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The Use of Behavior Specific Praise and the Caught Being Good Game to Improve Class-Wide Behavior

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The Use of Behavior Specific Praise and the Caught Being Good Game to Improve

Class-Wide Behavior

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Abstract

This study evaluated the relative contributions of behavior specific praise statements (BSPS) and the Caught Being Good Game (CBGG) on class-wide appropriate behaviors and examined teacher use of BSPS and corrective feedback. It also evaluated if changes in class-wide behaviors are maintained during follow-up and generalized to non-target academic periods. Data on teacher use of BSPS were also collected during follow-up and generalization probes to examine if the teachers continued to use BSPS during follow-up and generalize their use of BSPS to non-target academic periods. A multiple-baseline design across classrooms with an ABC sequence was used to evaluate the outcomes of the interventions. The results indicated that BSPS was sufficient in two classrooms to increase class-wide on-task behavior for over 90% of students just by explicitly giving attention for appropriate behaviors while the third classroom required implementation of CBGG which provided external reinforcers. Some evidence of generalization and maintenance was observed in all classrooms. All teaching staff's use of BSPS increased during implementation of the BSPS phase, but BSPS use decreased in follow-up, and support for generalization is lacking.

Chapter 1:

Introduction

Teachers brave the responsibility of providing instruction to large groups of students at a time, creating an environment in which many different behaviors may be observed and modeled to peers. While some of these actions are desired, such as on-task behaviors, students often engage in behaviors that are disruptive to the overall classroom setting. This raises a concern for the quality of education for all of the students in that classroom when the majority of a teacher's time needs to be spent on an individual student's behavior.

Schools have begun to recognize the importance of preventing such scenarios by using a consistent system for behavior across the entire school. School-wide positive behavior support (SWPBS) is a framework that includes all students, staff, and settings of the school to promote appropriate behavior using universal prevention (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Sugai & Simenson, 2012). SWPBS focuses on decreasing problem behaviors by explicitly teaching 3-5 school-wide behavior expectations, using a continuum of reinforcement for engagement in those expected behaviors, and making decisions based on data that is continuously collected and analyzed. However, there are some students in need of supplemental support even in schools implementing this universal tier with high fidelity (Horner et al., 2005; Sugai & Simenson, 2012). Within the continued use of this primary tier, secondary and tertiary tiers can be added to help groups of students and individuals, respectively. Tier II interventions

are implemented for frequently occurring problems across many students who are not responding to Tier I (Anderson & Borgmeier, 2010). Whereas some Tier II interventions pull students throughout the school into function-specific groups, others are implemented for a whole classroom if school-wide universal supports are insufficient for manageable class-wide behavior (Gresham, 2004).

A Tier II intervention at the classroom level requires four steps: explicit instruction of skills, structured prompts for appropriate behavior, opportunities for students to practice skills in the natural setting, and frequent feedback to the student (Anderson & Borgmeier, 2010). All steps are essential for increasing expected prosocial behavior, which needs to be taught explicitly by reviewing daily and providing examples and nonexamples of expectations, often accomplished through role play with prompts and feedback. Although feedback should also be given periodically throughout the day, it should be provided at predetermined times to ensure students are receiving feedback regularly. In general, the development of Tier II interventions is needed within an actual continuum of schoolwide behavior supports (SWPBS) in order to identify important contextual factors related to the sustainability of the intervention's implementation (Anderson & Borgmeier, 2010).

A good example of a secondary intervention at the classroom level is the use of group contingencies which represent a common type of intervention used in classrooms with multiple variations to choose from (Hulac & Benson, 2010; Skinner, Skinner, & Burton, 2009). The implementation of group contingencies is suited well for classrooms due to the involvement of multiple students whose expectations for appropriate behavior are the same. One variation, the Good Behavior Game (GBG), is an interdependent group contingency which requires every child in a group to respond appropriately for the group to receive reinforcement (Tingstrom, Sterling-

Turner, & Wilczinski, 2006). The GBG is defined as delivery of a reinforcer contingent upon the collective behavior of a group; no particular individual is targeted as in dependent group contingencies, but unlike independent group contingencies, the whole group can suffer a loss of reinforcers due to the behavior of an individual within the group (Tingstrom et al., 2006). The GBG can be most readily distinguished from other interdependent group contingencies by its use of two or more teams who compete for access to reinforcers for meeting a specified criterion of frequency regarding pre-established rules for behavior. In many versions, all teams are able to win if all meet the specified criterion. Tingstrom et al. (2006) describe the GBG as an intervention that utilizes components of differential reinforcement of low rates of behavior (DRL) and incompatible behavior (DRI). Typically, there is a set criterion below which undesirable behaviors will still allow the team to receive reinforcement. This could also be considered a response cost form of punishment (Wright & McCurdy, 2012). In more positive behavioral approaches of the GBG that specify desirable behaviors, the game is technically a DRI procedure in which inappropriate behavior is incompatible with the desirable behaviors that will produce reinforcing consequences for the team (Tingstrom et al., 2006).

The first experimental analysis of the GBG was published in the *Journal of Applied Behavior Analysis* (*JABA*) in 1969 by Barrish and colleagues who aimed to develop an intervention for decreasing disruptive classroom behavior using reinforcers that had better contextual fit for a classroom. The reinforcers chosen for the fourth grade classroom context were privileges such as lining up first/early for lunch, extra time at recess, the opportunity to work on special projects during free time, and access to items. The reinforcers were only given to the members on the team or teams who won the game by following a predetermined set of rules; if any individual engaged in behavior that was incompatible with the rules, a mark on the

chalkboard was added to the total for that individual's team, and access to the privileges would be lost for every member on the team if the team exceeded 5 marks at the end of the game and had more points than the other team (Barrish et al., 1969). The study showed that out-of-seat and talking out behaviors decreased during implementation of the GBG; the high levels were reversed when the GBG was withdrawn and recovered during the next implementation step (GBG during both math and reading periods), and the same effect was replicated in the multiple baseline across subjects with highly apparent experimental control.

Several studies have since replicated the GBG study while focusing on appropriate behavior (e.g., instead of a rule being presented as "do not get out your seat", being presented as "stay in your seat") and applying it to multiple populations and settings. Such diversity in applications makes the GBG an intervention of choice for anyone anywhere (Elswick & Casey, 2011). Although variations have been used with populations such as high school students in regular educational settings (Bradshaw, Zmuda, Kellam, & Ialongo, 2009; Kleinman, & Saigh, 2011) and with emotional and behavioral disorders (EBD; Salend, Reynolds, & Coyle, 1989), the vast majority of studies on GBG have focused on elementary school children (see Tingstrom et al., 2006 for a table listing a multitude of studies). Tingstrom et al.'s review indicated that studies have utilized mystery criterion and mystery reinforcers to increase motivative operations for all students in the class rather than presenting a reward that is not reinforcing to some students or criterion after which behaviors escalate.

Despite its success, it has been argued that the GBG is losing its social validity as an intervention for use in schools implementing SWPBS because the majority of studies involves keeping track of students' problem behaviors and aims to have points below a criterion, which focuses on the problem behaviors rather than identifying appropriate skills to promote their

development (Wright, 2008). For contextual fit in the SWPBS setting, the positive components of the group contingency must be enhanced. A positive component that is present in all versions of the GBG is a hypothesized natural consequence of using a group contingency: the decreased risk of ostracizing one particular student with undesirable behaviors. There is a higher probability that an individualized behavior plan might evoke aversive responses from the student's peers (Elliot, Turco, & Gresham, 1987; Tingstrom et al., 2006). The group contingency of the GBG in particular is preferred since all students have the same expectations and reinforcers (Wright, 2008). Consistent contingencies across all students avoid segregation of children with behavioral difficulty, which may lead to increased behavioral difficulties. This facet of the GBG increases its social validity in classrooms and represents a more positive approach to behavior modification.

Some studies have included more positive components to the GBG. The first was in 1973, published by Robertshaw and Hiebert entitled "The Astronaut Game" in which particular behaviors were specified as "good astronaut" behaviors including good manners, working on assignments, waiting patiently, and performing tasks quietly (see also Tingstrom et al., 2006). This procedure is a positive improvement to the Barrish et al. study of 1969 because rather than specifying what not to do, children were told what behaviors were expected.

Darveaux (1984) implemented the GBG plus a feature using merit cards awarded for engagement in desirable behaviors such as accurate assignment completion and class participation. In addition to the marks earned traditionally for inappropriate classroom behaviors, this version of the GBG allowed students to trade five merits cards to erase a previously acquired mark for inappropriate behavior. The results of the study indicated that in addition to decreasing inappropriate behaviors, the GBG combined with merit cards increased assignment completion.

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Swiezy, Matson, and Box (1992) eliminated negatively reinforcing contingencies by designing the procedure to completely ignore preschoolers' noncompliance; rather, winners of the game received attention and tangible reinforcers.

More recently, two versions of the GBG were compared in kindergarteners using stars as tokens representing access to backup reinforcers (Tanol, Johnson, McComas, & Cote, 2010). The versions were identified as GBG-response cost in which a star was removed following a rule violation, wherein loss of all stars represented the loss of access to backup reinforcers, and GBG-reinforcement in which stars were earned for appropriate rule-following behaviors (Tanol et al., 2010). Both versions were found to be successful in decreasing inappropriate behaviors, and teachers rated the reinforcement technique as having better contextual fit. Tanol and colleagues emphasized teacher behavior as well, comparing verbal attention for inappropriate behavior in GBG-response cost with verbal praise for appropriate classroom conduct in GBG-reinforcement. Decreasing attention for disruption and increasing positive attention for appropriate behaviors with behavior specific praise simply changes the contingency for accessing attention to more acceptable behavior.

For students whose inappropriate behaviors are maintained by adult attention, implementation of a group contingency may not be sufficient, depending on the reinforcers earned by the winning team(s). To increase adult attention for appropriate behaviors, the systematic use of behavior specific praise statements (BSPS) can be used to ensure that praise from the teacher is directly contingent on the desired behaviors. The Classroom Assessment Tool (CAT; FLPBS, *n.d.*), a tool that assesses classroom variables that could contribute to problem behaviors, includes a classroom behavior system item concerning the ratio of the use of BSPS to corrective statements, which is suggested to be 4:1 (80% of behavior feedback statements are

BSPS while 20% are corrective). However, there is insufficient research confirming the necessity of BSPS to corrective statements in this proportion. Research does show that praise statements are most effective when they refer to specific behaviors (Brophy, 1983). This is because they give explicit feedback on behavior expectations while students are engaging in those behaviors (Stormont & Reinke, 2009). Teachers who frequently use BSPS are reported to have less disruptive and off-task behaviors from students (Shores et al., 1993). The use of BSPS is an intervention that does not require costly resources or time, is minimally intrusive, and can be used for individual, group, or class-wide behavior (Stormont & Reinke, 2009).

Several studies have addressed the use of BSPS alone as a classwide intervention. Pisacreta, Tincani, Connell, and Axelrod (2011) trained teachers, using modeling and feedback, to increase the BSPS:correction ratio to 1:1. Results indicate that this training was sufficient to increase the ratio to 1:1, student disruptive behaviors decreased with ratio change, and BSPS generalized to nontargeted classrooms. While these results are desirable, the 1:1 BSPS:correction ratio is less stringent than the recommended 4:1 ratio (FLPBS, *n.d.*). Thompson, Marchant, Anderson, Prater, and Gibb (2012) used the criterion of 50% increase from baseline rather than a ratio of BSPS to corrective statements. While a one-time in-service training session did not achieve this goal, video self-monitoring and coaching interventions increased the teachers' use of BSPS. In addition, student on-task behavior showed an increasing albeit variable trend, and a high correlation was observed between BSPS and on-task behavior. In addition to research in general education classrooms, some studies have also evaluated the effects of increased BSPS on students diagnosed with or at risk for emotional or behavioral disabilities (Allday et al., 2012). Following training on the purpose and function of BSPS and limited feedback, teachers increased

their use of BSPS and decreased frequency of corrective statements, which lead to increases in student task engagement.

Combining the use of BSPS with the GBG allows pairing of praise with the allocation of a point and ensures that praise for the appropriate behavior is being given immediately after it occurs, which strengthens the potency of the reinforcement and increases the behavior (Conroy, Sutherland, Snyder, Al-Hendawi, & Vo, 2009). Some notable studies have been conducted evaluating the use of BSPS within the GBG (Elswick & Casey, 2011; Lannie & McCurdy, 2007). Lannie and McCurdy (2007) found that the GBG had little effect on increasing BSPS from teachers, although it decreased their use of negative verbal responses to undesirable behavior and was still successful in modifying the students' behavior. In contrast, experimental support for modification to teachers' verbal responses was established in a recent large-scale international randomized block study investigating effects of the GBG across 2 years (Leflot, van Lier, Onghena, & Colpin, 2010). Leflot and colleagues found that teachers who implemented the GBG used less negative verbal behavior and more praise statements when compared to the control group teachers.

Elswick & Casey (2011) created a variation of the GBG in which the design itself impacted teacher responses through its implementation. Both appropriate and inappropriate behaviors of students were tracked. This study found that not only did the game provide further support for the GBG on decreasing undesirable classroom behaviors, but it also showed modifications to the teacher's behavior as well. Disapproval statements decreased and BSPS increased during implementation of the intervention. Wright (2008) compared the GBG and the GBG with behavior-specific praise statements (GBG+BSPS). As hypothesized, both group contingencies decreased disruptive behaviors and increased on-task behaviors. The results also

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highlighted a unique observation: BSPS usage must be addressed explicitly for an increase in their frequency; the GBG alone and decrease in student disruptive behavior is not sufficient to modify this aspect of teacher behavior.

The Caught Being Good Game (CBGG) has been coined as the recent use of GBG-type group contingency with focus on appropriate behaviors and BSPS, thus having the same foundation as the GBG with a PBS variation (Wright & McCurdy, 2012). Typically, the GBG involves point accumulation for inappropriate behaviors that decreases likelihood of obtaining reinforcement; if points exceed a criterion, the team loses privileges to reinforcers (response cost). On the other hand, the access of reinforcers in the CBGG is contingent on meeting or exceeding a point criterion earned by alternative "good" behaviors. Wright and McCcurdy (2012) compared the GBG with the CBGG in two general education classrooms in an elementary school implementing SWPBS with fidelity. The results showed that there was no difference in the effectiveness between the GBG and CBGG to affect disruptive and on-task behaviors. The CBGG was also found be to be equally acceptable to both students and teachers. Given two equally effective and acceptable interventions, schools implementing SWPBS may be inclined to use the CBGG with an approach more aligned to the school's consistency of using PBS that addresses challenging classroom behaviors through the teaching and reinforcement of appropriate alternative behaviors.

However, while the GBG is an evidence-based intervention with decades of experimental support for its efficacy, the CBGG was only introduced by Wright and McCurdy in 2012 and has not been rigorously evaluated. One of the components of the CBGG that the authors urged future researchers to address is the use of BSPS when awarding points to teams in the CBGG. Several tools that are used in SWPBS also address the use of praise statements such as the Benchmarks

of Quality (BoQ; Childs, Kincaid, & George, 2011; Kincaid, Childs, & George, 2005) and Classroom Assessment Tool (CAT; FLPBS, *n.d.*), which compare ratios of BSPS to corrective feedback statements (George & Childs, 2012).

Therefore, the purpose of this study was to further examine the potential outcomes of implementing the BSPS and CBGG with classroom teachers and students in an elementary school by attempting to extend the current literature on group contingencies. The study adds to the literature by examining (a) the relative impact of BSPS with delivery of a point in the CBGG on class-wide behavior and (b) generalization of student and teacher behaviors to nontargeted activities. The research answered the following questions:

1. Can use of BSPS alone positively influence class-wide on-task behavior?

2. Does adding CBGG further enhance the outcomes for the targeted class-wide behavior?

3. To what extent are levels of class-wide on-task behavior attained during interventions observed in generalized settings and at follow-up?

4. To what extent does implementation of BSPS and CBGG impact teacher use of BSPS and corrective feedback during targeted and nontargeted academic activities?

Chapter 2:

Method

Setting

The study was conducted in an elementary school located in an urban setting in the Southeastern United States. The school received Title 1 funding with 78% of students living in poverty according to free or reduced price lunch data. The school consisted of 35 classrooms with 664 students. Of the student population, approximately 39% were Hispanic, 34% students were White, and 16% students were Black. The school was in their seventh year of Tier I SWPBS implementation with 67.2% fidelity in the current school year (2012-2013) as measured by the BoQ (Childs et al., 2011; Kincaid et al., 2005). However, the school had not progressed to training for Tiers II and III, and there was a need for assistance developing and implementing interventions at these levels. Data reported from this school indicated that 96.53% of students had 0-1 referrals, 2.86% had 2-5, and .6% had 6 or more. The specific interventions took place during instructional periods where the student target behaviors were most likely to occur.

Participants

There were 3 classrooms chosen to participate based on schoolwide data showing inflated numbers of referrals, teacher acceptance of help with classroom behavior management, and the ratio of BSPS to corrective feedback favoring corrective statements (50% or more). Two of the classrooms were implementing other class-wide or Tier II interventions, such as the Conversation, Help, Activity, Movement, Participation, and Success (CHAMPS) and group

contingencies at the time of their selection, and the ESE class was implementing Tier III interventions with students as well.

The classrooms were determined based on the results of brief teacher interviews (approximately 10 minutes each) using a questionnaire (see Appendix A) that included items designed to identify the problematic instructional periods, potential target behaviors, and the number of students having difficulties with academic engagement and/or engaging in disruptive behavior. In addition, their classrooms were observed by the researcher to determine if the classrooms were in need of class-wide Tier II supports, contain individual students with low levels of academic engagement, and had a low BSPS:corrective feedback ratio, in which 50% or more statements were corrective. The observation was conducted during15-minute academic periods identified as the most problematic by teacher interviews, using the same data collection methods that were used to measure target class-wide student behavior and teacher BSPS. Classrooms were excluded from inclusion in the study if teachers chose not to participate or BSPS were over 50%.

The Green Class was an Exceptional Student Education (ESE) classroom with 5 male students in the 2nd or 3rd grades (1 White, 1 Hispanic, and 3 Black) chosen based on schoolwide data in order to examine the impact of the interventions on this population of students whose classroom setting was different from typical classrooms. Ms. Green was 51 years old and in her first year of teaching, but she had 12 years of experience working in the field of Applied Behavior Analysis. As an ESE class, there was also an aide present who was 47 years old and had experience as an aide for 18 years. The classroom included behavior management strategies of SWPBS including a token economy, the level point system required by the county which was an independent group contingency, and proximity control. The targeted academic period was

writing, which the teacher indicated was the least on-task subject. Ms. Green indicated that all 5 students had difficulty staying on-task in writing, engaging in off-task behavior such as loud talking, not staying in seat, and disrupting other students. The classroom observation indicated that 4 students engaged in off-task behavior and that the teacher and aide both used 100% corrective feedback and 0% BSPS.

The White Class was a typical first grade class with 17 students observed during math which included group instruction, independent work, and partner collaboration. Ms. White was a 24 year-old white female in her first year of teaching. Classroom management strategies included SWPBS, CHAMPS, a color wheel using clips, and pivot praise. Ms. White indicated that there were 6-7 students who engaged in off-task behaviors during math including playing with materials in their desks, manipulatives, or pencils; dazing at something irrelevant to academics; and talking to one another. The observation identified 11 students who were not on-task, with 1 student in particular engaging in off-task behavior on all but one scan. Teacher BSPS during this inclusion observation was only 16% while corrective feedback was 84%.

The Gold Class was a third grade class with 18 students observed during math which the interview showed was the lowest on-task subject. Ms. Gold was 33 years old and had 10 years of teaching experience. The class participated in SWPBS. The teacher interview indicated two academic subjects that involved low levels of on-task behavior: math and reading; however, math was chosen as the priority. During math, the teacher identified 7 students who frequently engaged in off-task behavior including "spacing out and daydreaming" with eye contact oriented somewhere other than academic material or the teacher, refusing to engage with partner following the directive to turn and talk about an academic prompt, and talking loudly during independent work. The inclusion observation similarly identified 5 students who were attending

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to irrelevant stimuli or closing eyes during whole group instruction and talking during independent work.

Measures

  Dependent Measures. This study measured class-wide student on-task behavior and teacher BSPS and corrective feedback to evaluate the classroom and teacher outcomes. When student behavior was observed, data were collected for all students in the classroom collectively as percentage of students on-task.

  Class-wide on-task behavior. Class-wide on-task behavior was measured by recording the number of students engaged in on-task behavior. On-task behavior was defined in conjunction with the teachers, depending on classroom expectations and routine during the academic topic. The Green class required all of the following, unless permission was given from the teacher to engage in other behavior: (1) student is at seat, sitting or standing within 1 foot of academic material; (2) any student verbal behavior is on academic topic or silent; and (3) student keeps hands, feet, and materials to self. Ms. White helped define on-task as all of the following, unless she gives explicit verbal permission: (1) student is not talking (unless following teacher directive to turn and talk or answering teacher's question with permission); (2) student is sitting on chair oriented toward teacher or materials (book, board, manipulatives, etc.); and (3) student is not playing with items unless instructed (pencil used for writing/erasing only; manipulatives used according to directive only. Ms. Gold defined on-task behavior depending on activity: (1) during whole group instruction, student's eye contact is oriented toward speaker (teacher or student called on by teacher); (2) following teacher directive to talk to partner, student is either talking about the academic prompt to partner *or* reading or listening to partner or teacher discuss academic prompt, with eye contact oriented toward partner or materials (in book, on worksheet,

or on board); and (3) following teacher directive to work independently; student is engaging in task without talking and with eye contact oriented toward task-related materials (book, board, manipulatives).

BSPS. BSPS were defined similarly to previous studies, as a statement including all four of the following criteria: (1) gain student attention; (2) identify the appropriate behavior the student(s) are engaging in at that moment; and (3) a praise statement (4) given immediately (within 15 seconds) after the behavior is observed (Elswick & Casey, 2011; Wright, 2008). An example might be "Team x, you all stayed in your seats. Great job being responsible!" A nonexample would be, "Good work!"

Corrective feedback. To determine the ratio of BSPS to statements attending to inappropriate behaviors, corrective feedback was also be measured. Corrective feedback was defined as a verbal statement by the teacher that instructs student(s) to stop engaging in a current behavior, a verbal directive to engage in an alternative behavior, or any other explicit or implicit verbal statement that draws attention to the inappropriate behavior of the student(s). For example, if students are talking out, the teacher might give any of the following corrective feedback: "stop talking," "you need to have a quiet mouth right now," "I'm talking," or "What should you be doing right now?" If a teacher gives the instruction at the beginning of the subject, such as, "During math, we should keep our voices quiet because I am talking," this was scored as corrective feedback because it was the first request to engage in the behavior rather than a prompt as corrective feedback statements are.

Fidelity. The researcher collected daily fidelity data on the teacher's implementation of intervention using fidelity checklists in Appendices C and D. The fidelity checklists were scored daily to assess teacher adherence to intervention procedures. For the BSPS condition, there were

four items (e.g., gain student attention, identify the appropriate behavior the student(s) are engaging in at that moment, a praise statement, given immediately within 15 seconds after the behavior is observed) for every BSPS to score all components of the statement were present. For the CBGG condition, a total of 30 steps in 6 components (e.g., teacher begins game, teacher scans room for behavior that earns points, teacher gives points, teacher pairs a verbal explanation with points as they are being given, teacher ends game, teacher gives reinforcer) were measured using a yes/no format to determine the percentage of steps or procedures implemented correctly. The percentage of implementation fidelity was determined by dividing the total number of points earned by the total number of points possible. If fidelity fell below 80% for any session in either condition, a booster training was provided before the next observation.

The fidelity assessment results indicated that during the BSPS phase, there were only 2 instances that teachers failed to use all components of the BSPS when required. Ms. Green received scores of 86%, 57% (requiring a booster session), and 100%; the Green Class aide scored 100% in all 3 sessions; Ms. White received 100% in all sessions, and Ms. Gold received an average of 86% fidelity, with all sessions exceed the 80% criterion except the second session only reaching 57% resulting in a booster session.

Ms. White's CBGG fidelity data were consistently at or above 80% and she therefore did not require any booster sessions. Fidelity for adherence was at 100% every session; quality fidelity ranged from 80-90% with a mean of 88%.

Social Validity. Teachers' perceptions of the acceptability of the interventions were assessed using a modified version of the Intervention Rating Profile-15 (IRP-15; Witt & Elliott, 1985) following completion of each intervention phase. The rating scale uses a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) and includes 15 items. It is

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designed to measure acceptability of school-based interventions and reported to have an internal consistency of .98 indicating a high degree of reliability (Carter, 2007; Martens et al., 1985).

Data Collection and Interobserver Agreement

Data for both student and teacher behaviors were collected during predetermined academic time periods lasting 20-30 minutes, when students participated in the most problematic academic subject activities, which were writing for the Green Class and math for the White and Gold Classes. The data sheet in Appendix B were used for data collection of all variables. Class-wide on-task behavior was measured using Planned Activity Check (PLA-check; Risley & Cataldo, 1974), a variation of momentary time sampling (MTS) procedure in which the number of students engaging in on-task was recorded at the end of each1-minute interval. At the end of the interval, the researcher or research assistant scanned the room for students engaged in on-task to determine if the students were or were not on-task. The total number of students engaging in on-task behavior was divided by the total number of students present and multiplied by 100 to calculate the percentage of students engaged in on-task. In instances where students left or entered the classroom during data collection, the number of students present varied. Therefore, each interval had to be calculated separately as the number of students on-task divided by the number of student present during that interval. The average level of on-task behavior for each session was determined by adding the percentage of students engaged in on-task at each check and dividing by the number of checks. Teacher behaviors of BSPS and corrective statements were recorded using a tally for each statement within MTS intervals and compared using a frequency ratio.

Data were collected by the researcher and 4 research assistants who were currently enrolled in an Applied Behavior Analysis undergraduate or graduate level courses. The data

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collectors were trained using a behavioral skills training (BST) procedure in which the researcher instructed the data collector on what to do, modeled completion of the forms, provided scenarios for the data collector to rehearse using the forms, scored inter-observer agreement (IOA), and provided feedback on data collector's strengths as well as discrepancies.

IOA data were collected for 34.85% of the direct observations while a second observer simultaneously but independently recorded the occurrence of each student and teacher behavior. It was calculated by dividing the smaller score by the larger score and multiplying by 100 to get a percentage of agreement. Overall IOA for student on-task behavior was 96.0% and for teacher verbal feedback ratios was 86%. The mean Green Class IOA was 96.5% for on-task behavior, 85.8% for Ms. Green's verbal feedback, and 91.7% for the aide's feedback. The White Class mean on-task IOA was 94.5%, and Ms. White's verbal feedback was a mean of 81.4%. The Gold Class scored 95.9% mean IOA for on-task behavior and 85.2% for Ms. Gold's verbal feedback ratios.

Experimental Design

The impacts of the interventions were assessed using a multiple baseline design across classrooms with an ABC sequence. There were four possible experimental phases (i.e., baseline, BSPS, BSPS with CBGG, and follow-up) for each classroom dependent on levels of target class-wide behavior. All classrooms had baseline and BSPS phases. In the BSPS phase, classrooms were required to have 3 consecutive sessions with levels of on task behavior at or above 90% of intervals; if not, a third phase of BSPS with CBGG was implemented. For all classes, follow up data were also collected following stability in the last trend.

Procedures

  Baseline. Data on class-wide appropriate behaviors and teachers' use of BSPS and corrective feedback were collected during the target instructional period over three to nine sessions for each classroom before implementation of the BSPS. During baseline, teachers delivered instructional activities as usual, and students continued to participate in school wide universal supports as well as preexisting individual Tier 2 and 3 interventions.

  Reinforcer Selection. The classroom teachers and researcher collaboratively selected the menu of Mystery Motivators. The selection of reinforcers to be listed in the menu were based on student preference and teacher acceptance of the items that were considered appropriate for use when whole class or some of the students were rewarded. Students responded to a reinforcer survey (see Appendix F) anonymously to identify the most preferred reinforcer options. Items or activities that were nominated as most preferred by 25% or more students were included as Mystery Motivators. At least, eight activities or items were included as reinforcers for meeting group contingency criteria. Potential reinforcers included were: being on the morning show, extra recess time, getting a no homework pass, getting free time, lunch with teacher, playing with computer, and teaching the class. Examples of items include erasers, pencils, candy, popcorn, pretzels, and small toys.

  BSPS. During this phase, teachers provided a complete BSPS (gain student attention, identify appropriate behavior, praise statement) to student(s) engaging in on-task behavior. BSPSs were given on a variable interval schedule averaging every 2 minutes (VI-2-min) as indicated by MotivAider PRO mobile application or device during a 20-30 minute session each day. Data were collected during target academic periods, but teachers were told at training that

they could use the skills at other times as well if they preferred to implement the BSPS procedure.

Before the teachers implemented the BSPS intervention, the researcher provided 30-minute individual teacher training on how to implement the procedure, using a BST procedure. Teachers were first instructed on the use of BSPS and three criterion of the definition of BSPS, and then the researcher modeled appropriate use of BSPS as well as nonexamples of BSPS. The researcher assessed the fidelity of implementing BSPS using a fidelity checklist (see Appendix C), while teachers rehearse giving BSPS, to provide constructive feedback and social reinforcement for each rehearsal. Rehearsals with feedback on fidelity checks continued until at least three consecutive BSPSs were made with 100% fidelity.

BSPS with CBGG. If BSPS implementation did not result in an increase of on-task behavior to 90% or more, teachers implemented the CBGG in addition to BSPS intervention according to the procedure, described by Wright and McCurdy (2012), with the use of BSPS during point allocation (see below). The CBGG was played at least once per day for 20-30 minutes. Data were only collected one session per day, but teachers were told that CBGG could be implemented at other times as well if they preferred to implement CBGG in other nontargeted academic subjects, allowing teachers to generalize to nontargeted academic periods if they choseBefore implementing the CBGG, the researcher provided two 30-minute training sessions, using BST. In the first training session, the researcher explained the intervention procedure, modeled game implementation, and had the teacher rehearse game implementation while providing feedback. In the second training session, the researcher used the CBGG fidelity checklist (see Appendix D) during teacher rehearsal to provide feedback on their performance. Rehearsals continued until 100% fidelity was achieved.

At the beginning of game play, the teacher told the students that the game was beginning, reminded them of game rules, and ensured all materials for game play were prepared, including points from last game being removed such that each team would begin again at zero. According to intervals signaled by MotivAider Pro on the same VI-2-min schedule that was used for BSPS phase, the teacher scanned the room for students on-task and immediately assigned a point only to teams with all members on task. When giving the point, the teacher had to explain how they earned it using a BSPS while ignoring teams that did not earn a point. After a natural transition 20-30 minutes later, the teacher verbally announced the game's end and added up the total points for each team. A student from the highest scoring team was selected to draw a popsicle stick to determine the mystery point criterion, which was a random number at or below 10, so that every team at least had the opportunity to earn the reinforcer (since the interval was 2 minutes and the session may have only lasted 20 minutes: $20 \div 2 = 10$). Thus, the mystery point criterion was a variable ratio ranging from 6 to 10 (VR-8). The teacher announced the criterion, and if at least one team met or exceeded the criterion, a student from the winning team(s) drew a popsicle stick for the reinforcer which the teacher announced and gave to teams that met or exceeded the criterion.

As mentioned above, MotivAider or a phone with MotivAider application was used to prompt teacher with a vibration signal to scan the room for point allocation to on-task teams. Reinforcers with the most votes from the survey were written on Popsicle sticks to be used as mystery motivators. In addition, Popsicle sticks with numbers representing the mystery point criterion were also prepared to be randomly selected at the end of gameplay.

Follow-up. A 1-week follow-up was conducted following the last intervention session. Probe data were collected once per week for 1 to 3 weeks, depending on the classroom. The

teachers were told that they were not required to implement BSPS or CBGG procedures but may do so if they choose. Data on targeted class-wide and teacher behaviors were collected to examine whether teachers continued to use BSPS without prompts from the MotivAider at the levels observed during interventions while engaging in low levels of corrective feedback and whether improved class-wide student behaviors were maintained.

Generalization Probes. Generalization probes of both student and teacher behaviors were conducted at least once or twice per condition during a non-targeted problematic academic subject period (reading for Ms. Green and Ms. Gold and science for Ms. White) without explicit teacher training on intervention procedures in that setting. Teacher participants were told that a normal classroom observation would be done and not informed that it was to see if BSPS were present and the ratio of BSPS to corrective statements was at 80% or greater.

<h1 style="text-align:center">Chapter 3:</h1>

<h2 style="text-align:center">Results</h2>

Class-wide On-task Behavior

Figure 1 depicts class-wide on-task behavior and teacher BSPS across the 3 participating classrooms and all experimental phases. On-task behavior is shown as the percentage of students observed to be on-task in each session. Teacher BSPS is depicted as the percentage of verbal feedback statements that were BSPS, which was calculated by dividing the number of BSPS by BSPS plus corrective feedback.

On-task data indicated that for all three classes, the BSPS led to increases in on-task behavior. In baseline, the Green Class data were stable with a mean of 73% of students on-task (range =67-76%) and the White Class was lower, with a mean of 48% of students engaged in on-task behavior (range = 43%-54%) showing a decreasing trend at the end of the baseline phase. The Gold Class data were variable, ranging from 65% to 89% with a mean of 73%, but becoming more stable before BSPS was introduced.

When BSPS was implemented in the Green Class, the class-wide on-task behavior showed an immediate increase in level above the 90% criterion with an increasing trend approaching 100%. Because the number of students engaged in on-task behavior improved above 90% in this BSPS condition for three consecutive sessions, the need for CBGG intervention was eliminated.

<div style="text-align:center">23</div>

The BSPS phase did not produce the same results in the White Class. When BSPS was implemented, the percentage of students engaged in on-task behavior immediately increased by 17% (from 43% to 60%), but the level did not increase to the 90% criterion and was variable with a mean of 72%. Therefore, the CBGG was added to BSPS for this classroom. The BSPS plus CBGG resulted in an increase in on-task behavior, but the data were initially variable, with a mean of 85%, ranging from 77% to 91%.

In the Gold Class, the percentage of students engaged in on-task behavior increased when BSPS was introduced. The first day of BSPS implementation resulted in an 8% increase in on-task behavior (from 75% to 83%), and the class-wide behavior continued to improve over 3 consecutive sessions, demonstrating an increasing trend above the 90% criterion.

Teacher BSPS and Corrective Feedback

Figure 1 also depicts the percentages of BSPS across teachers and experimental phases. In baseline, none of the teacher participants gave the recommended 80%:20% (5:1) ratio of BSPS:corrective feedback, nor did they even meet 50% on any baseline datapoint. Ms. Green demonstrated in baseline a mean 14% BSPS (range = 0-25%) and 86% corrective feedback (range =75-100%), demonstrating a ratio of 1:6; however, her use of BSPS immediately increased to 67% upon implementation of BSPS intervention while her corrective feedback decreased to 23%, demonstrating a ratio of 3:1 as is seen in Figure 1. In the second BSPS session, her BSPS decreased to 25%, demonstrating a1:5 ratio of BSPS:corrective. This was due to incomplete BSP, which had to include getting student attention, identifying the behavior, and giving praise within 15 seconds to be considered complete, which the fidelity check results showed were only given 57% of opportunities. Therefore, booster training was provided, and the ratio of BSPS: corrective feedback increased again to 60% (with a fidelity of 100%). Table 1

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shows the number of BSPS that were given whereas the graph shows the percentage calculated using the ratio to corrective feedback. Table 1 shows that Ms. Green's mean BSPS per session in baseline was 1, mean BSPS per session in the BSPS phase was 7.67, and follow-up mean BSPS per session were 5. Ranges are also provided showing the minimum and maximum number of statements given in a session.

Figure 1 also displays data for percentage of BSPS for the aide in the Green Class. She used 100% corrective feedback during baseline. After BSPS training, her BSPS increased drastically to 100%, but decreased to 50% in the following sessions. She was only present for one generalization probe in which 100% corrective feedback was observed. Table 1 shows that the number of BSPS given was 0 in every baseline session, a mean of 11.67 during the BSPS phase, and 0 in the only follow-up session for which she was present.

Unlike Ms. Green, Ms. White started out with more use of BSPS although neither exceeded 50%. After BSPS training and use of the MotivAider to prompt BSPS in the BSPS phase, Ms. White's BSPS increased above 50% up to 69% except during one session, demonstrating a mean ratio of 57% or 1.33:1. During BSPS plus CBGG implementation, the same levels of BSPS were observed as demonstrated in the BSPS phase. However, follow-up showed a decrease in BSPS, demonstrating a ratio of 1:2.13. Generalization probes indicated within the same range as the targeted classes in each phase. The number of statements given is shown in Table 1. On average, Ms. White gave 4.5 BSPS per session in baseline, 20.25 during the BSPS phase, 20.38 in BSPS with CBGG, and 9.0 in the follow-up session.

Ms. Gold's verbal feedback was always 100% corrective in baseline except one observation of 13% BSPS and 25% in a generalization probe. As Figure 2 shows, in BSPS, the levels of BSPS were higher in every session than in baseline in both targeted and non-targeted

subjects although they were also quite variable depending on class-wide student behavior, and the use of corrective feedback was variable. Follow-up data showed similar ratios maintained in the first week but decreased to 14% in the second week. Generalization during follow-up also indicated that the improved levels of BSPS were not maintained without the MotivAider during the non-targeted academic period; Ms. Gold's use of BSPS was 0% in the first week and 14% in the second week. Table 1 show that the mean number of BSPS given per session increased from 0.44 in baseline to 9.25 during the BSPS phase, and she gave a mean of 5.50 BSPS in follow-up sessions.

Maintenance and Generalization

Figure 1 also displays follow-up and generalization data. One week follow-up data collected over 1-3 consecutive weeks demonstrated a moderate maintenance of increased on-task behavior across classes. In the Green Class, use of the MotivAider to prompt BSPS was terminated in follow-up, but the teacher continued to use skills that were taught in the training although much less frequently. During follow-up, the ratio of BSPS to corrective statements from Ms. Green slowly decreased each week down to 13% for BSPS, demonstrating a ratio of 1:6.69 in Week Three. Follow-up data for the aide indicated that she returned to 100% corrective feedback in targeted and nontargeted settings. During this time, class-wide on-task behavior was maintained above 90% for the first 2 weeks, and it only fell to 88% in the third week follow-up.

In White Class, where only one follow-up data point was collected due to the end of the school year, 82% of students engaged in on-task behavior. Follow-up data on the Gold Class indicated that class-wide on-task behavior was maintained at 88% at both the first and second weeks of follow-up. The class demonstrated somewhat decreased on-task behavior compared to

during BSPS phase, but showed higher on-task behavior than mean baseline level. Further follow-up data were not collected due to teacher request.

The results presented in Figure 1 indicate relatively low or moderate levels of generalization of on-task behaviors to the non-targeted academic periods across classes. The mean percentages of class-wide on-task behavior for the Gold Class were 86% in baseline, a mean of 72% during BSPS, and 95% in follow-up. For the White Class, mean on-task behavior was 50% in baseline, 69% in BSPS, 83% in CBGG, and 90% in follow-up. For Gold Class, the mean on-task behavior in generalization was 96% in baseline, 83% in BSPS, and 91% in follow-up.

Social Validity

All three teachers and the Green Class aide completed social validity surveys (IRP-15) on the implementation of BSPS intervention. Overall, this intervention was rated a mean of 4.42 out of 5 (or 88.44%), indicating that the BSPS intervention had a high level of social validity. The average for each item ranged from 4.0 to 4.75, with individual ratings ranging from 3 to 5 across items. All teachers indicated that they "strongly agree" that the BSPS intervention had a positive impact on the class-wide on-task behavior and that they would be willing to use the intervention and think most teachers would find the intervention suitable for the described purposes.

Only Ms. White could complete a social validity rating for BSPS plus CBGG. Overall, the intervention was rated 4.76 out 5 (or 95.29%), ranging from 4 to 5, which is higher than the average rating for BSPS alone discussed above and Ms. White's rating for BSPS alone (4.47/5 or 89.41%).
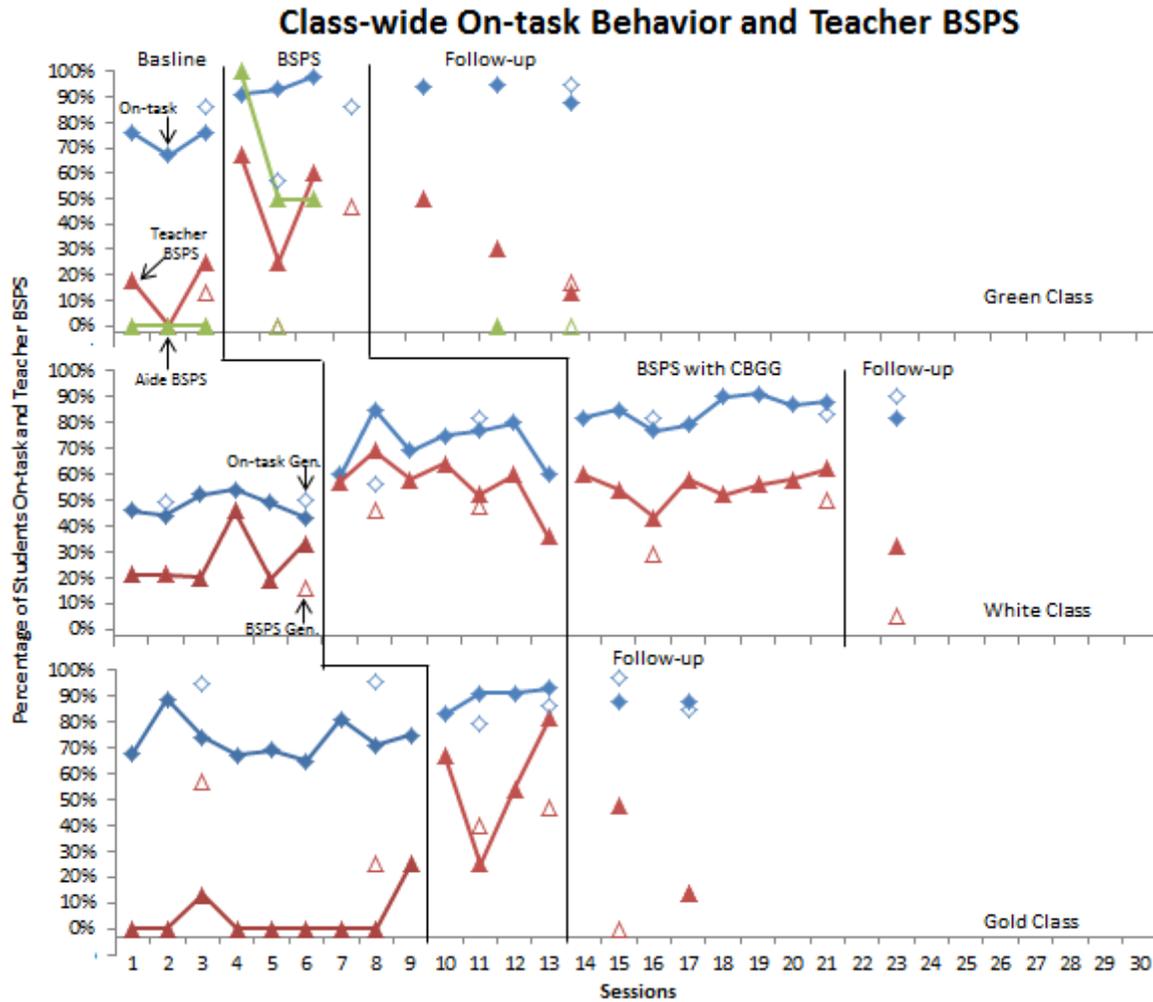
Figure 1. Percentage of students on-task class-wide and percentage of teacher BSPS in each phase across 3 classrooms. Blue diamonds are on-task behavior while triangles show teacher BSPS. Green triangles are the aide's BSPS. Empty shapes are generalization probes.

Table 1. Number of BSPS given by each participant in each phase. The mean for all sessions in the phase in presented first followed by the range of lowest to highest number of BSPS in parentheses.

	Ms. Green	**Green Class Aide**	**Ms. White**	**Ms. Gold**
Baseline	1.00 (0-2)	0.00 (0-0)	4.50 (3-7)	0.44 (0-2)
BSPS	7.67 (4-10)	11.67 (10-13)	20.25 (13-26)	9.25 (4-18)
BSPS with CBGG	N/A	N/A	20.38 (11-35)	N/A
Follow-up	5.00 (3-7)	0.00 (no range)	9.00 (no range)	5.50 (1-11)

Chapter 4:

Discussion

This study aimed to examine the relative contributions of BSPS and CBGG on class-wide on-task behavior and teacher use of BSPS. The results indicated that BSPS intervention was successful in increasing class-wide on-task behavior for all three classes, and adding CBGG to BSPS intervention further increased the targeted class-wide behavior for one class. Changes in the class-wide behavior was minimally generalized to non-targeted academic periods and maintained one week after the completion of intervention. The results of the study also indicated that BSPS intervention had positive effects on teacher behavior. All teaching staff's use of BSPS increased during implementation of the BSPS phase, but BSPS use decreased in follow-up and support for generalization is lacking. Both interventions demonstrated high levels of procedural integrity and social validity. On social validity surveys, teachers indicated that the BSPS and BSPS plus CBGG interventions were effective in improving the class-wide behavior.

The current study supports the findings of previous research that BSPS intervention alone is sufficient to improve class-wide behavior (Allday et al., 2012; Pisacreta, et al., 2011; Thompson, et al., 2012); however, classes with low levels of on-task behavior (or percentages of students engaging in on-task) may need require additional intervention such as the CBGG to increase class-wide behavior further. As demonstrated by Wright and McCurdy (2012), the use of CBGG has the potential to improve class-wide behavior.

Several observations were made during the BSPS phase, which are worth noting. Although the use of BSPS did not exceed 80% except once with the Green Class aide, class-wide on-task behavior still increased significantly. The 80% criterion discussed in the Classroom Assessment Tool (CAT; FLPBS, *n.d.*) of at least 4 BSPS to every corrective statement (80%) may be more stringent than required.

Anecdotal observations following BSP training also indicated that BSPS on academic performance, such as praise for correct answers or scores on assignments, were more frequent although they were not trained explicitly since only BSPS referring to student on-task behavior were trained and recorded. This occurred in all classes. Teachers were explicitly told, shown examples, and reminded that these BSPS did not count toward the required BSPS for on-task behavior at MotivAider signals. This could have been part of the reason booster trainings were required once for Ms. Green and once for Ms. Gold; however, booster trainings included another reminder that academic BSPS would not be counted, although they were encouraged that if desired to continue using them in addition to on task BSP at MotivAider signal.

The implementation of BSPS led to an increase in teacher use of BSPS, but their use of corrective feedback was still frequent. Although disruptive behavior was not measured, it was observed that some students engaged in low levels of disruptive behavior in each of the classes. Therefore, higher levels of teacher corrective feedback were likely evoked by students' disruptive behavior in those sessions.

It should be noted that BSPS might have served as an antecedent for some students to engage in appropriate behavior, serving as pivot praise. However, some students did not continue to engage in appropriate behavior until the next scan and therefore did not get BSPS directed toward their own behavior, which is probable to serve as a social reinforcer for that behavior.

More frequent scans by teachers or shorter intervals may have allowed these students to directly contact the social reinforcement more often.

It is important to note that every team received the reinforcer at least once during CBGG implementation, ensuring that they all contacted reinforcement for engagement in appropriate behaviors. Giving a point to a team was observed to serve as an antecedent for other teams engaging in the appropriate on task behaviors; however, since intervals for scanning were random set at one minute, the on-task behavior was often not maintained long enough to last for the next scan. Shorter intervals could be used in classes where on task behavior is not increasing and time between allocation of points could be faded to a more reasonable interval.

One student in particular in the White Class was off-task almost every interval in baseline and BSPS phases. When CBGG was introduced, he continued to engage in off-task behaviors although the topography changed from calling out about something random to accusing other teams of cheating. However, in the third day of implementation, his on-task behavior increased and his team frequently accessed the reinforcer. In addition, he was observed to participate in the math lesson more frequently by raising his hand to share answers, which were correct. This indicates that increased on task behavior produced by the CBGG may also increase academic performance.

Another student in particular was observed to engage in more off-task behaviors during BSPS plus CBGG. Individual student data were not recorded for this study, but anecdotal data noted by the research staff and teacher indicated that the student frequently cried or yelled out when other teams got points. On one occasion, he lightly hit himself on the head when a different team got points and his did not.

Although it was not a purpose of this study, a problem with the CBGG is that if student problem behaviors function for attention from peers, this intervention may not be suitable since students frequently prompted one another to engage in on-task behaviors. Some teams failed to get a point because they were talking to one another prompting one another to engage in on-task behavior, which made them off-task themselves because they were talking. Unless explicit training can successfully teach students to ignore other students' junk behavior, they will likely attend to disruptive behaviors.

Limitations

The major limitation of this study is that BSPS plus CBGG was examined with only one classroom. Due to the 90% on-task criterion set that allowed the other 2 classes to end with BSPS and due to social validity and contextual fit, the second phase of intervention was not introduced to the other two classes. More classes should have been recruited to test the external validity of BSPS with CBGG intervention.

Although use of the MotivAider was required to ensure that delivering BSPS was consistent between phases and for all teachers, its use may be unnatural in a classroom setting. During generalization and follow-up phases, neither the device nor the phone application was used. Although this usually resulted in lower levels of BSPS, a more appropriate discriminative stimulus would promote the correct use of BSPS by teachers. For example, during training, teachers were told that BSP would be used as pivot praise to attend to students who were on-task rather than giving attention to students off-task by providing corrective feedback. A more natural discriminative stimulus for BSPS may then be a student engaging in disruptive behaviors, which could prompt the teacher to scan the room for a student on-task and provide BSPS to that

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student. In addition, not relying on a MotivAider for scanning randomly would allow a teacher to target particular children and provide reinforcement as soon as they are independently on-task.

Another limitation is the possibility that the researcher or observers in Ms. White's class may have served as discriminative stimuli or motivating operations to engage in on-task behavior. This was observed when research staff entered the room during CBGG phase; students frequently engaged in behaviors showing excitement such as saying "yes!" or "yay!" prior to game implementation. This reactivity may have influenced the results.

Additionally, the study collected limited follow-up and generalization data. Thus, it is difficult to determine whether BSPS or BSPS plus CBGG can promote maintenance of class-wide student and teacher behaviors after the interventions have been terminated or in classrooms where it was not explicitly trained. Finally, the small sample size limits the generality that can be made to a wide range of classrooms and teachers.

Future Directions

Researchers interested in the use of BSPS or BSPS plus CBGG may not want to use the 90% criterion over 3 consecutive sessions for on-task behavior, which was chosen for purposes of social validity and contextual fit. Ending phases could simply be based on when the data are stable. This would have allowed all three classes to implement the CBGG.

The use of visual prompts for on-task behavior would likely increase engagement in the behaviors. Students were only verbally told the expectations once per day explicitly at the beginning of the game when the teacher read how they could win; however, students frequently looked at the board where points were given throughout the session every time points were given. Future researchers may be interested to evaluate whether including the definitions on the board or somewhere in the classroom would further increase on-task behavior. Future studies

may incorporate data on student academic performance to examine whether increased on-task behavior would be related to increases in academic performance.

This study did not record which students were receiving teacher BSPS. In the future, researchers may consider recording which students' BSPS are directed towards to see if the teacher primarily gives praise to students who are frequently on-task or if the teacher finds opportunities to give praise to students who otherwise are normally not engaged in on-task behavior. These data would allow researchers to ensure that BSPS are equally distributed to all students in the class.

Several minor changes to the procedures may also produce better results in similar studies. Researchers in classrooms may want to consider using video cameras to observe behavior or an easier data collection system that may allow the teacher to collect data in order to decrease reactivity. Researchers may also want to examine the use of direct training of children to ignore peers when they engage in off-task behaviors. Initiating the study in the beginning of the school year and examining the impact of the interventions over a longer period of time may allow researchers to draw better conclusions regarding maintenance and generalization. Also, providing performance feedback to the teachers would be an interesting addition to this study.

Finally, since lower ratios of BSPS:corrective feedback were shown to still increase on-task behavior compared to the recommended 80% criterion (4:1), a study solely focused on an effective criterion may add to the current literature. Researchers may want to determine if the criterion of a lower ratio would be effective to increase on-task behavior across multiple classrooms. Alternatively, researchers in applied behavior analysis may find it more appropriate to test ratios determined based on individual teachers' baseline ratios.

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Appendices

Appendix A: Teacher Interview Questionnaire

1. During which academic period(s) do students have the most difficulty staying on-task?

   _____

2. Approximately how many students have difficulty staying on-task?

   _____

3. What inappropriate behaviors do students engage in when they are off-task?

   _____

4. Are any of these behaviors dangerous to the student or the student's peers?

   _____

5. What behaviors constitute on-task for this academic period? (Do students need to be in seat/writing notes/etc?)

   _____

   _____

   _____

6. What rewards do you think are appropriate for students who stay on-task for the majority of the academic period? (Show example Reinforcer Survey, Appendix E.)

   _____

   _____

   _____

Appendix B: Data Collection Sheet-Green

Teacher Code:__Green_____   Date & Time:_____
Observer:_____   ***Total Students Present:_____***

MTS- At each 1 minute interval, count the total number of students on task. (Do not go back to a student you already counted or discounted once you have moved on to the next.)

Frequency- Tally every instance of teacher verbal feedback throughout each interval.

1 min.			2 min.			3 min.			4 min.			5 min.		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC
6 min.			**7 min.**			**8 min.**			**9 min.**			**10 min.**		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC
11 min.			**12 min.**			**13 min.**			**14 min.**			**15min.**		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC
16 min.			**17 min.**			**18 min.**			**19 min.**			**20 min.**		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC
21 min.			**22 min.**			**23 min.**			**24 min.**			**25min.**		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC
26 min.			**27 min.**			**28 min.**			**29 min.**			**30 min.**		
O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC	O	TB	TC
	AB	AC		AB	AC		AB	AC		AB	AC		AB	AC

Average students on task=*sum of all Qs/intervals=*	Percent students on task=*average/total present=*
Total BSPS-teacher=*add tallies next to TBs=*	Percent BSPS-teacher=*total TB/TB +TC=*
Total BSPS-aide=*add tallies next to ABs=*	Percent BSPS-aide=*total AB/AB +AC=*

Dependent Variable Definitions:

Student On Task Behavior (O):   ALL of the following, unless permission from teacher to engage in other:
1. Student is at seat, sitting or standing within 1 foot of academic material
2. Any student verbal behavior is on academic topic or silent
3. Student keeps hands, feet, and materials to self

Behavior Specific Praise (B):   ALL of the following:
1. Gain student(s) attention/identify student(s)
2. Identify the appropriate behavior
3. Give verbal praise statement
4. Give within 15 seconds of the behavior

Corrective Statements (C):   Any ONE of the following (not referring to academic tasks):
1. Instructs student(s) to stop engaging in inappropriate behavior
2. Give directive to engage in an alternative to the current behavior
3. Any other explicit or implicit verbal statement that draws attention to the current inappropriate behavior of the student(s)

Appendix C: Data Collection Sheet-White

Teacher Code:__White_____   Date & Time:_____
Observer:_____   ***Total Students Present:_____***

MTS- At each 1 minute interval, count the total number of students on task. (Do not go back to a student you already counted or discounted once you have moved on to the next.)

Frequency- Tally every instance of teacher verbal feedback throughout each interval.

1 min.			2 min.			3 min.			4 min.			5 min.			6 min.			7 min.			8 min.			9 min.			10 min.		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C
11 min.			**12 min.**			**13 min.**			**14 min.**			**15 min.**			**16 min.**			**17 min.**			**18 min.**			**19 min.**			**20 min.**		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C
21 min.			**22 min.**			**23 min.**			**24 min.**			**25 min.**			**26 min.**			**27 min.**			**28 min.**			**29 min.**			**30 min.**		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C

Average students on task (add numbers recorded under Os)	*Percent students on task* (average / total present)
Total BSPS (add tallies under Bs)	*Percent BSPS* (BSPS / BSPS+CS)

Dependent Variable Definitions:

<u>Student On Task Behavior (O):</u>	ALL the following, unless explicit verbal permission: 1. Student is not talking *(unless following teacher directive to turn and talk or answering teacher's question with permission)* 2. Student is sitting on chair oriented toward teacher or materials *(book, board, manipulatives, etc.)* 3. Student is not playing with items unless instructed *(pencil used for writing/erasing only; manipulatives used according to directive only)*
<u>Behavior Specific Praise (B):</u>	ALL of the following: 1. Gain student(s) attention/identify student(s) 2. Identify the appropriate behavior 3. Give verbal praise statement 4. Give within 15 seconds of the behavior
<u>Corrective Statements (C):</u>	Any ONE of the following, **not** referring to academic task: 1.Instruct student to stop engaging inappropriate behavior 2. Give directive to engage in an alternative to **current** behavior 3. Any other explicit or implicit verbal statement that draws attention to the current inappropriate behavior of the student(s)

Appendix D: Data Collection Sheet-Gold

Teacher Code:__Gold_____   Date & Time:_____
Observer:_____   ***Total Students Present:_____***

MTS- At each 1 minute interval, count the total number of students on task. (Do not go back to
      a student you already counted or discounted once you have moved on to the next.)
Frequency- Tally every instance of teacher verbal feedback throughout each interval.

1 min.			2 min.			3 min.			4 min.			5 min.			6 min.			7 min.			8 min.			9 min.			10 min.		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C

11 min.			12 min.			13 min.			14 min.			15 min.			16 min.			17 min.			18 min.			19 min.			20 min.		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C

21 min.			22 min.			23 min.			24 min.			25 min.			26 min.			27 min.			28 min.			29 min.			30 min.		
O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C	O	B	C

Average students on task (add numbers recorded under Os)	*Percent students on task* (average / total present)
Total BSPS (add tallies under Bs)	*Percent BSPS* (BSPS / BSPS+CS)

Dependent Variable Definitions:

<u>Student On Task Behavior (O):</u>	1. During whole group instruction, student's eye contact is oriented to speaker (teacher or student called on by teacher)
	 2. Following teacher directive to talk to partner, student is:
	    a. talking about the academic prompt to partner *or*
	    b. reading or listening to partner or teacher discuss academic prompt, with eye contact oriented toward partner or materials (in book, on worksheet, on board)
	 3. Following teacher directive to work independently, student is engaging in task without talking and with eye contact oriented toward task-related materials (book, board, manipulatives)

<u>Behavior Specific Praise (B):</u>	ALL of the following 1. Gain student attention prior to statement delivery 2. Identify the appropriate behavior 3. Give verbal praise statement 4. Give within 15 seconds of the behavior
<u>Corrective Statements (C):</u>	Any ONE of the following: 1. Instructs student(s) to stop engaging in current behavior 2. Give verbal directive to engage in an alternative behavior 3. Any other explicit or implicit verbal statement that draws attention to the inappropriate behavior of the student(s)

Appendix E: Fidelity Checklist-BSPS

Teacher: _____   Date: _____
Recorder: _____   Time: _____

Mark with "**x**" if component was present for each BSPS. Then, if all 4 components were present for a BSPS, mark "**x**" in the final column.

| BSPS | Components | | | | All 4? |
	Gained student attention prior to statement delivery	Identified the appropriate behavior the student(s) were engaging in at that moment	Gave verbal praise statement	Given within 15 seconds of the behavior	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

% Fidelity = Total in final column / #BSPS = _____ / _____ = _____

Booster training before next implementation if below 80%

Training date and time (if needed): _____

Sign when training completed. _____

                                              PI signature   *Date*

Appendix F: Fidelity Checklist-BSPS with CBGG

Teacher: _____   Date: _____
Recorder: _____   Time: _____

Score 1 for the presence and 0 for the absence of the following components. If the component is required <u>every</u> time for a score of 1, mark score as 0 the first time the component is missed. If all components were present for all opportunities when phase ends, score as 1.

Adherence	Quality	Score (0 or 1)
Teacher begins game		
	Tells students game is beginning	
	Reminds students how to earn points *(see Game Rules)*	
	Starts with clean slate	
	<u>All</u> materials ready -Boards and tokens for tracking points -MotivAider application -Popsicle sticks for criteria and reinforcers -Potential reinforcers	
Teacher scans room for behavior that earns points		
	Scans for every interval	
Teacher gives points		
	Teacher never gives points to teams off task	
	Teacher gives point to <u>all</u> teams on task	
	Teacher gives team a point only if <u>all</u> members of that team are on task	
	Teacher gives points according to the accurate definition of on-task	
	Points are given immediately after scan	

Teacher pairs a verbal explanation with points as they are being given	*Tally*:
	  A. Number of explanations: _____
	  B. Number of total points given: _____
	  A/B=___ / ___ = ___ *Score: 0 < 50% ≤ 1*	

	Teacher explains <u>every</u> time	
	Teacher gets the attention of teams being awarded a point <u>every</u> time	
	Teacher specifies the behavior they are earning a point for <u>every</u> time	
	Teacher provides some form of praise <u>every</u> time	
	Teacher does not give attention to any teams with students off task	
…continued on back…		

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Teacher ends game		
	Ending is explicit by teacher verbal announcement	
	Teacher adds up all points <u>at this time</u> *(later in the day=0)*	
	Teacher selects a student from the team with the highest points to pick the popsicle stick for mystery point criterion	
	Teacher accurately announces the number on the popsicle stick	
	Teacher verbally identifies teams that meet/exceed point criterion on popsicle stick *(NA if no teams met point criterion)*	
	Teacher selects student on one of the winning teams to select mystery motivator popsicle stick *(NA if no teams met point criterion)*	
	Teacher accurately announces the mystery motivator on the popsicle stick *(NA if no teams met point criterion)*	
Teacher gives reinforcer		
	Mystery motivator only given to teams that met the point criterion *(NA if no teams met point criterion)*	
	Students on teams that did <u>not</u> meet the point criterion do <u>not</u> access the reinforcer *(NA if <u>all</u> teams met point criterion)*	
Total adhered = ___	**TOTAL SCORE = ___**	
# adherence components assessed (6 possible, subtract NAs) = ___	**# TOTAL components assessed** (30 possible, subtract NAs) = ___	
Percent total adhered (adhered/assessed) =___	**TOTAL PERCENT FIDELITY** (total score/total assessed) = ____	

Booster training before next implementation if either adherence or total fidelity below 80%

Training date and time (if needed): _____

Sign when training completed. _____

                                               PI signature   *Date*

Appendix G: Social Validity (Modified IRP-15)

Circle the number to indicate your opinion of the intervention.	Strongly disagree	Disagree	Neither	Agree	Strongly agree
1. This would be an acceptable intervention for the elementary school.	1	2	3	4	5
2. Most teachers would find this intervention appropriate.	1	2	3	4	5
3. This intervention should prove effective in meeting the purposes.	1	2	3	4	5
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5
5. The intervention is appropriate to meet the school's needs and mission.	1	2	3	4	5
6. Most teachers would find this intervention suitable for the described purposes and mission.	1	2	3	4	5
7. I would be willing to use this intervention in the school setting.	1	2	3	4	5
8. This intervention would *not* result in negative side-effects for the students.	1	2	3	4	5
9. This intervention would be appropriate for a variety of students.	1	2	3	4	5
10. This intervention is consistent with those I have used in school settings.	1	2	3	4	5
11. The intervention is a fair way to fulfill the intervention purposes.	1	2	3	4	5
12. This intervention plan is reasonable to meet the stated purposes.	1	2	3	4	5
13. I like the procedures used in this intervention.	1	2	3	4	5
14. This intervention is a good way to meet the specified purpose.	1	2	3	4	5
15. The monitoring procedures are manageable.	1	2	3	4	5
16. The monitoring procedures will give the necessary information to evaluate the plan.	1	2	3	4	5
17. Overall, this intervention would be beneficial for elementary school students.	1	2	3	4	5

Appendix H: Student Reinforcer Survey

Circle how much you like the rewards.

1. Being on the morning show	a lot	a little	not really
2. Visiting another class	a lot	a little	not really
3. Getting a "no homework" pass	a lot	a little	not really
4. Getting free time to myself	a lot	a little	not really
5. Having free time with friends	a lot	a little	not really
6. Choosing from the treasure chest	a lot	a little	not really
7. Reading with my teacher	a lot	a little	not really
8. Reading by myself	a lot	a little	not really
9. Teaching the class	a lot	a little	not really
10. Showing the class my toys	a lot	a little	not really
11. Showing the class my talents	a lot	a little	not really
12. Eating lunch at another table	a lot	a little	not really
13. Eating lunch with my teacher	a lot	a little	not really
14. Eating snacks/candy in class	a lot	a little	not really
15. Playing on the computer	a lot	a little	not really
16. Other:_____	a lot	a little	not really

Which reward is your favorite? _____