the social validity assessment that solicit information about the influence of age and student variables on the use of BSPS. Interventions may be used more often or used consistently if teachers judge their effectiveness to be powerful. Teacher perceptions regarding the fit between the intervention and their student populations could account for varying levels of teacher adherence to certain interventions.

In addition, future researchers should investigate how different types of students respond to praise. Social reinforcers such as praise are frequently ineffective with undersocialized, aggressive students who have not had positive social stimuli established as secondary reinforcers (Center, 1999). Lane, Wehby, Robertson, and Rogers (2007) used effect sizes to conclude that secondary students with internalizing behavior patterns were the most responsive to a schoolwide behavioral support intervention program,

whereas secondary students with comorbid behavior patterns were the least responsive. Perhaps students with internalizing behavior patterns respond better to positive behavioral supports, such as praise, and praise has a lesser effect on students with comorbid behavior patterns.

In an additional line of inquiry, researchers could investigate if allowing teachers to choose between interventions would affect their levels of implementation. Not only might teachers want the option of choosing from an array of possible interventions, but they might respond better to having a choice of feedback methods. Interventions are typically individualized for students; teachers could benefit from similar individualization regarding the format used to give feedback.

Finally, future researchers should examine factors that influence on-task behavior in self-contained classrooms for students with disabilities. High levels of student on-task behavior were observed in the classrooms used in this study. Investigators need to research how classroom variables interconnect to influence positive student outcomes (Conroy et al., 2008).

In summary, the results of this investigation contribute to the literature on EBD and teacher praise as they can be interpreted to provide some understanding of the utility of a VSM and VPF intervention for teacher training, and a description of teacher behavior during structured academic time in high school classrooms for students with severe EBD. Van Acker et al. (1996) suggested teachers need feedback on their patterns of interaction with individual students to recognize differential treatment of particular students. Teachers, particularly those who need to improve behavior management skills, need support and feedback to improve classroom climate and student outcomes (Duchnowski et al., 2006; Walker, Zeller, Close, Webber, & Gresham, 1999). A VSM performance feedback intervention with an added self-monitoring component may provide the support necessary for teachers to improve and maintain behavior management skills, which will consequently, provide a structured and nurturing environment for students with EBD.

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### About the Authors

**Shannon M. Hawkins**, MEd, is a doctoral student at Georgia State University, and previously worked as a special education teacher serving middle school and high school students with severe behavior disorders, and a clinical instructor at Georgia State University.

**L. Juane Heflin**, PhD, coordinates the teacher certification program in autism spectrum disorders at Georgia State University and co-edits the journal *Focus on Autism and Other Developmental Disabilities*.