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Using the Good Behavior Game to Decrease Disruptive Behavior While Increasing Academic Engagement with a Headstart Population

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The University of Southern Mississippi

USING THE GOOD BEHAVIOR GAME TO DECREASE DISRUPTIVE BEHAVIOR WHILE INCREASING ACADEMIC ENGAGEMENT WITH A HEADSTART POPULATION

by

Brandy Marie Hunt

Abstract of Dissertation
Submitted to the Graduate School
Of The University of Southern Mississippi
In Partial Fulfillment of the Requirements
For Degree of Doctor of Philosophy

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ABSTRACT

USING THE GOOD BEHAVIOR GAME TO DECREASE DISRUPTIVE BEHAVIOR WHILE INCREASING ACADEMIC ENGAGEMENT WITH A HEADSTART POPULATION

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The Good Behavior Game (GBG) has been widely supported as an effective intervention to alter a variety of target behaviors, in various settings, with varying age groups; however, there are areas warranting further investigation. Prior to the present study, no study has examined the GBG's effectiveness in decreasing disruptive behaviors while increasing appropriate academic behaviors within a preschool population. The present study adds to the literature base by investigating the GBG's effectiveness in simultaneously decreasing classroom disruptive behaviors while increasing appropriate behaviors. A multiple baseline design across three Headstart classrooms was used to evaluate the effectiveness of the GBG on decreasing disruptive behavior while increasing academic engagement. Findings showed that the GBG decreased disruptive behaviors and increased academic engagement within three Headstart classrooms. Additionally, the GBG decreased disruptive behavior for three target students and increased academic engagement for two target students. Therefore, the study demonstrated that the GBG could be successfully used with a preschool population to decrease disruptive behavior while increasing academic engagement.

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INTRODUCTION

A significant number of parents and teachers report toddler and preschooler disruptive behaviors that impede teaching and learning in the classroom as well as cause problems in the home environment (Jolivette, Gallagher, & Morrier, 2008). Jolivette and colleagues (2008) reported that early and continued problem behaviors lead to poor school and life outcomes. Specifically, untreated early externalizing behaviors may lead to academic deficits, social skill deficits, as well as later behavior problems (Jolivette et al., 2008). Although disruptive behaviors often co-occur with poor academic outcomes, there is evidence to suggest that conduct problems foreshadow academic deficits (Bradshaw, Zmuda, Kellam, & Ialongo, 2009). Early learning problems and aggressive and disruptive behaviors can lead to eventual criminality, antisocial behavior, anxiety, depression, and/or substance abuse in adolescence and in adulthood (Bradshaw et al., 2009; Broidy et al., 2003). Therefore, it appears that early intervention may help stave off later disruptive behavior as well as future social and academic problems.

Federal policies (e.g., No Child Left Behind Act, Individuals With Disabilities Education Act) stress the importance of using evidence-based practices and interventions in schools to circumvent disruptive behavior problems and to assist with academic success (Bradshaw et al., 2009) With negative trajectories from early problem behavior, along with a national focus on the prevention of early child behavior problems, management of student problem behavior has gained the attention of schools and families (Jolivette et al., 2008; Sugai & Horner, 2002). As a result, a behavioral program called positive behavioral intervention and supports (PBIS) was developed in order to decrease

or possibly prevent student problem behavior, thereby allowing for a more positive teaching and learning environment promoting academic success.

PBIS may be described as a system of school-wide and individualized strategies to be used with all students, regardless of disability, in order to improve social and learning outcomes while preventing or decreasing student problem behavior (Sugai & Horner, 2002). PBIS is a three-tiered system of behavioral management, with each increasing tier affording the student more academic and behavioral support. Tier I focuses on primary prevention at the school-wide and classroom wide level. Tier I is designed to remove factors that could encourage or maintain inappropriate student behavior, while teaching and modeling prosocial behaviors. Tier II strategies are provided to smaller groups of students, at risk for school failure, who need more specialized supports in addition to Tier I. Tier II interventions may include, but are not limited to, strategies such as token economies (Wolfe, Giles, & Hall, 1968). In addition to Tier 1 and Tier II supports, the final tier, Tier III, is designed for use with only those students who are at a considerable risk for emotional, behavioral, and social failure. Therefore, Tier III supports include intensive, individualized interventions such as the daily behavior report card (Riley-Tillman, Chafouleas, & Briesch, 2007; Sugai & Horner, 2002).

Many behavioral programs that can be used in the framework of PBIS have been offered within the literature. Token reinforcement systems, for example, are one type of behavior change program that have been offered to help decrease disruptive classroom behavior, thereby providing a more positive learning environment (Wolfe, Giles, & Hall, 1968). Token reinforcement may be provided during Tier II and occur in addition to Tier

I service provision. Token reinforcement involves using tokens as placeholders for back-up reinforcers (Kazdin & Bootzin, 1972). Tokens may be provided contingent on following rules. These tokens can be used at a later time to access back-up reinforcers such as free time, toys, or food. However, token reinforcement is a complex procedure when compared to other behavioral methods. As an alternative to token reinforcement, group-oriented contingency programs have been offered. Specifically, group-oriented contingency programs may be provided during Tier II and occur in addition to Tier 1.

Three group-oriented contingencies have been discussed within the literature: (a) independent; (b) dependent; and (c) interdependent (Litow & Pumroy, 1975). Independent contingency programs specify classwide target behaviors, consequences, and behavioral criteria. Access to reinforcement is contingent upon individual performance (e.g., "Anyone who completes the spelling test with 80% accuracy gets to have five extra minutes of recess."). Dependent contingency programs specify target behaviors, consequences, and behavioral criteria for specific individuals within a group. Access to reinforcement is determined based upon one or a few group member's performance (e.g., "If John completes his spelling test with 75% accuracy, then John's team gets to have five extra minutes of recess."). Interdependent contingency programs specify target behaviors, consequences, and behavioral criteria for all individuals within each team. Access to reinforcement is determined based upon combined team data (e.g., "If team one completes the spelling test with an average score of 80%, team one gets to have five extra minutes of recess," Tingstrom, Sterling-Turner, & Wilczynski, 2006). Group contingency programs have been found to be convenient by teachers (Axelrod, 1973; Litow & Pumroy, 1975).

Group contingency programs have been used over the years to decrease disruptive behavior and/or improve academic behavior (Christ & Christ, 2006; Evans & Oswalt, 1968; Graubard, 1969; Popkin & Skinner, 2003; Wilson & Williams, 1973). Programs have been shown effective for decreasing disruptive school behaviors with varying age groups. Additionally, programs have been successful in improving academic behaviors. A sampling of research studies employing the use of group contingency programs with academic and behavioral targets are discussed below.

In a study by Evans and Oswalt (1968) a dependent group contingency was used to increase the performance of fourth grade and sixth grade students. Participants included one target student and classroom peers from four classrooms. Access to group reinforcement occurred contingent on the target student's daily performance on oral exam questions in spelling, arithmetic, and social and general science. Results indicated that three of four target students improved their oral test performance when the dependent group contingency was in effect. The authors noted peer pressure as one possible limitation to the study. Although not formally assessed, the authors reported that classmates urged the target student to study for exams (Evans & Oswalt, 1968).

Graubard (1969) compared behavior change using group and individual contingency programs with residents with emotional disabilities in a treatment center classroom. No other information regarding study participants was reported. Target behaviors included on-task behavior and task completion. An A/B/A/C design was used. Phase A consisted of a contingency program in which access to reinforcement for all residents was dependent on each resident earning a specific number of points within a token economy. Phase B included non-contingent reinforcement. Phase C consisted of a

combination of group and individual contingencies. Specifically, in addition to the group reward used in phase A, residents could also earn rewards for individual performance above and beyond the group criterion (Graubard, 1969).

Results indicated that the combination of group and individual contingencies produced the most beneficial behavior change, followed by group contingencies alone, and last, non-contingent reinforcement. A possible study limitation was the lack of information regarding the study participants. No demographic information was offered; therefore, replication and generalization are difficult.

Wilson and Williams (1973) used a group contingency intervention with 100 first grade students. The first grade population was broken down into smaller units of 9 to 12 students. These smaller groups were provided with a group contingency targeting academic and disruptive behavior. Specifically, students could earn five minutes of free time if all group members completed assignments within the allotted time with fewer than a criterion number of errors. Additionally, a DRO schedule of reinforcement was used in which the absence of disruptive behavior resulted in an extra five minutes of free time. A response cost procedure was also used in which the students lost one of the available five extra recess minutes for each occurrence of disruptive behavior. The intervention increased the percentage of work completed and reduced classroom disruptive behaviors (Wilson & Williams, 1973).

A few limitations should be noted with regard to Wilson and Williams (1973). First, it is unclear how the DRO and response cost procedure functioned simultaneously considering that the five extra minutes of free time were only awarded contingent on the absence of disruptive behavior. Therefore, the students would not have accrued the five

extra minutes of free time in which to subtract the one minute from, had disruptive behavior occurred. Second, the multicomponent treatment package was found to be effective; however, it is unknown which component interventions produced the most behavior change.

Popkin and Skinner (2003) used an interdependent group contingency design within a modified multiple baseline design. Participants included five students with disabilities within a self-contained classroom for grades six to eight. Three target behaviors included academic performance on independent seatwork assignments in spelling, mathematics, and English. Data were collected for the target behaviors using permanent product data. After each completed assignment, teachers calculated the percent of items correct. Access to rewards was contingent on the class mean percentage of items correct meeting criterion. Although rewards were contingent on the group's performance, data were collected for individual performance as well. After baseline, the interdependent group contingency was introduced over the next three phases. During the first phase of intervention, only spelling performance was targeted. During the second phase of intervention, mathematics performance and spelling performance were targeted; however, the teacher drew out only one index card from the *goals box* and the goal card indicated a criterion level of spelling or mathematics, not both. Therefore, students had no way of knowing which behavior would be rewarded prior to the drawing of the goal card. During the final intervention phase, spelling, mathematics, and English performance were targeted. The teacher continued to draw out only one index card from the *goals box* and the goal card indicated a criterion level of spelling, mathematics, or

English. Results indicated that the interdependent group contingency increased spelling, mathematics, and English performance (Popkin & Skinner, 2003).

The authors noted several limitations to Popkin and Skinner (2003). First, the interdependent group contingency was used in a classroom already employing the use of individual and other independent group contingencies. Therefore, it is unknown whether the current intervention would have proved as effective had other intervention strategies not been in current use within the classroom. Second, the authors noted that as group size increased, effects of interdependent group contingencies may decrease. The study had only five participants; therefore, more group members may have lead to less dramatic behavior change. Third, the authors reported that generalization to large general education classrooms may be difficult given the fact that spelling, mathematics, and English assignments need to be graded prior to the end of school in order to provide contingent rewards based upon group performance (Popkin & Skinner, 2003).

Christ and Christ (2006) used an interdependent group contingency within a nonconcurrent MBL design with withdrawal to reduce disruptive behavior and teacher corrections for disruptive behavior, and to increase academic engagement and uninterrupted instructional time with a high school population. Participants included a tenth grade biology class, a ninth grade English class, and a ninth grade physical education class. Observers collected data for disruptive verbalization and teacher correction of disruptive behavior and teacher-directed instruction and academically engaged behavior. Additionally, teachers collected data for undisrupted instruction time. The interdependent group contingency involved a Differential Reinforcement of Other Behaviors (DRO) schedule of reinforcement. If students refrained from engaging in

inappropriate classroom behavior during a two minute interval of time, points were added to a displayed digital scoreboard, which displayed the time remaining within the interval, the points earned, and the point criterion. If the classroom obtained a criterion amount of points, instruction was terminated, and contingent free time was awarded to the students. Results showed that academic engagement increased, class disruptions decreased, and students required less corrective feedback during the interdependent group contingency. Additionally, teachers reported the intervention to be acceptable and that they would recommend its use to other teachers (Christ & Christ, 2006).

A few limitations of Christ and Christ (2006) should be noted. First, interrater reliability, at times, fell below the acceptable range for disruptive verbalization (range = 76% to 100%) and teacher directed instruction (range = 71% to 100%). Second, many intervention components were used during the study, namely a group contingency, a digital scoreboard, immediate feedback, and contingent free time. Therefore, it is difficult to know which component parts are necessary for achieving desired behavior change when using a multicomponent treatment package (Christ & Christ, 2006).

The sample of studies reviewed thus far demonstrates the value of group contingency programs for decreasing disruptive behavior and increasing academic behavior (Christ & Christ, 2006; Evans & Oswalt, 1968; Graubard, 1969; Popkin & Skinner, 2003; Wilson & Williams, 1973). One specific high-quality group contingency program, shown to be successful at modifying disruptive and academic behavior, is the Good Behavior Game (GBG) (Barrish, Saunders, and Wolfe, 1969). The GBG, interdependent group contingency program, is an intervention in which teams (e.g., one or two teams usually) compete to obtain the fewest amount of check marks for disruptive

classroom behavior in order to gain access to privileges or rewards. Embry (2002) described the GBG as a strategy that "an individual teacher or staff member can implement versus a comprehensive school-wide program" (pp. 285-286). Therefore, the GBG fits well in the PBIS framework as a Tier II intervention technique given its focus on a select group of individuals (e.g., a classroom). While it may be implemented as a largely within the literature as a Tier II intervention, the GBG may be useful as a Tier I strategy. Additionally, the GBG is a strategy traditionally used after student disruptive behavior has been demonstrated, rather than as a universal preventative tactic (Bostow & Geiger, 1976; Harris & Sherman, 1973; Huizink, Van Lier, & Crijnen, 2009; Medland & Stachnik, 1972; Poduska et al., 2008; Saigh & Umar, 1983; Van Lier, Huizink, & Crijnen, 2009; Warner, Miller, & Cohen, 1977).

The GBG, as used by Barrish et al. (1969), has six basic component steps. First, the game is introduced to the class. Second, students are divided into two teams. Third, students are told that certain privileges or rewards are provided to winning team(s). Fourth, students are told they have to follow specific rules. These rules are specific to student disruptive behaviors (e.g., no one is allowed to get out of her/his seat without teacher permission, no one is allowed to talk without permission). The students are informed that whenever they break one of the rules, that person's team will earn a mark, which will be displayed. Fifth, it is explained that the team earning the fewest marks wins the game. However, both teams could win if both receive fewer than a criterion number of marks. Sixth, students are informed that the losing team will not earn the privileges or rewards (Barrish et al., 1969).

Although some disadvantages to group contingency approaches such as negative peer influence, refusal to play the game, and/or attempts at sabotaging the game have been discussed within the literature, the GBG appears to have many advantages as a classroom behavior modification technique (O'Leary & Drabman, 1971). First, desirable, prosocial behaviors may occur because students may attempt to encourage each other to demonstrate appropriate classroom behavior (Gresham & Gresham, 1982). Second, many teachers state a preference for class-wide contingency programs because perceived preferential treatment of a select few students is avoided (Davies & Witte, 2000). Third, access to reinforcers could still be attained even if a team surpasses the number of allotted check marks because the second team could also surpass the number of allotted check marks, in which case the team with the least amount of marks would win the game. Fourth, teachers report that they like the GBG, in part, because it is more time-efficient than individual contingency programs (Litow & Pumroy, 1975). Fifth, the GBG is flexible and can be adapted in many ways such as the number of teams needed and the criterion to beat (Tingstrom et al., 2006). Sixth, the GBG can be used effectively in combination with other techniques such as token reinforcement systems (Hegerle, Kesecker, & Couch, 1979; Robertshaw & Hiebert, 1973), self-monitoring (Davis & Witte, 2000), and the Mystery Motivator (Lannie & McCurdy, 2007). Finally, the game has proved successful in altering different behavior (e.g., disruptive behavior, academic behavior, and prosocial behavior), in various settings (e.g., general education, special education, and non-traditional settings), and with varying age groups (e.g., elementary students, middle school students, and adults). In the following sections, a review of

relevant literature pertaining to the GBG will be presented, organized by behaviors targeted and educational setting of intervention.

Research Support for The Good Behavior Game

Disruptive Behavior

General education. Several researchers have used the GBG in general education settings, in traditional or modified forms, to decrease disruptive behavior (Bostow & Geiger, 1976; Harris & Sherman, 1973; Huizink et al., 2009; Medland & Stachnik, 1972; Poduska et al., 2008; Saigh & Umar, 1983; Van Lier et al., 2009; Warner et al., 1977). The GBG has proven effective for decreasing numerous types of disruptive school behaviors with varying age groups. Disruptive behavioral targets vary from study to study and have included behaviors such as out-of seat behavior, talking-out behavior, lack of attention to the assigned task, bothering one's neighbor, and aggression or physical disruption.

In a study by Medland and Stachnik (1972), a modified GBG was evaluated within an A/B/A/C/D/B phase change design targeting out-of-seat behavior, talking-out behavior, and disruptive behavior. Following baseline, a modified GBG was introduced during phase two. The game was modified by allowing a 5th grade reading group's losing team(s) to vote out a teammate who had cost the team(s) the daily reward; thereby thwarting student attempts to *sabotage* the program and helping to protect teammates from a student who refused to follow class rules. The excluded student did not participate in the GBG the following day, but he was permitted back into the group the day after. A second modification included the use of indicator lights (i.e., green and red) in place of the traditional slash marks on the chalkboard or bulletin board. Following

phase two, a withdrawal phase occurred. During this phase, the game was not played and the teacher carried out classroom behavior management in a traditional fashion. Phase four consisted of only describing the class rules. Phase five consisted of using only the rules and indicator lights. No game, no extra recess, or free time were included. The final phase consisted of a reintroduction of the modified GBG from phase two.

Two observers collected data each day over the course of the study. The classroom was divided into two teams with one observer tallying the target behaviors for each team. Although all treatment phases resulted in favorable behavior change, results showed that the modified GBG, used during phase two, proved superior in decreasing the targets of out-of-seat behavior, talking-out behavior, and disruptive behavior when compared to the rule-only condition and the rule + lights condition (Medland & Stachnik, 1972).

There were a few limitations associated with the study by Medland and Stachnik (1972). First, sequencing effects may have occurred. It is unclear if the rule-only condition and/or the rule + lights condition would have proved as effective for reducing problem behavior if they had been introduced prior to the modified GBG. Second, although large weekly reinforcers were available, daily reinforcement may not have been sufficiently powerful to encourage daily appropriate behavior once access to the weekly reinforcer had been removed (Medland & Stachnick, 1972)

Harris and Sherman (1973) used the GBG across periods of math and English with 5th and 6th graders. A MBL design included multiple elements (i.e., traditional GBG, modified GBG without consequences, modified GBG without feedback, modified GBG without teams) in order to determine which GBG components were most beneficial.

The authors also used changing criteria and combined phase changes. Target behaviors included talking and being out-of-seat.

Data were collected across all phases using a one-minute partial interval recording method for the class as a whole. Data were initially collected during two 30-minute math periods; however, a 30-minute science and spelling period along with a 60- to 100-minute reading period were added later. Results indicated that control over the target behaviors was best demonstrated within the traditional GBG phases. Less disruptive behavior was exhibited within the modified GBG without consequences phase when compared to the absence of the game. The level of student behavior fluctuated with the daily criterion as the criterion was changed. Feedback did not appear to affect target behavior. During phases in which the teams were eliminated and the classroom was treated as a whole, the incentive for good behavior was lost once the daily criterion had been surpassed, unlike phases in which a between-group competition allowed for one team to win each day even if the daily criterion had been surpassed by both teams (Harris & Sherman, 1973).

Two limitations should be noted. First, visual inspection of the data were difficult, given the authors used bar graphs, which provided only aggregate means for each phase, to report their data. Therefore, between-group and within-group phase variability and trend cannot be assessed. Second, the authors report poor interobserver agreement data (IOA; range = 50% to 100% for talking behavior; 0% to 100% for out-of-seat behavior) (Harris & Sherman, 1973).

In another GBG study, Bostow and Geiger (1976) demonstrated the effectiveness of the GBG, as originally proposed by Barrish et al., (1969), using an A/B/A/B withdrawal design within a general education second-grade classroom. Target behaviors

included out-of-seat behavior, talking-out behavior, lack of attention to the assigned task, and bothering one's neighbor (Bostow & Geiger, 1976).

In addition to reducing the number of rule violations in the classroom, anecdotal evidence suggested the GBG was popular with the students and teacher. The students protested the withdrawal of the GBG, and the teacher reportedly continued to use the GBG after the study had ended (Bostow & Geiger, 1976). One major limitation to the Bostow and Geiger (1976) study was the lack of IOA data. The authors reported that reliability checks were completed; however, data were not provided.

Warner et al. (1977) compared the GBG to a teacher-attention method in four classrooms. Target behaviors included talking-out and out-of seat behaviors. The authors employed a counterbalanced experimental design; however, no further details regarding the exact design, procedures, or participants were provided in the study. Overall, the students demonstrated greater reductions in disruptive behavior during GBG phases when compared to a teacher-attention method. Also, teachers stated a preference for the GBG over the teacher-attention procedure. The authors stated two concerns with using the GBG; namely, ethical concerns about the abuse of peer pressure and concern that behavior control might become the teacher's main focus within the classroom considering the simplicity of GBG implementation; however, neither was observed (Warner et al., 1977).

In a 2008 study, Poduska et al. examined the effects of the GBG on young adult service use (e.g., special education services, drug treatment services, juvenile justice system services) in a longitudinal study with first grade students entering school in 1985 and continuing into second grade. Students were randomly assigned to one of three

conditions: GBG, Mystery Learning, or control. Dependent measures included the Services Assessment of Children and Adolescents (SACA), the Social Adaptation Status (SAS), and the Teacher Observation of Classroom Adaptation-Revised (TOCA-R). Effects on behavior using the GBG were the sole focus of Poduska et al. (2008); therefore, information regarding Mystery Learning was not included. The GBG was played as originally described by Barrish et al. (1969) (Poduska et al., 2008).

Data indicated that the rates of any service use were lower for male youth in the GBG condition compared to the control condition. Specifically, the rates of school-based services were lower for all children in the GBG condition. Additionally, the rates of service use through the juvenile or adult justice system were 9.3% for all children in the GBG condition versus 11% for all children in the control condition. Although many positive results were associated with the GBG, data also indicated that rates of service use through drug treatment were not significantly lower for children who received the GBG intervention. Overall, the GBG was shown to be an effective preventative method on later service use for males, though not for females (Poduska et al., 2008).

A few limitations to Poduska et al. (2008) should be noted. First, the GBG was used during second and third grade; however, experimental measures were not in place after conclusion of GBG services. Therefore, it is unknown what other intervention strategies may have been used prior to later service use. Second, the authors relied on a self-report measure of mental health service use; therefore, underreporting may have occurred.

The GBG has been also proven effective in non-Western cultures (Huizink et al., 2009; Saigh & Umar, 1983; Van Lier et al., 2009). In an experiment by Saigh and Umar

(1983), the utility of the GBG, as originally proposed by Barrish et al. (1969), was assessed within a 2nd grade classroom in rural Sudan. Data were collected for talk or verbal disruption, aggression or physical disruption, and seat leaving within an A/B/A/B withdrawal design (Saigh & Umar, 1983).

Data were collected across all phases using a 30-second partial interval recording method. Target behaviors were observed for the class as a whole during 50-minute observation periods each day. Data were reported as the percentage of intervals in which target behavior occurred. Results supported the utility of the GBG in a non-Western school setting. Additionally, social validity of the GBG was supported through interviews with the principal, teachers, parents, and students. The authors conducted an experimentally sound procedure and showed that the GBG lead to decreases in disruptive behavior. Additionally, the authors recommended further empirical validation of the GBG in other areas of the developing world (Saigh & Umar, 1983).

Huizink et al. (2009) demonstrated that reduction in symptoms associated with Attention-Deficit/Hyperactivity Disorder (ADHD) using the GBG reduced later early-onset smoking behavior in children. Participants included 666 students as they progressed through second and third grade. Children were randomly assigned to either the GBG condition or a control condition. Target behaviors included substance abuse, as measured by the Substance Use Questionnaire, and symptoms associated with ADHD and conduct problems, as measured with the Teacher's Report Form (TRF)/6-18. Huizink and collegues (2009) used the GBG in three stages during grade two and then again during grade three. In stage one, the GBG was played as originally designed by Barrish et al. (1969). In stage two, reinforcers were not provided until the end of the

week, then delayed until the end of the month. In the final stage, reinforcers were replaced with teacher compliments for appropriate behavior. Results indicated that children receiving the GBG intervention demonstrated reduced ADHD symptoms and conduct problems. Additionally, children who received the GBG had a lower probability of early-onset tobacco use than did children in the control group (Huizink et al., 2009).

Two limitations to Huizink et al. (2009) should be noted. First, the study did not assess self-reports of smoking behavior past age 11. Therefore, smoking onset may have occurred after termination of the study. Second, the authors used a self-report measure to assess for smoking onset. No biochemical procedures were used. Therefore, self-report measures may have underrepresented the number of children who engaged in smoking behavior during the study because of socially desirable responding (Huizink et al., 2009).

More recently, Van Lier et al. (2009) extended the GBG with elementary students from the Netherlands. Participants included 666 children aged seven to nine years from 13 elementary schools in Amsterdam and Rotterdam, Netherlands. Baseline data were collected for disruptive behavior during first grade. Classes were randomly assigned to either a GBG condition or a control condition. The GBG continued throughout second and third grade. Participants filled out a self-report Substance Use Questionnaire assessing tobacco use, substance use, and use of other substances (e.g., cigarettes) at age 10 through age 13. Results indicated lower levels of disruptive behavior for children assigned to the GBG condition versus the control condition. Additionally, the GBG children had a lower probability of onset of tobacco use during the ages of 10 through 13. The GBG produced a limited effect on alcohol use.

Several study limitations were noted by Van Lier and colleagues (2009). First, given the age of the participants, the prevalence rates of substance abuse were low prior to study. Second, there were a few confounding variables existing concurrently with the GBG intervention, namely, current parental smoking behavior and poor parental supervision. Third, generalizability is limited to late childhood and early adolescence.

Most recently, Kleinman and Saigh (2011) completed the only GBG study with high school students. The effects of a modified GBG were evaluated using an A/B/A/B withdrawal design within a ninth grade biology class comprised of 15 males and 11 females with a mean age of 15.39 years. Modifications to the GBG included that it was presented as a chance to earn prizes rather than a game. Additionally, target behaviors were presented as "expectations" (p.102) rather than rules. Target behaviors included talking or verbal disruption, aggression or physical disruption, and seat leaving. Results showed an immediate change in the level of target behaviors during treatment phases. Therefore, the GBG was supported as an effective behavior change intervention with a high school population.

Several limitations exist with the study. First, phase changes were determined a priori and occurred at the beginning of the week regardless of data level, trend, or variability. Second, although the GBG proved effective for ninth grade students the effects for other grades within the high school setting are unknown. Therefore, future study with high school populations are needed.

Special education. A few research studies have employed the GBG in special education settings, in traditional or modified forms, in order to decrease disruptive classroom behavior (Davis & Witte, 2000; Gresham & Gresham, 1982; Hegerle et al.,

1979). The GBG has been very successful for decreasing classroom disruptive behaviors across age groups. Disruptive behavioral targets have varied from study to study, including behaviors such as out-of seat behavior, talking-out behavior, or inappropriate vocalizations.

In an early demonstration of the GBG's effectiveness, Hegerle et al. (1979) used a modified GBG within a self-contained classroom of 22 students. Target behaviors included out-of-seat behavior, talking out, and tattling. Modifications to the GBG, as originally proposed by Barrish et al. (1969), included the ability to remove a teammate from the team who received a great quantity of marks, the division of teams based upon gender, the reduction in the criterion for winning the game over the course of the study, and the introduction of a token reinforcement system. Data were collected for a set time each afternoon. Results showed a reduction in target behaviors during the GBG when compared to baseline levels (Hegerle et al., 1979).

One limitation in Hegerle et al. (1979) was that independent visual inspection of the data were impossible given that the article did not include figures and provided only mean scores. Therefore, between-group and within-group phase variability and trend could not be assessed. A second limitation was a lack of IOA data. The authors reported that two observers collected daily classroom data; however, IOA was not reported. Last, although reactions were positive from both the students and teacher, the GBG caused class disruption at times. Namely, the marking of points on the blackboard became disruptive, as did teacher explanation of a rule violation to the violating student (Hegerle et al., 1979).

In a 1982 study, Gresham and Gresham (1982) utilized the GBG within an A/B/C/D/A/B/C/D design to evaluate three contingency programs (i.e., interdependent, dependent, and independent) within a self-contained classroom, for children with mental retardation. During phase B of the study, the GBG was in effect, as originally proposed by Barrish et al. (1969). A dependent contingency was in effect during phase C. During this condition, the two most disruptive students from baseline were assigned as team captains. The teams earned access to reinforcement only if the team captain exhibited fewer than five disruptive behaviors. During phase D, an independent contingency was in effect in which each student competed for reinforcement against every other student. Students who received fewer than five marks for disruptive behavior earned access to reinforcers (Gresham & Gresham, 1982).

Data were collected for 30 minutes in the morning and 30 minutes in the afternoon during noninstructional class periods. Disruptive behavior was recorded using frequency counts. Results indicated that the interdependent (i.e., GBG) and dependent contingency phases produced greater reductions in disruptive behavior relative to the independent contingency phase. Furthermore, the interdependent (i.e., GBG) contingency phase produced greater reductions in disruptive behavior than the dependent contingency phase (Gresham & Gresham, 1982).

There were two major limitations to Gresham and Gresham (1982). First, phases were not counterbalanced in a replication series; therefore, a carry-over effect may have occurred due to ordering of the contingency programs. Second, phase changes were not data driven; that is, each phase persisted for five days, regardless of data patterns. Visual analysis of data showed that that the number of disruptive behaviors was decreasing

during the first GBG phase as a new phase was introduced. Therefore, it is difficult to compare adjacent phases for effectiveness considering that the data were already on a decreasing trend.

In the most recent demonstration of the GBG's effectiveness with special education students, Davis and Witte (2000) used a modified version of the GBG within an A/B/A/B withdrawal design targeting inappropriate vocalizations of third grade students. Study participants included four target students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), who required grade retention and summer school, and four matched controls (Davis & Witte, 2000).

Following baseline, a modified GBG was introduced. The modified GBG differed from the original version used by Barrish et al. (1969) in the following ways. Davies and Witte (2000) used a group contingency method paired with a self-management component. A 9" x 12" chart was placed in the center of each quartet of desks. Each chart was divided into three areas (i.e., ½ green, ¼ blue, and ¼ red). When an inappropriate vocalization occurred, the student was asked to record the rule violation by moving one of five dots from the green section of the chart into the blue section. However, if after 10 seconds the dot was not voluntarily moved, the teacher moved a dot from the green section into the red section. Students were responsible for maintaining daily records on individually provided behavior sheets pertaining to the number of dots they themselves moved and the number of dots the teacher moved. Reinforcer access was granted to the team(s) who had at least one dot remaining on the green section of the chart at the end of the period. Peers provided additional feedback to team members

during a 5 minute group meeting at the beginning of each game day. Team members discussed such topics as areas for improvement (Davies & Witte, 2000).

Data were collected Mondays through Thursdays for 30 minutes using a frequency count. Results indicated that inappropriate vocalizations decreased for all target students and matched controls during the GBG. No differences were found between instances of self-monitoring or teacher monitoring of behavior (Davies & Witte, 2000).

There were a few limitations associated with Davies and Witte (2000) study. First, the number of participants decreased mid-study because several students were moved to a newly formed third grade class. Considering that the original classroom composition changed and individual student data were not provided, it is impossible to know how each student's behavior contributed to the overall mean. Second, at times, a substitute teacher was responsible for carrying out the modified GBG; however, he or she did not receive training in the procedures. Treatment integrity measures were absent. Third, one of the target students began taking medication for symptoms associated with ADHD four weeks into the study. Therefore, it is unclear if the modified GBG would have proved as effective in decreasing inappropriate vocalizations if it had been continued without the combination with medication.

Other settings. A few researchers have employed the GBG in other settings (e.g., residential settings, school cafeteria), in traditional or modified forms, in order to decrease disruptive behavior (Hunt, 2010; McCurdy, Lannie, & Barnabas, 2009; Salend, Reynolds, & Coyle, 1989). The GBG has decreased numerous types of disruptive behaviors in varying age groups.

Salend et al. (1989) modified the GBG within a residential program for students with emotional disabilities in the special education program. The study utilized an A/B/A/B withdrawal design within three classrooms of students who were preparing for entry into a regular high school program. Target behaviors included inappropriate verbalizations, touching, negative comments, cursing, and drumming. Modification to the GBG, as originally proposed by Barrish et al. (1969), included the division of class members into two or more groups, with each group having a unique target behavior and criterion for reinforcer access. Another modification included the drawing of reinforcers from a bag (Salend et al., 1989).

Data were collected each day for 30 minutes using event recording during classroom A's science class, classroom B's European culture class, and classroom C's biology class. Results showed that the GBG reduced all target behaviors.

More recently, McCurdy et al. (2009) demonstrated the effectiveness of the Lunchroom Behavior Game (LBG) in reducing disruptive behaviors in the school cafeteria using a MBL design across lunch periods. Participants included 615 students from an urban public elementary school for grades K to six. Data were collected for disruptive behaviors (i.e., out-of seat behavior, play fighting, physical contact with force, throwing objects, and screaming) across three lunch periods using a frequency count within 15 second observation intervals over a 10 to 15 minute observation period. Modifications to the GBG, as proposed by Barrish et al. (1969), included having lunch staff blow a whistle when a rule infraction occurred, verbally identifying the rule infraction and an appropriate replacement behavior, and making tick marks on a personal recording sheet rather than public posting. Results indicated that the LBG decreased

disruptive behaviors during lunch time. The LBG was rated as highly acceptable by staff and acceptable by a sample of students (McCurdy et al., 2009).

A few limitations with McCurdy et al. (2009) should be noted. First, anecdotal evidence suggested that school staff introduced other intervention strategies during the LBG to help enhance the positive game effects. Therefore, behavior change related to the LBG solely cannot be determined. A second limitation included poor procedural integrity data (range = 75% to 100%). The authors reported that one of the most consistently omitted steps in the LBG was failing to record team point losses (McCurdy et al., 2009).

Hunt (2010) used a nonconcurrent MBL design across three HeadStart classrooms in order to assess the effectiveness of the GBG in decreasing disruptive behavior. Participants included three target students and classroom peers. Target behaviors included inappropriate vocalizations, noncompliance, and aggression. Following baseline, the GBG was introduced, as originally proposed by Barrish et al. (1969). Results showed the GBG to be an effective procedure in the reduction of disruptive behavior, both across classrooms and with target students.

Several limitations were noted by Hunt (2010). First, procedural integrity ranged from 67% to 100% with one teacher requiring re-training of the GBG steps. Second, although comparison peer data were collected and collapsed together in an attempt to represent classroom disruptive behavior level, it is unknown what effect the GBG had on individual classroom peers considering that a random selection of few peers occurred each intervention day. And finally, the classroom teachers were given much latitude in the selection of the GBG behavior criterion without regard to baseline levels of disruptive

behavior. The author noted that several teams did not meet or beat the criterion established by the classroom teacher; therefore, the teacher-selected behavioral criterion was likely an overestimate of what the students could achieve.

In the area of external validity, Hunt (2010) noted a few limitations. No data were collected for appropriate classroom behaviors; therefore, it is unknown how the GBG affected desirable behaviors. Finally, several children cried upon losing the GBG, and some were not easily consoled by the teacher.

Academic/Prosocial Behavior

General education. Many researchers have utilized the GBG in general education settings, in modified forms, in order to increase appropriate academic or prosocial behavior (Darch & Thorpe, 1977; Fishbein & Wasik, 1981; Maloney & Hopkins, 1973; Mudgal, 2004, 2006; Patrick, Ward, & Crouch, 1998; Robertshaw & Heibert, 1973; Swain, Allard, & Holborn, 1982). The GBG has been successful in increasing different types of academic or prosocial school behaviors. Academic and prosocial behavioral targets vary from study to study and have included behaviors such as task-relevant behavior, number of completed seatwork papers, attention to class, on-task behavior, grammatical composition of written stories, work accuracy, or appropriate social behaviors.

Darch and Thorpe (1977) modified the GBG into the *Principal Game.* Data were gathered for the 10 most disruptive students within a fourth grade general education classroom. The *Principal Game* was compared to an independent contingency program within an A/B/A/C/A experimental design. On-task behavior was the sole behavioral target. The *Principal Game* differed from the original GBG in the following ways. First,

the teacher recorded instances of on-task behavior during social studies rather than recording off-task behavior. Second, recordings of on-task behavior were only taken when a bell timer sounded. The bell timer sounded six times during the *Principal Game.* When the bell sounded, each member of the team had to be on-task for a point to be earned. Third, the class was divided into five teams rather than two. Fourth, there was no between-team competition. Each team needed to meet a strict criterion of five out of six possible points in order to access the reinforcer regardless of the points accrued by other teams. Fifth, the reinforcer was not tangible or activity-based, rather winning team members won attention and acknowledgement from the school principal at the end of the period. Following the *Principal Game,* a withdrawal phase occurred in which baseline conditions were reintroduced. After this phase, an individual consequence phase was introduced in which group consequences for individual behavior were replaced with individual consequences for individual behavior. Following the individual consequence phase, another withdrawal phase took place that was identical to baseline. Data were collected during the 30 minute social studies period each day. Results showed that the *Principal Game* proved to be the superior method for increasing on-task behavior (Darch & Thorpe, 1977).

There were a few limitations with Darch and Thorpe (1977). First, teams were established based on the pre-existing classroom seating arragement. Therefore, it was possible that a row(s) consisted of several of the most disruptive students, thereby making it more difficult for that team to have obtained reinforcement. Second, the authors noted that peer pressure might have played a role in on-task behavior given overt *groans* when the criterion was not met.

Improved grammatical composition was targeted in a GBG study by Maloney and Hopkins (1973) with elementary school students in grades four, five, and six during a non-remedial summer school session. A multiple baseline design across parts of speech and sentence structure was used to improve three dependent variables: the number of different adjectives within the written stories, the number of different action verbs within the stories, and the number of different sentence beginnings. The GBG, called the *Good Writing Game* in the study, was modified in the following ways. First, the classroom teacher set a criterion that the team(s) had to exceed based upon the writing task for that specific day. Second, if teams did not exceed the daily criterion, the teams could still have won if the point differences between the teams was less than 100 points. Winning team(s) received candy and were allowed to leave for recess 5 minutes early. During the first phase in which the modified GBG was introduced, contingencies were only in place for the number of different adjectives within the written stories. However, data were collected for all three target behaviors. During the next phase, contingencies were only in place for the number of different action verbs within the stories. In the final phase, contingencies were in place for all three target behaviors. Results indicated an improvement from baseline to the final condition in regards to the three dependent variables (Maloney & Hopkins, 1973).

A major limitation to Maloney and Hopkins (1973) was that the data were graphed to show the students' mean number of sentence parts rather than individual data. This is problematic because inspection of individual data suggested that some students' data were not improving. That is, the trend line of four out of 14 students did not follow

the classroom's mean trend. Therefore, had those students been at risk for academic failure, more individualized instruction would have been necessary.

In a study by Robertshaw and Hiebert (1973), the GBG was modified within an A/B phase change design and called the Good Astronaut Game. Participants included one target student and classroom peers within a first grade. Behavioral targets included the number of completed seatwork papers and attention to class. Modifications to the original game structure, as proposed by Barrish et al. (1969), included the division of the students into four teams and the use of a token reinforcement system (Robertshaw & Hiebert, 1973).

Data were collected for the referred student during a 30-minute morning seatwork period twice each week. The classroom teacher recorded the number of completed seatwork papers at the end of each week. Results indicated an increase in both attentiveness to work and the number of seatwork papers completed (Robertshaw & Hiebert, 1973).

Robertshaw and Hiebert (1973) findings are attenuated by the fact that an A/B design was used. The design allowed for only one demonstration of a treatment effect; therefore, a coincidental event could have affected target behaviors. Additionally, the classroom teacher reported the token system required significant additional work on her part, suggesting that she was unlikely to continue using the procedure (Robertshaw & Hiebert, 1973).

Fishbein and Wasik (1981) demonstrated the effectiveness of the GBG within an A/B/C/B phase change design. Target behaviors included both desirable behavior and undesirable behavior with a fourth grade class during morning library time. Two

modified versions of the GBG method were used during the study. During the intervention phases, the librarian checked student behavior several times while the game was in session. A point was awarded to the team(s) whose members' behaviors were in accordance with the game rules. Access to reinforcement (i.e., working on special project with the teacher, having the teacher read a story to them) was only granted during the first modified GBG phases when a team(s) met the behavioral criterion (i.e., a team needed three out of four possible points). During the second modified GBG phase, the game was in effect; however, reinforcers were not provided to the team(s) who met the behavioral criterion (Fishbein & Wasik, 1981).

Data were recorded across all phases using a momentary time sampling technique. At the end of every 2-minute interval the observer examined every student's behavior and tallied the number of student's engaging in each rule violation. During the GBG phases in which reinforcers were available, positive behavior change occurred, with off-task and disruptive behavior percentages reaching near-zero levels and task relevant behavior reaching upper limits. However, disruptive behavior percentages reached near baseline levels during the GBG phase in which reinforcers were not provided. Therefore, it appears that reinforcer availability may be a necessary component for greater GBG effectiveness. There was one major limitation associated with the Fishbein and Wasik (1981) study. Sequencing effects may have taken place considering that one modified GBG was provided before another modified GBG. It is possible that obtained results may have been different had the sequence of modified games been reversed (Fishbein & Wasik, 1981).

Swain et al. (1982) modified the GBG into the *Good Toothbrushing Game* in order to establish effective dental hygiene skills among 22 first-grade students and 23 second-grade students. The authors used a multiple baseline design across classrooms with a nine-month follow-up to evaluate treatment effects. Prior to baseline, all students received a dental kit containing a toothbrush, toothpaste, and dissolving red food color tablets. Each student also attended a lecture and demonstration on oral hygiene provided by a dental hygiene student. During baseline, each class was divided randomly into two teams. However, the students were unaware that teams had been established. Four children were randomly chosen to represent their team each morning. The students were selected without replacement until every student had been a team representative. Each representing student chewed a dissolving red disclosing tablet and then had his or her teeth examined using the Simplified Oral Hygiene Index (OHI-S) to assess the amount of debris covering teeth. The average OHI-S score for each team was calculated each morning. Following baseline, the *Good Toothbrushing Game* was introduced. During the *Good Toothbrushing Game* four children were randomly chosen to represent their team each morning and the object of the game was to be the team with the cleanest teeth. Although children were chosen randomly, they were told in advance when they would represent their team. The team with the lowest OHI-S won the game each day (Swain et al., 1982).

The results from the multiple baseline design indicated that the children's hygiene scores improved when the *Good Toothbrushing Game* was in effect. Follow-up data collected nine months after treatment showed a slight increase in tooth debris; however, scores were still superior to baseline. A limitation to this study included that each student

knew in advance when his or her teeth would be checked; therefore, the target behavior of toothbrushing could have been engaged in during that morning, but not on other mornings (Swain et al., 1982).

Patrick et al. (1998) used a modified version of the GBG within a multiple baseline design across physical education (PE) classes. Fourth, fifth, and sixth grade students were evaluated during a PE class volleyball unit. Four target behaviors were tracked: the number of appropriate social behaviors, the number of inappropriate social behaviors, and the number of correct forearm passes and sets. Modifications to the original GBG included division of the class into four teams, use of video camera recording, awarding and removing of team points, and use of a changing criterion. Although results showed a decrease in inappropriate social behaviors and an increase in appropriate social behaviors when the game was in effect across grade levels, the game produced no effect for the number of correct forearm passes or sets (Patrick et al., 1998).

Several limitations to Patrick et al. (1998) may be noted. First, students demonstrated cheating behavior during the game. *False facts* (i.e., appropriate social behaviors emitted in the absence of play) were observed to occur during the study for the purpose of achieving points, making measurement difficult. Second, the presence of the video camera may have served as a prompt for appropriate social behaviors. Third, IOA data for social behaviors was poor at an average of 70% (Patrick et al., 1998).

The GBG also has been shown to increase academic behaviors by Mudgal (2004, 2006) in a modified form called the Good Classwork Game. Mudgal (2004) demonstrated the effectiveness of the Good Classwork Game using an A/B/A/B withdrawal design. Participants included one target student from kindergarten, fourth

grade, and fifth grade, along with their classroom peers. Data were collected for three target behaviors: work completion, work accuracy, and off-task behavior. Modifications to the original GBG included a focus on enhancing academic performance rather than targeting disruptive behaviors and awarding team members points for (a) completion of math work and (b) accuracy of math work at or above 80%. Overall, the Good Classwork Game increased work completion and decreased off-task behavior. However, the intervention did not prove to be as effective in increasing work accuracy (Mudgal, 2004).

There were a few limitations to the Mudgal (2004) study. First, children were not assessed as to whether math performance was related to a skill versus a performance deficit. Therefore, if children were presenting with a skill deficit, the Good Classwork Game would not be sufficient in increasing work accuracy. This may be seen in work accuracy results in grades four and five of the study. Second, procedural integrity was poor at times in the kindergarten classroom (i.e., 69 to 100%, per teacher self report). Third, there were problems with consistent and immediate presentation of reinforcers. The author stated that some reinforcers were not provided while the observer was in attendance; therefore, the author could not know for certain if and when the reinforcer was provided. And finally, the author stated that the criterion for reinforcement may have been unreachable given baseline performance across classrooms (Mudgal, 2004).

The most recent study within general education settings targeting appropriate academic or prosocial behavior, The Good Classwork Game, was completed by Mudgal (2006) using a cross-over phase change design (i.e., A/B/C/B and A/C/B/C). Specifically, Mudgal (2006) compared non-randomized game criteria (phase B) to

randomized game criteria (phase C). Participants included four target students and their peers from grades three, four, and five. The target students and peers were randomly assigned to either the A/B/C/B or A/C/B/C design. Target behaviors included math work completion and math accuracy. Following baseline, the intervention was introduced. In the non-randomized phase, criteria for work completion and accuracy were established with the primary experimenter based on baseline levels of performance (i.e., criteria were set at or very near baseline levels). In the randomized phase, the teacher selected different criteria from the non-randomized phase. Upon finishing the Good Classwork Game, the team's average had to meet or exceed the randomly selected criteria drawn from a box for that particular day. It should be noted that teams could potentially lose if they failed to meet or exceed criteria (Mudgal, 2006).

Data were collected across all phases during a five to 20 minute math lesson. Permanent product data were collected for math work completion and accuracy for target students and peers. Overall, intervention phases appeared to be equally effective to one another (Mudgal, 2006).

There were a few limitations to the Mudgal (2006) study. First, children were not assessed as to whether math performance was related to a skill versus a performance deficit. Therefore, if children were presenting with a skill deficit, the Good Classwork Game would not be sufficient in increasing work accuracy. Second, the author stated that the students may have engaged in the target behaviors in order to gain access to preferred reinforcers, regardless of criteria. Therefore, it may be a combination of criteria and randomized reinforcers that resulted in behavioral change (Mudgal, 2006).

Other settings. In addition to using the GBG in general education settings, researchers have also utilized the GBG in other settings (e.g., church resource room) in order to increase academic or prosocial behavior (Lutzker & White-Blackburn, 1979; Swiezy, Matson, & Box, 1992). The GBG has proven effective in increasing a few different types of academic or prosocial behavior in varying age groups. Academic or prosocial behavioral targets have varied from study to study, but have included work output, on-task behavior, or compliance.

Lutzker and White-Blackburn (1979) showed the superiority of the GBG over a feedback-only method within an A/B/A/C/A withdrawal design. Participants included four state hospital residents who were trainees at a rehabilitation facility. Target behaviors included work output, on-task behavior, and staff attention. Overall, the residents showed greater productivity during the GBG phase when compared to the feedback-only phase and baseline phases. The authors reported that the GBG improved performance by 104% when compared to the second baseline and by 64% when compared to the final baseline. On-task behavior reportedly correlated with the work output data. Staff attention data remained constant throughout the phases. Also, staff reportedly continued to use the GBG with continued success after termination of the study. One major limitation to Lutzker and White-Blackburn (1979) included possible sequencing effects. It is unclear if the feedback-only method would have proved effective in increasing work output if it had been introduced after the GBG.

The most recent study in this area was completed by Swiezy et al. (1992) using a multiple baseline design, across subject pairs and across therapists. Swiezy and colleagues (1992) used a modified version of the GBG to increase joint compliance with

preschool-aged children (two boys and two girls) who attended a church-affiliated preschool program. None of the children were receiving special education services. Generalization was assessed using probes carried-out on the school playground. All treatment and observation sessions occurred in a resource room three times each week for 15 minutes. The two teams completed sessions separately. Modification to the GBG included the following. No between group competition was used during the intervention phase. The treatment condition consisted of *Buddy Bear* asking the pair of students to carry out tasks for him (e.g., "X and Y, shake hands."). *Buddy Bear* was a hand puppet worn by the experimenters. Joint compliance was targeted rather than individual compliance with demands or noncompliance, in general. A criterion number of smiley faces or dinosaurs was needed in order for the team to win the game rather than obtaining less than a specific number of noncompliance behaviors. Results indicated increased levels of compliance for both pairs. Generalization occurred across therapists; however, there did not appear to be generalization across settings (Swiezy et al., 1992).

Several limitations existed in Swiezy et al. (1992). First, the study had limited external validity. It may be difficult to generalize results to classroom and other settings given the fact that a bear puppet was used to provide instructions. Second, the students were pulled out of their typical classroom setting and taken to a resource room for intervention sessions. Therefore, the dependent variable was not assessed in the typical classroom. Third, the game was not played with the class as a whole. Fourth, integrity data were not collected. And finally, Swiezy et al. focused solely on increasing prosocial behavior rather than also on decreasing disruptive behavior.

Disruptive Behavior and Academic/Prosocial Behavior

General education. Two studies have used the GBG in general education settings, in traditional or modified form, to decrease disruptive behavior while also increasing academic or prosocial behavior (Darveaux, 1984; Lannie & McCurdy, 2007). The GBG has been very effective in decreasing differing types of disruptive behavior while simultaneously increasing academic or prosocial behavior. Disruptive behavioral targets and academic or prosocial behavioral targets have varied from study to study and have included behaviors such as failing to comply with class rules, on-task behavior, or assignment completion.

Darveaux (1984) modified the GBG by pairing it with a token reinforcement system and calling the new package the Good Behavior Game Plus Merit (GBG+M). The new package was evaluated within an A/B/A/B single subject design. Participants included two boys within a second-grade classroom, identified as high risk for placement in a program for students with behavioral impairments. Target behaviors included disruptive behavior of the target students and assignment completion for the classroom as a whole. The GBG+M differed from the original GBG in a few ways. First, merits (e.g., 2x3 in card with *one merit* printed on it) were provided to students who completed assignments with at least 75% accuracy and when students participated in classroom discussions. Second, marks against the team could be removed. For every five merits earned, the team could erase one mark on the chalkboard (Darveaux, 1984).

A 30 second partial interval recording method was used to gather data for the two target students each day during a 15 minute work period. Assignment completion was recorded daily in the teacher's record book. Results showed that the GBG+M reduced

disruptive behavior for the two target students. Additionally, the GBG+M increased homework completion for the two target students and for the class as a whole (Darveaux, 1984).

There are several limitations to Darveaux (1984). First, the original GBG was not examined; therefore, it is impossible to know whether or not the original GBG would have produced comparable data. Second, it is unclear whether the merit cards played an important role or if the teams were able to routinely access reinforcement without erasing marks. Third, the authors did not describe what happened in situations where no behavioral marks were earned, but the team held several merit cards.

In the most recent demonstration of the GBG's effectiveness, Lannie and McCurdy (2007) modified and used the GBG within a general education first-grade classroom located in an urban elementary school. Dependent variables included student on-task and disruptive behaviors as well as teacher responses (i.e., positive, neutral, or negative) to student behavior. Modifications to the original GBG included using four teams instead of two, providing teacher feedback using an integrity checklist, having a daily mystery behavioral criterion that ranged from 7 to 15, and collecting data for teacher responses (i.e., positive, neutral, or negative).

Data were collected across phases using momentary time sampling, partial interval recording, and frequency counts for a 10 minute block of time during a 30 minute math period. Results indicated an increase in student on-task behavior and a decrease in disruptive behavior during the modified GBG phases. Teacher praise did not exceed two statements per session even though student on-task behavior increased and student disruptive behavior decreased during the intervention phases. In contrast, negative and

neutral statements remained high throughout all phases. The teacher found the game to be acceptable and the students indicated the game was moderately acceptable.

Special education. To date, only one study has demonstrated the effectiveness of the GBG in decreasing disruptive behavior while increasing academic behavior in a special education population (Johnson, Turner, & Konarski, 1978). Johnson and collegues (1978) used a multiple baseline design across settings, subjects, and time (i.e., data collected once in the morning and one in the afternoon) to assess whether the GBG was effective for reducing disruptive behavior while increasing appropriate behavior. A 7-½ week follow-up was included. Participants included 17 third grade students and 14 fourth grade students within "transitional classes" (p. 26) because of low achievement-motivation and highly disruptive behavior. Target behaviors included appropriate behavior, disruptive behavior, and teacher attention.

Data were collected twice each day, once in the morning and once in the afternoon, for 30 minutes. A 10-second partial interval recording method was used to collect data for all three target behaviors. Results showed an immediate and sharp decline in the student disruptive behavior and teacher attention to disruptive behavior during the GBG; however, these behaviors approached pre-treatment levels during the 7-½ week follow-up. A major limitation to Johnson et al. concerned low IOA data. The mean percentage of IOA for disruptive behavior and teacher attention to disruptive behavior fell below 80%, which may have been due to the broad dependent variable definitions. Specifically, appropriate behavior included any behavior that required following the instructions of the teacher. Disruptive behavior was defined as any behaviors that might interfere with appropriate responses. Teacher attention included any

verbal and/or physical response made with or occurring right after student behavior (Johnson et al., 1978).

Purpose of the Present Investigation

The GBG has been widely supported as an effective intervention within the research literature; however, there are areas warranting further investigation. Additional research studies are needed targeting populations in which little or no research has been done previously. Given there are data suggesting a link between early externalizing behaviors and future academic deficits, social deficits, and behavioral problems (Jolivette et al., 2008), evaluating GBG effects on disruptive behavior and appropriate academic behavior with younger age groups may be appropriate. By initiating the GBG in preschool, it may be possible to alleviate early problem behavior, potentially helping to increase appropriate academic behavior before academic deficits begin to emerge, given that there is evidence to suggest that conduct problems foreshadow academic deficits. (Bradshaw et al., 2009). Additionally, the GBG fits well into the PBIS framework. Prior to the present study, no study has examined the GBG's effectiveness in decreasing disruptive behaviors while also examining collateral effects of appropriate academic behaviors with a preschool population in a traditional preschool classroom setting. The present study will utilize the GBG with a Headstart population, examining disruptive behavior and concomitant effects on academic engagement.

Research Questions

The following research questions were investigated:

1. Will the Good Behavior Game decrease classwide disruptive behavior across different Headstart classrooms?

2. Will the Good Behavior Game decrease disruptive behavior of target students (i.e., the student selected by the teacher as demonstrating more disruptive behaviors compared to peers)?
3. Will the Good Behavior Game increase academic engagement across different Headstart classrooms?
4. Will the Good Behavior Game increase academic engagement of target students (i.e., the student selected by the teacher as demonstrating more disruptive behaviors compared to peers)?

CHAPTER II

METHODOLOGY

Participants and Setting

Three Headstart classrooms in a mid-sized city located in a rural southeastern state were nominated for participation based upon administrative referral for classroom disruptive behavior. The primary experimenter served as the consultant for all cases. Teachers were approached by the primary experimenter about participation and the classrooms were screened for inclusion. Before screening, teachers were asked to nominate one target student within each classroom (i.e., student displaying disruptive behavior at levels higher than peers). In addition to the target student, classroom peers served as participants. Intervention agents included classroom teachers and instructional aides. Parent consent (for target student participation) and teacher consent (for classroom participation) were obtained prior to screening (See Appendix A for Parent Consent Form and Appendix B for Teacher Consent Form). The project and all corresponding consent forms were reviewed and approved by a university-based Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations (See Appendix C for Human Subjects Protection consent). Details of target students, classroom demographics, and intervention agents are provided below.

Anna, a five year-old Caucasian female in her second year at Headstart, was described by her teacher as frequently demonstrating noncompliance and playing with objects during instructional time. Additionally, the teacher noted that Anna occasionally demonstrated aggression toward other peers in the form of pushing or kicking. Anna's

class (hereafter, Classroom A) had 18 students (10 girls and 8 boys) ranging in age from four to five years old. The teacher stated that the students in Classroom A frequently demonstrated noncompliance, aggression, inappropriate vocalizations, playing with objects during instruction time, and were out-of-area. Classroom A's students were predominantly Caucasian (83%). Classroom A's intervention agents included one classroom teacher and one instructional aide. Both were female and African American. The teacher had 12 years of teaching experience, and the aide was in her second year at Headstart.

Sherri was a four year-old African American female in her first year at Headstart. She was described as frequently demonstrating inappropriate vocalizations (e.g., talking to her nearby peers during instruction) and being out-of-area (e.g., doing hand-stands, leaving the carpet area). To a lesser degree, Sherri was noted to play with objects during instruction and to be noncompliant with instructional demands. Sherri's classroom (hereafter, Classroom B) had 20 students (9 girls and 11 boys) ranging in age from four to five years old. The teacher stated that the students frequently demonstrated aggression, noncompliance, inappropriate vocalizations, were out-of-area, and played with objects during instruction time. Classroom B's students were predominantly African American (75%). Classroom B's intervention agents included one classroom teacher, one instructional aide, and one volunteer helper. All were female and African American. The teacher and the volunteer helper were in their fifth year at Headstart, while the instructional aide was completing her second.

Tevon was a four year-old African American male in his first year at Headstart. He was described as frequently demonstrating noncompliance, inappropriate

vocalizations, and being out-of-area. Tevon's classroom (hereafter, Classroom C) had 19 students (9 girls and 10 boys) ranging in age from four to five years old. The teacher stated that the students frequently demonstrated aggression, noncompliance, inappropriate vocalizations, were out-of-area, and played with objects during instruction time. Classroom C's students were predominantly African American (63%). Classroom C's intervention agents included one classroom teacher and one instructional aide. Both were female and African American. The teacher was in her 8th year at Headstart while the instructional aide was completing her second.

Materials

The following materials were used during intervention: a GBG script, a white board, and a treasure box. A script was devised for the teacher to train the students. The script outlined and explained appropriate rules and procedures of the game (Appendix D). The white board displayed the team and student names and the number of disruptive behavior checkmarks each team received. A treasure box containing teacher-approved tangible rewards was used each day of intervention. The treasure box was routinely filled with items valuing $1 or less, with approximately 40 toy items of several varieties (e.g., whistles, finger puppets, rubber snakes, sunglasses, and bouncy balls). The primary experimenter provided the treasure box, rewards, and white board.

The *Intervention Rating Profile-15 (IRP-15)* (Martens, Witt, Elliott, & Darveaux, 1985) was used to assess teacher acceptability of the Good Behavior Game. The primary experimenter provided the *IRP-15* to classroom teachers and aides on the final day of data collection and collected the forms one week later. The *IRP-15* was modified from its original version by phrasing four of the items in past tense versus future tense, given

that the *IRP-15* was provided after intervention. Other researchers have made modifications (e.g., word substitutions) to intervention rating scales (i.e., IRP-15, Behavior Intervention Rating Scale) without affecting the rating scales' psychometric properties (Freer & Watson, 1999; Sheridan, 1992). The *IRP-15* is a 15-item Likert scale (1 = strongly disagree and 6 = strongly agree) that assesses overall acceptability of interventions by teachers. Scores on the *IRP-15* range from 15 to 90 with higher scores indicating greater acceptability. Principle-components factor analysis of the *IRP-15* showed that all items load on a General Acceptability factor. Furthermore, the *IRP-15* has a reported Cronbach's Alpha of .98 (Martens et al.). A copy of the *IRP-15* is located in Appendix E.

The *Children's Intervention Rating Profile (CIRP)* (Witt & Elliott, 1985) was used to assess preschooler acceptability of the Good Behavior Game. The *CIRP* was administered to students after the final day of data collection by the teacher or instructional aide. Each item was read to the students in a group format with individual follow-up, as needed. Forms were collected one week later by the primary experimenter. The *CIRP* has a reported Chronbach's alpha of .89. The *CIRP* was modified from its original version by simplifying wording for use with younger populations, by tailoring the questions specifically to the GBG, and by adopting a smiley-face Likert scale (i.e., frowning face, neutral face, smiling face). The *CIRP* is an 8-item inventory that assesses overall acceptability of intervention by children. More smiley-face answers indicate greater acceptability. A copy of the *CIRP* is located in Appendix F.

Dependent Variables, Observation Procedures, and Data Collection

Dependent variables. Five disruptive behaviors were tracked based on consultation with the classroom teachers.

- Noncompliance was defined as failure to initiate or terminate the response appropriate to the classroom teacher's or the instructional aide's demand within five seconds of the instruction (e.g., "Anna, sit down." "Everyone, count to 10 aloud.").
- Inappropriate vocalizations were defined as any audible verbalization or sound made without teacher permission (e.g., speaking without permission, crying, screaming, and/or cursing).
- Out-of-area was defined as the buttocks breaking contact with the designated seating surface (e.g., rug or chair) for three or more seconds, being outside of approximately 12 inches of the designated seating area for three or more seconds, not being oriented in the proper direction for three or more seconds, lying down for three or more seconds, legs not crossed in a *criss-cross apple sauce* seated position for three or more seconds (if seated on the floor), and legs not under the table for three or more seconds (if seated at table).
- Playing with objects included manipulation of stimuli not part of one's physical body for three or more seconds.
- Aggression was defined as physical contact with a peer or teacher that had the potential to cause harm (e.g., pushing classmates or teachers, kicking classmates or teachers) or contact with a peer or teacher through the use of an

object that could cause harm (e.g., hitting a classmate or teacher with an object and/or throwing an object in the direction of a classmate or teacher).

Academic engagement was a secondary dependent variable. Specific academic engagement behaviors included orienting eyes toward the classroom teacher or aide when directions and/or instructions are provided, talking with the teacher or aide about relevant topics or activities, and/or engaging appropriately in classroom discussions and activities for seven consecutive seconds (Hawkins & Horner, 2003).

Observation Procedures. The first author served as the principle observer and was periodically joined by a doctoral-level school psychology student to obtain IOA data. Data were collected at least twice each week during the same class period in which the teacher reported the most disruptive behavior. Specifically, data were collected in Classroom A during the group reading activity, in Classroom B during morning drill, and in Classroom C during classroom arts and crafts time. The classroom activity lasted for at least 10 minutes, but not longer than 30 minutes. An MP3 player was used to cue the interval recording times. A 10-second partial interval method of observation was used to record student disruptive behavior and academic engagement.

Prior to each observation during screening, baseline, and treatment phases, the observer chose three comparison peers by drawing names out of a hat. Comparison peers were selected each day of observation without replacement until every student had been observed. Observations were conducted by observing the target student for the first interval, followed by comparison peer one for the second interval, followed by the target student for the third interval, followed by comparison peer two for the fourth interval, followed by the target student for the fifth interval, followed by comparison peer three for

the sixth interval. This process repeated itself throughout the entire observation period. For disruptive behavior, a mark was placed in the box if the student demonstrated a disruptive behavior during the 10-second observation interval. For academic engagement, if the student was academically engaged for seven consecutive seconds, a mark was placed in the box. Thus, it was possible for a student to be coded as both exhibiting a discrete disruptive behavior (i.e., noncompliance, inappropriate vocalizations, aggression, out of area, and playing with objects) and academic engagement within the same interval.

At the end of each observation session, the comparison peers' disruptive behavior data were collapsed, and the total percentage of intervals with disruptive behavior were graphed daily. Comparison peers' academic engagement data were collapsed and the total percentage of intervals with academic engagement were graphed. In addition to the comparison peer data, the target student's data were graphed as the total percentage of intervals in which disruptive behavior occurred and the total percentage of intervals in which academic engagement occurred.

Experimental Design and Data Analysis

An A/B nonconcurrent multiple baseline across classrooms was used to evaluate the effectiveness of the GBG for reducing disruptive behaviors while increasing academic engagement. Baseline data collection began on the same date for each classroom. Additionally, treatment was staggered for each panel. Therefore, data collection occurred during the same period of time for each classroom. The study is called a nonconcurrent MBL design because there were four sessions (one in baseline and three during treatment) in which data were not collected in Classroom B while data were

collected for Classroom's A and C. In all four occasions, data were collected the following day for Classroom B in order to *make-up* for the skipped day due to student absenteeism.

Phase changes occurred based on classroom data for disruptive behavior. Baseline data for Classroom A were collected for a minimum of three data points and continued until there was a stable or increasing trend in the percentage of intervals with disruptive behavior. For Classrooms B and C, baseline data collection overlapped with that of Classroom A by a minimum of two data points and continued until there was a stable or increasing trend in the percentage of intervals with disruptive behaviors. Additionally, a clear treatment effect was demonstrated in each classroom prior to introduction of the GBG in the subsequent classrooms. Data were visually analyzed for level, trend, and variability around level and trend.

Procedures

Screener. Screener data were collected following a brief consultation session with the primary experimenter in which the teacher nominated one target student demonstrating disruptive behavior at levels higher than that of peers. Following parent and teacher consent for participation, behavioral observations were conducted to screen classrooms for potential participation. No planned contingencies for the target behaviors were in effect during the screening. Screener data were collected for the duration of an activity in which the teacher reported the most disruptive behavior (See Observation Procedures). Participation requirements included both the target student and comparison peers engaging in disruptive behavior in at least 20% of the observation intervals during

the screener observation session. All classroom referrals for potential participation met the screen-in criterion.

Baseline. After screening, baseline data collection continued. No planned contingencies for the target behaviors were in effect. Disruptive behavior data and academic engagement data were collected during the same activity as in screening. The frequency of disruptive behavior data was collected within each interval so that the data could be used in order to set the behavioral criterion during teacher training. The percentage of intervals with disruptive behavior and academic engagement were graphed daily for the classroom and for the target student.

Teacher training. Following baseline, the teacher, aide, and volunteer helper (in Classroom B) were trained by the primary experimenter to implement the GBG. The training was completed in two sessions. Session one involved reviewing the GBG script, modeling the procedures, role-playing, and providing verbal performance feedback. In addition to reviewing and practicing the GBG procedures, the primary experimenter examined the baseline data with the teacher and set the behavioral criterion (i.e., the allotted number of check marks each team could obtain) based upon baseline levels of disruptive behavior (i.e., a decrease of 50% from mean baseline frequency levels of disruptive behavior). Session two involved providing verbal feedback during and after use of the GBG with the classroom for the first time. Additional training sessions were scheduled when demonstration of the GBG procedures fell below 80% accuracy (see Procedural Integrity for further information).

GBG. During the GBG phase, the teacher used the script in order to introduce the GBG. GBG procedures mirrored those from the original study by Barrish et al. (1969)

with the exception of two components. First, team composition changed, at times, given teacher preferences for novel team configurations. Second, the GBG was modified during the 6th observation day in Classroom A into three teams versus two teams. The teachers, aides, and the volunteer used a shortened script each day after the game was initially introduced (i.e., Steps One, Two, and Three of the game script were abbreviated). The classroom was divided into two teams (e.g., right side of room versus left side of room, front side of room versus back side of room, Table 1 versus Table 2). Team names were written on the white board with corresponding student names underneath. The teacher placed a checkmark next to the appropriate child's team name each time a disruptive behavior occurred, as judged by the classroom teacher, aide, or volunteer. Team members earned access to the treasure box when the group did not exceed the allotted number of marks as set by the primary experimenter based upon baseline levels of disruptive behavior. Classroom A's criterion was set at less than or equal to 28 marks; Classroom B's criterion was set at less than or equal to 20 marks; and Classroom C's criterion was set at less than or equal to 24 marks. It should be noted that classroom teachers initially reported that the criterion number of marks were unreasonable and wanted to lower the criterion to less than or equal to 10 marks, but agreed to the 50% decrease from baseline after discussion with the experimenter. Consistent with Barrish et al.'s (1969) procedures, the team with the fewest marks gained access to the treasure box even if that team earned more than the allotted number of marks. The team with the most marks engaged in other tasks while the winning team's members chose an item from the treasure box. Therefore, at least one team *won* each game day. If, however, both teams had fewer than the allotted number of marks, both

teams earned access to the treasure box. Disruptive behavior and academic engagement data were collected during the same activity as in screening and baseline. The total percentage of intervals with disruptive behavior and academic engagement were graphed daily for the classroom peers and for the target student.

Procedural Integrity

A treatment integrity checklist was developed that listed the steps necessary for carrying out the game procedures, from introducing the game to allowing the children access to the treasure box (Appendix G). The primary experimenter collected treatment integrity data during each observation. Feedback was provided to the classroom teacher, instructional aide, and helper. Procedural integrity was calculated by dividing the number of steps carried out correctly by the number of total possible steps and multiplying by 100. The primary experimenter retrained individuals who displayed treatment integrity below 80%.

Classroom A's teacher and aide demonstrated 86% procedural integrity, on average (range = 83% - 100%). Classroom A's teacher demonstrated difficulty with identifying and recording all instances of disruptive behavior over four separate observation sessions; however, treatment integrity remained above 80% at all times requiring no retraining. Classroom B's teacher's, aide's, and volunteer's treatment integrity ranged from 83% to 100%, with an average of 98.3%. Classroom B's aide demonstrated difficulty with identifying and recording all instances of disruptive behavior during one observation session; however, procedural integrity remained above 80% requiring no retraining. Classroom C's teacher and aide demonstrated 90% integrity, on average (range = 67% - 100%). Classroom C's teacher had difficulty

identifying and marking all instances of disruptive behavior during two observation sessions. Additionally, Classroom C's teacher demonstrated difficulty with announcing the game's beginning and providing explanations for check marks during one session in which treatment integrity dropped to 67%. Retaining procedures similar to those described in session one of teacher training (see Teacher Training) occurred the following morning before school. Treatment integrity was high (M = 95%) during subsequent observations, on average, after retraining procedures.

Observer Training and Interobserver Agreement

Both the author and another school psychology graduate student participated in advanced training in behavioral observation techniques through their graduate program. Additionally, the author trained the other student as an observer. The observer was provided with behavioral definitions and observation forms (see Appendix F). Trainings took place in a classroom until 80% or higher IOA with the primary experimenter was obtained for disruptive behavior and for academic engagement.

Reliability checks occurred across at least 30% of the behavioral observations during each phase. IOA was calculated separately for disruptive behavior and for academic engagement by adding the total number of agreements for occurrence and for nonoccurrence of behavior between observers and dividing by the total number of agreements for occurrence and for nonoccurrence of behavior plus the total number of disagreements for occurrence and for nonoccurrence behavior multiplied by 100.

For Classroom A, IOA data were collected for 50% of baseline sessions and for 33% of treatment sessions. IOA for Classroom A averaged 99.8% (range = 99% - 100%). For Classroom B, IOA data were collected for 43% of baseline sessions and for

30% of treatment sessions. IOA for Classroom B averaged 99.2% (range = 98% - 100%). For Classroom C, IOA was calculated for 30% of baseline sessions and for 43% of treatment sessions. IOA for Classroom C averaged 99.7% (range = 99% - 100%).

IOA for procedural integrity was also calculated. IOA for procedural integrity was calculated by adding the total number of agreements of GBG steps completed between observers and dividing by the total number of agreements of GBG steps completed plus the total number of disagreements of GBG steps completed multiplied by 100. Procedural integrity IOA data were collected for 33% of treatment sessions in Classroom A, for 30% of treatment sessions in Classroom B, and for 43% of treatment sessions in Classroom C. Procedural integrity IOA was 100% between observers.

CHAPTER III

RESULTS

Classwide Effects

Disruptive behavior. Figure 1 shows the percentage of intervals of disruptive behavior within each classroom across phases. On average, students in Classroom A (top panel) demonstrated disruptive behavior in 67% of the observation intervals (range = 40% - 86%) during baseline, with an increasing trend evidenced across the phase. With the introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately (M = 22%; range = 3% - 67%) and resulted in low, stable levels of disruptive behavior by the end of the phase. During the first five sessions of treatment, the same team tended to win the majority of the time. The teacher attributed the trend in winning teams to three children in the class who tended to engage in problem behavior at levels higher than peers. Therefore, no matter how the class teams were divided, two or all three of the students were placed on a team together, resulting in a team that usually lost. Therefore, the classroom was configured into three teams beginning on the 6th observation and continuing throughout the remainder of the phase. With three teams, the entire class tended to win the majority of the time. It should be noted that on the 8th observation session, the treasure box was noted to have new toy items present (i.e., Spiderman action figures). Upon inquiry, the classroom teacher indicated that the student and teachers were becoming very excited about the GBG; therefore, she had purchased some additional toy items at her own expense. Additionally, it should be noted that classroom dynamics were altered during treatment session four because another classroom joined Classroom A for the group reading activity.

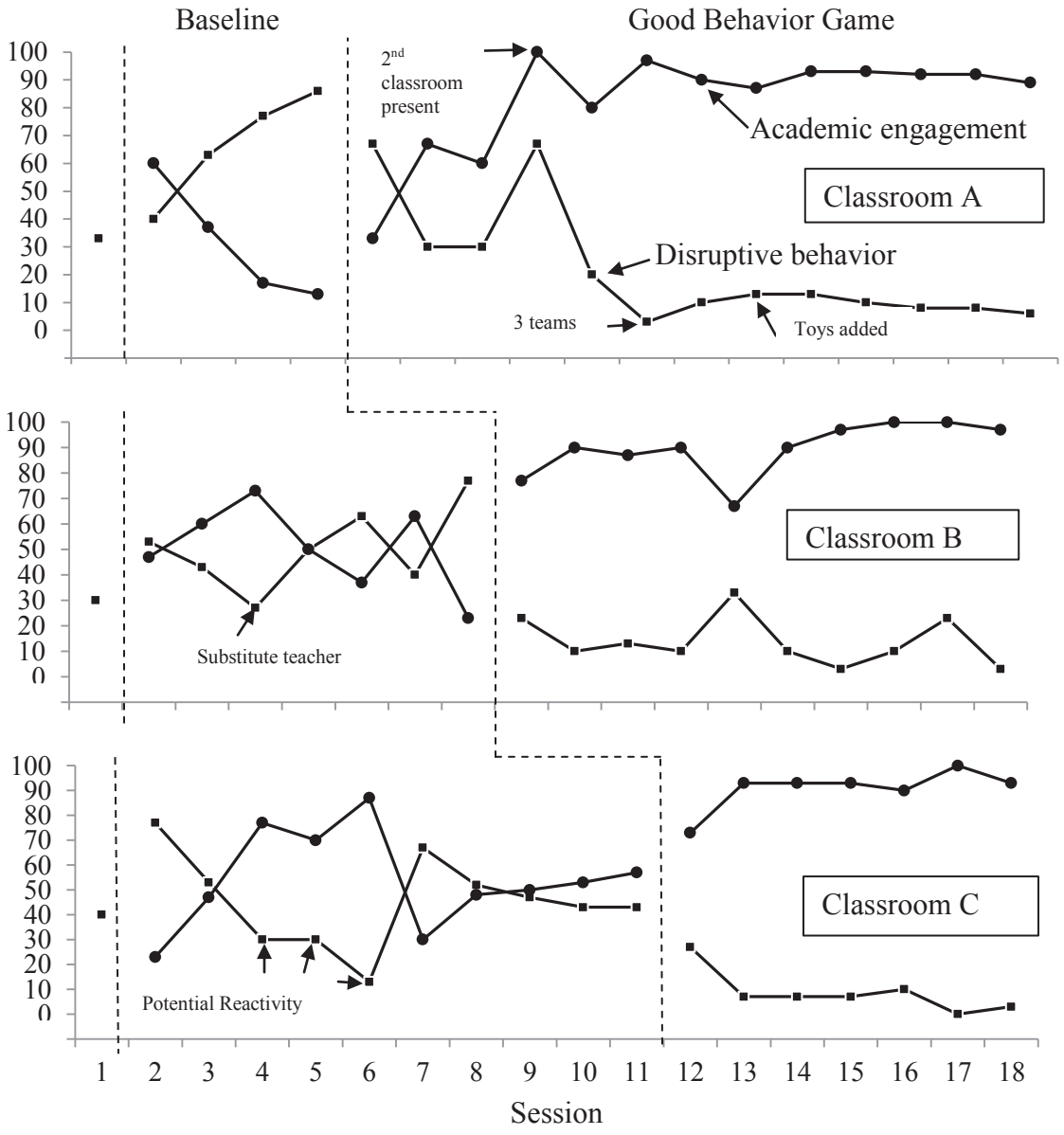


Figure 1. Percentage of intervals with disruptive behavior and academic engagement for Classroom A (top panel), Classroom B (middle panel), and Classroom C (bottom panel) across phases.

On average, students in Classroom B (middle panel), demonstrated disruptive behavior in 50% of the observation intervals (range = 27% - 77%) during baseline. Disruptive behaviors were somewhat variable in baseline, but a slight increasing trend appeared across the phase. It should be noted that a substitute teacher was present in the classroom during the 3rd baseline observation session and classroom behavior

management strategies were altered (i.e., providing verbal praise statements often, children were allowed to answer questions without raising their hands). With the introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately and resulted in low, but slightly variable levels of disruptive behavior across the phase (*M* = 14%; range = 3% - 33%). During the first five intervention sessions teams tended to alternate winners as team configuration changed daily (e.g., boys vs. girls, front of the room vs. back of the room). During the remainder of the phase, the entire class tended to win the game as they earned less than the allotted number of marks.

On average, students in Classroom C (bottom panel) demonstrated disruptive behavior in 46% of the observation intervals (range 13% - 77%) during baseline with an initial decreasing trend in the percentage of intervals with disruptive behavior followed by moderately high and stable levels at the end of the phase. It should be noted that reactivity to the observer may have taken place during baseline observation sessions three, four, and five given many of the female students attempted to interact with the observer prior to initiation of the group activity. The teacher informed the students they could interact with the observer after the activity, which may have motivated the students to participate. To address this issue, the observer seated herself behind a table upon entering the classroom as to minimize contact for the remainder of baseline and treatment sessions. With the introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately (*M* = 9%; range = 0% - 27%) and resulted in low, stable levels by the end of the phase. Teams tended to alternate winners during the initial intervention sessions with the entire class winning the game during later sessions.

Academic engagement. Figure 1 also shows the percentage of intervals of academic engagement within each classroom across phases. On average, students in Classroom A (top panel) demonstrated academic engagement in 32% of the observation intervals (range = 13% - 60%) during baseline with a decreasing trend evidenced across the phase. With introduction of the GBG, the percentage of intervals with academic engagement increased immediately (*M* = 78%; range = 33% - 89%) and resulted in high, stable levels of academic engagement by the end of the phase.

On average, students in Classroom B (middle panel), demonstrated academic engagement in 50% of the observation intervals (range = 23% - 73%) during baseline. A variable level, but slight decreasing trend appeared across the phase. With the introduction of the GBG, the percentage of intervals with academic engagement increased immediately resulting in high, stable levels of academic engagement across the phase (*M* = 90%; range = 67% - 100%).

On average, students in Classroom C (bottom panel) demonstrated academic engagement in 54% of the observation intervals during baseline (range 30% - 87%). An initial increasing trend was followed by a drop in the percentage of intervals with academic engagement followed by an increasing trend at the end of the phase. With introduction of the GBG, the percentage of intervals with academic engagement increased immediately (*M* = 91%; range = 73% - 100%) and resulted in high, stable levels by the end of the phase.

Target Student Effects

Disruptive behavior. Figure 2 shows the percentage of intervals of disruptive behavior for each target student across phases of the study. On average, Anna (top panel)

demonstrated disruptive behavior in 85% of the observation intervals (range = 77% - 90%) during baseline with an increasing trend evidenced at the end of the phase. With introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately and dramatically (*M* = 26%; range = 11% - 77%) and resulted in low, stable levels of disruptive behavior by the end of the phase.

On average, Sherri (middle panel), demonstrated disruptive behavior in 58% of the observation intervals (range = 37% - 77%) during baseline, with a decreasing trend at the beginning of the phase followed by an increasing trend by the end of the phase. With the introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately and showed a decreasing trend across the phase, with the exception of one data point (*M* = 27%; range = 3% - 60%).

On average, Tevon (bottom panel) demonstrated disruptive behavior in 74% of the observation intervals (range = 60% - 90%) during baseline with a slightly variable level in the percentage of intervals with disruptive behavior across the phase. With introduction of the GBG, the percentage of intervals with disruptive behavior decreased immediately (*M* = 24%; range = 3% - 47%) and evidenced a decreasing trend across the phase.

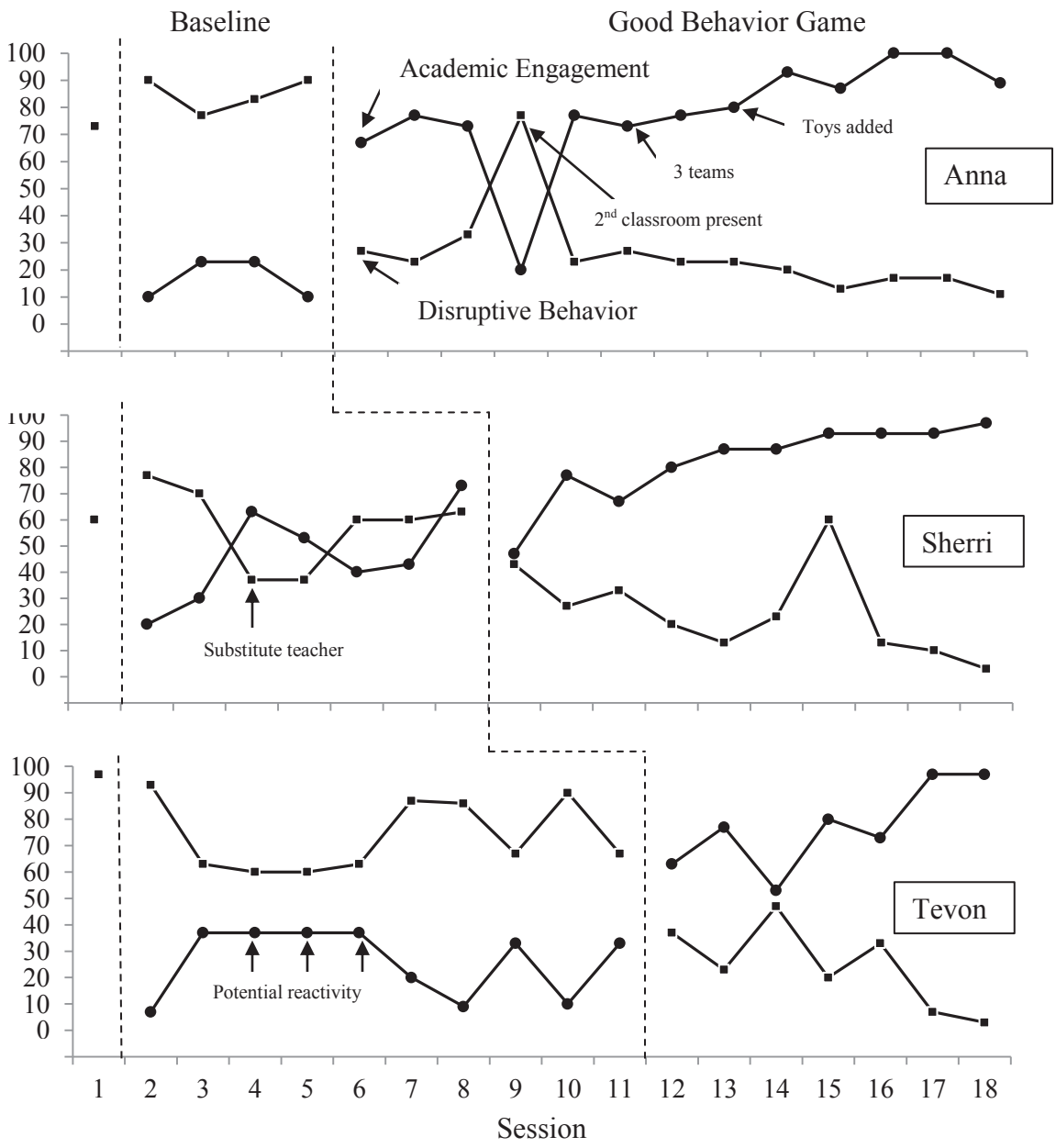


Figure 2. Percentage of intervals with disruptive behavior and academic engagement for Anna (top panel), Sherri (middle panel), and Tevon (bottom panel) across phases.

Academic engagement. Figure 2 also shows the percentage of intervals of academic engagement across each target student. On average, Anna (top panel) demonstrated academic engagement in 17% of the observation intervals (range = 10% - 23%) during baseline with a decreasing trend evidenced at the end of the phase. With

introduction of the GBG, the percentage of intervals with academic engagement increased immediately (*M* = 78%; range = 20% - 100%) and with the exception of one data point, showed an increasing trend across the phase.

On average, Sherri (middle panel), demonstrated academic engagement in 46% of the observation intervals (range 20% - 73%) during baseline, with a variable but increasing trend in the percentage of intervals with academic engagement across the phase. With the introduction of the GBG, there appears to be a continued trend across the phase change (*M* = 82%; range = 47% - 97%). However, the variability around level and trend was decreased during the treatment phase.

On average, Tevon (lower panel), demonstrated academic engagement in 26% of intervals during baseline (range = 7% - 37%), with a slightly variable trend but stable level in the percentage of intervals with academic engagement across the phase. With the introduction of the GBG, the percentage of intervals with academic engagement increased immediately and showed an increasing trend across the phase (*M* = 77%; range = 53% - 97%).

Teacher and Student Acceptability

Although all protocols were reported to be completed individually, the results were identical within classrooms across respondents. The teacher and instructional aide from Classrooms A rated the GBG as an acceptable intervention with total scores of 90 on the *IRP-15*. The teacher, instructional aide, and volunteer in Classroom B rated the GBG as an acceptable intervention with total scores of 85 on the *IRP-15*. The teacher and instructional aide from Classroom C rated the GBG as an acceptable intervention with scores of 75 on the *IRP-15*. Classroom C's teacher and aide ranked the item *I like*

the procedures used in this intervention the lowest with a score of two. When questioned further, the teacher explained that she did not like having to stop instruction in order to call attention to problem behavior and to put a mark on the board, as it was not time efficient. She felt that remembering and marking the board at a later time would be a better strategy. All change agents indicated that they would recommend the GBG to other teachers; however, Classroom C's teacher indicated that it would need *tweaking* first.

Students from Classrooms A, B, and C rated the GBG as an acceptable intervention, earning eight "smiley" faces on the *CIRP*. It should be noted that a handful of CIRPs could not be scored given that the student had colored all three faces for each item. Additionally, students appeared to be looking at the *CIRP* of nearby peers and coloring the faces as the peer had done. Therefore, the students may not have fully understood the items contained in the *CIRP*.

CHAPTER IV

DISCUSSION

The GBG has been widely supported as an effective intervention within the research literature; however, there are areas warranting further investigation. Given there are data suggesting a link between early externalizing behaviors and future academic deficits, social deficits, and behavioral problems (Jolivette et al., 2008), evaluating GBG effects on disruptive behavior and appropriate academic behavior with younger age groups is advantageous. Implementing the GBG in preschool, may alleviate early problem behavior, potentially helping to increase appropriate academic behavior before academic deficits begin to emerge. However, prior to the present study, no researchers have examined the GBG's effectiveness in decreasing disruptive behaviors and collateral effect of increasing appropriate academic behaviors with a preschool population. The study added to the literature base by evaluating the GBG's effects on disruptive behavior and academic engagement with a Headstart population.

In the present study, the GBG decreased classwide disruptive behavior across three different Headstart classrooms. At the class level, clear, immediate, and stable decreases in disruptive behavior were demonstrated after the introduction of the GBG in all classrooms. Of note was a pattern that occurred across classrooms with teams alternating winners initially followed by all teams meeting criterion by the end of the treatment phase. Therefore, it appeared that students became more aware of the criterion for winning over time and earned few marks by the end of the phase. Study results are consistent with previous studies suggesting the GBG is an effective intervention for decreasing disruptive behavior (Bostow & Geiger, 1976; Harris & Sherman, 1973;

Huizink et al., 2009; Medland & Stachnik, 1972; Poduska et al., 2008; Saigh & Umar, 1983; Van Lier et al., 2009; Warner et al., 1977). Additionally, data support the GBG as an effective strategy for decreasing disruptive behavior of target students.

Overall, clear and immediate treatment effects were noted for all target students with low levels of disruptive behavior by the end of the intervention phase. Anna had one data outlier when another classroom joined Classroom A for group reading; therefore, environmental changes may have increased disruptive behavior. Additionally, Sherri had one data outlier, the cause of which is not readily apparent. There was some individual variability in Tevon's response to treatment; however, low levels of disruptive behavior were observed by the end of the intervention phase. These results are consistent with previous studies examining disruptive behavior of target student(s) within the classroom and other settings with regard to data outliers (Davis & Witte, 2000), data variability (Swiezy et al., 1992), and deceased disruptive behavior (Darch & Thorpe, 1977; Darveaux, 1984; Robertshaw & Hiebert, 1973).

The GBG also produced increases in academic engagement across classrooms. At the class level, clear, immediate, and stable increases in academic engagement were demonstrated after the introduction of the GBG in all classrooms. Additionally, the GBG increased academic engagement for two target students, Anna and Tevon.

Clear, immediate, and stable treatment effects were noted for Anna with regard to academic engagement, with the exception of one data outlier likely associated with another class joining Classroom A for the duration of one session. There was some individual variability in Tevon's response to treatment; however, high levels of academic engagement were observed by the end of the intervention phase. It is difficult to

determine the GBG's effects for Sherri's academic engagement given the increasing trend which continued into the treatment phase. However, it should be noted that variability around level and trend for academic engagement decreased during treatment, suggesting that the GBG may have assisted Sherri in maintaining a high and consistent level of academic engagement. These results are consistent with previous studies suggesting that the GBG assists with increasing academically-related behaviors (Darch & Thorpe, 1977; Darveaux, 1984; Fishbein & Wasik, 1981; Lannie & McCurdy, 2007; Maloney & Hopkins, 1973; Mudgal, 2004, 2006; Robertshaw & Hiebert, 1973).

Finally, classroom personnel and students reported satisfaction with the intervention, based on *IRP-15* and *CIRP* results. Although students may not have fully understood the *CIRP* and Classroom C's teacher reported that ongoing behavior monitoring was not time efficient, students and classroom personnel rated the GBG as an acceptable intervention.

Implications for Practice

With some minor modification (e.g., the addition of precorrection, a shift of focus from disruptive behavior to positive prosocial and academic behavior), the GBG could be very useful as a proactive, preventative strategy in early intervention. Therefore, although the GBG has been historically used as a Tier II intervention, after disruptive behavior concerns arise, it might be appropriate for use within the Tier I system of universal supports prior to disruptive behavior concern. The treatment integrity data discussed in this study demonstrates that Headstart teachers are highly capable of using the GBG without laborious and time intensive training. Therefore, Headstart programs

may benefit from the GBG, both in terms of staving off future problem behavior and increasing academic and prosocial behavior.

Limitations and Directions for Future Research

Although the present study showed the GBG to be an effective intervention both for reducing disruptive behaviors and increasing academic engagement with preschoolers, some limitations should be noted. In the area of internal validity, several limitations should be discussed. First, the study was originally designed as an A/B multiple baseline; however, four sessions of target student absenteeism made it necessary to adopt an A/B nonconcurrent multiple baseline design. Therefore, although data collection for each student was completed contemporaneously, data collection for each session could not always be completed in succession across classrooms (e.g., treatment session four completed in Classrooms A and C prior to completion in Classroom B). Nonconcurrent multiple baseline design may be considered less rigorous compared to a true multiple baseline design (Harvey et al., 2004). However, nonconcurrent multiple baseline designs provide more flexibility than true multiple baselines because simultaneous baselines or treatment phases are not required (Harvey et al., 2004). Additionally, a nonconcurrent multiple baseline design is similar to a true multiple baseline in the area of experimental control (Harvey et al., 2004). Therefore, this study resorted to a nonconcurrent multiple baseline design because it was necessary to complete the study within the educational setting prior to the end of the preschool year.

A second limitation is that aggregated peer comparison data were used as a sample of disruptive behavior and academic engagement at the class level. Similar observation procedures have been used in previous GBG studies (Boston & Geiger, 1976;

Darch & Thorpe, 1977; Hegerle et al., 1979; Hunt, 2010; Johnson et al., 1978; Lannie & McCurdy, 2007; Saigh & Umar, 1983), however it is not known in what direction or if the GBG affected all students' behavior equally. It is possible that some students' level of disruptive behavior and/or academic engagement remained consistent throughout the study or even became worse. For example, Classroom A's teacher indicated there were three students in her classroom who tended to engage in problem behavior at levels higher than peers throughout the study.

Third, disruptive behavior data were aggregated; therefore, data regarding specific problem behavior is unavailable. It is possible that some problem behaviors remained unchanged throughout the study, possibly becoming worse. It is also possible that some behaviors were never problematic and may have been unnecessary as a target behavior. Fourth, some target behavior definitions were duration-based (i.e., noncompliance, out-of-area, and playing-with-objects); therefore, these behaviors were incompatible with academic engagement, also defined in terms of duration. Therefore, those specific behaviors could not have occurred within the same observation interval potentially skewing the data. Fifth, treatment integrity data were collected during the treatment phase and co-occurred with disruptive behavior and academic engagement data collection. Therefore, it is possible that observers may have missed coding some target behaviors as attention was divided between the class, at large, and a target student.

An additional limitation is that procedural integrity was lower (i.e., 67%) during the initial days of treatment in Classroom C. Furthermore, although treatment integrity remained above 80% for all classrooms the majority of the time, each teacher demonstrated routine difficulty in noticing all disruptive behavior and subsequently

informing the student(s) of the disruption. Hegerle et al. (1979) also reported that teachers may have found the identification of problem behavior to be disruptive. Procedural integrity remained high (M = 95%) following further training. It may have been beneficial to discuss further the rationale behind the GBG in terms of behavioral principles during the initial teacher training session. This may have established more *buy-in* and may have decreased the need for future trainings. Additionally, it may be have beneficial for the primary experimenter to spend more than one day providing modeling and verbal performance feedback to the teacher during the initial treatment days. Seventh, Classroom A's teacher added toy items to the treasure box. These items may have affected the value of the treasure box. Therefore, it is unclear what GBG effects may have occurred without the introduction of new toys.

Finally, the GBG was modified in two ways from the procedures proposed by Barrish et al. (1969). A modification occurred during the 6th observation day in Classroom A to support teacher belief that three teams would allow for more children to *win* the game. Therefore, the classroom was divided into three teams versus two teams. Although the GBG is flexible and may be adapted in many ways (Tingstrom et al., 2006), it is unclear what treatment effects the original GBG, as proposed by Barrish et al. (1969), may have produced if the intervention was allowed to proceed unaltered. An additional modification occurred because team membership changed, on occasion, in Classroom's A and B, and changed routinely in Classroom C. Although all classrooms benefitted from the GBG, it is unclear what effect team configuration changes had on study results.

In the area of external validity, a few limitations should be discussed. First, although data were collected for academic engagement, no data were collected for learning indicators (e.g., permanent product data). Therefore, it is unknown what effect the GBG had on variables such as work completion or academic gains. Second, although Classroom A's teacher's addition of toys to the treasure chest was seen as a sign of enthusiasm and involvement in the GBG, she may have purchased additional toy items due to thoughts that the original toy batch was unacceptable or undesirable to the students. Third, the cost of the treasure chest may not be feasible and outside resources may be necessary to help with costs. Fourth, although students indicated that the GBG was acceptable on the *CIRP,* a handful of *CIRPs* could not be scored and students appeared copy the answers of peers nearby. Therefore, the students may not have fully understood the items contained in the *CIRP* and may have ultimately disliked the GBG.

Finally, no data were collected regarding long-term maintenance. Therefore, it is unknown what effects the GBG might have continued to produce. Although the students appeared excited to access the treasure box, reinforcer satiation could eventually occur. Additionally, fading procedures were not utilized within the study. Therefore, there is no information regarding whether the students would have been receptive to delayed access to reinforcers (e.g., weekly reinforcement versus daily reinforcement).

Conclusions

The present study showed that the GBG was effective for decreasing disruptive behaviors and for increasing academic engagement within three Headstart classrooms. Additionally, the GBG produced decreases in disruptive behavior for all three target students and increases in academic engagement for two target students. Therefore, the

study demonstrated that the GBG could be successfully used with a preschool population to decrease disruptive behavior while increasing academic engagement. However, further research is needed with preschool populations given (1) the many study limitations discussed, (2) a link found by other researchers between early problem behavior and negative present and longitudinal effects for social and academic problems (Bradshaw et al., 2009; Broidy et al., 2003; & Jolivette et al., 2008), and (3) early intervention efforts delivered within the PBIS framework should be an ongoing focus of school psychologists and other education and mental health professionals. Therefore, the GBG is one potential intervention to provide positive behavioral intervention and support to students, regardless of disability, in order to decrease, or possibly prevent, student disruptive behavior while assisting with academic skills and abilities.

In taking into account the study limitations discussed thus far, researchers may want to consider some strategies for use in future studies. First, researchers could guard against the possibility that some students are not benefiting from the GBG by collecting peer comparison data using representative observations of students as well as data for several target students within the classroom. Additionally, it may be beneficial to determine the GBG's effects with preschoolers of various cultural or ethnic groups. Second, it may be beneficial to work collaboratively with teachers and aides when selecting potential reinforcers for the treasure box prior to initiation of the treatment phase. This may help alleviate new toy introduction during the study. Third, future researchers may wish to collect data for specific academically-related behaviors (e.g., alphabet identification, counting to 100, naming the months of the year, kindergarten readiness exam) in order to determine GBG effects on other learning indicators. It may

also be helpful to examine the long-term maintenance of the GBG and whether or not intervention fading strategies may prove fruitful. Fourth, it may be advantageous to explore strategies to support preschool teachers in recognizing disruptive behavior while maintaining the integrity of the intervention as proposed by Barrish et al. (1969) given that this proved understandably difficult in a naturalistic classroom setting during the initial treatment phase. Perhaps teachers and aides may use the GBG with one individual designated as the group leader and the other individual responsible for noticing, briefly stating, and marking all disruptive behavior. And lastly, future researchers may consider examining how the *CIRP* could be further modified for a preschool audience in order to determine student acceptability that could potentially lead to GBG modifications in further studies with a young audience.

APPENDIX A

TEACHER CONSENT FORM

Dear Teacher,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi working under the guidance of Dr. Heather Sterling-Turner. As part of my dissertation, I am researching the effectiveness of an intervention designed to decrease disruptive behaviors and increase academic engagement in the classroom. You have referred your classroom's students for exhibiting behavioral difficulties at school; therefore, we hope you will consent for your classroom's participation in the following investigation.

If you agree to participate in this study, we will ask you to do some tasks. First, prior to the implementation of the intervention, you will be asked to complete a consultation session with me to obtain information pertaining to your students' behaviors of concern and to identify one target student who demonstrates disruptive behavior at higher levels than peers. Second, if your classroom qualifies for participation, I will then train you to implement a simple, classroom-based intervention called the Good Behavior Game (GBG). The GBG is a six-step intervention in which two teams compete to obtain the fewest amount of check marks for disruptive classroom behavior in order to gain access to rewards. In order to participate in the study, student disruptive behavior must occur during a school day activity that lasts at least 10 min in duration, but not longer than 30 min in duration. Additionally, your classroom must demonstrate disruptive behavior in at least 20% of the observation intervals during the time deemed most disruptive in order to continue into the study. If the classroom does not qualify for participation or parental consent is not provided, other services will be made available to you.

I, or another trained graduate student from the USM School Psychology program, will collect classroom observations throughout all phases of the study. Two study phases will be used. In the initial phase of the study, I will conduct several classroom observations during which I will collect data for your students' disruptive behavior and academic engagement. The GBG will not be implemented at this point. During the second phase, you will implement the GBG. The GBG involves playing a game in which your classroom's students are divided into two teams. In order to win the game, team members must follow classroom rules. At the end of the game, the team with the fewest rule violations wins the game. However, both teams could win the game is they receive fewer than a specific number of rule violations. Winning team members receive special items. You may receive daily feedback on your implementation of the intervention. After completion of the phases, I will ask you to complete a structured questionnaire in order to assess your satisfaction with the GBG. Additionally, the students will be asked to fill out a short survey to assess their satisfaction with the GBG.

This study may result in three benefits for you and your students: (a) your students may decrease the amount of inappropriate behaviors displayed prior to the intervention, (b) your students may increase in appropriate behaviors and, (c) you may acquire skills to implement a new intervention technique that can be used with subsequent students.

Your students' behavior will be monitored to ensure undesired effects (e.g., increase in inappropriate behaviors) do not happen. If any unanticipated, untoward effects on your students' behavior are observed, appropriate modifications or discontinuation of the procedure will occur, and your students will be provided with other appropriate services. There would appear to be very few risks for either you or your students participating in this study. The greatest discomfort for you may be related to implementing a new procedure in the classroom. To reduce discomfort, I and/or other trained graduate students will provide training, materials, and will be available to answer any questions you may have. Your students should not experience any discomfort from the implementation of the recommended intervention.

All interviews, observations, and other information obtained during this study will be kept strictly confidential. Your name, students' names, and other identifying information will not be disclosed to any

person not connected with this study. Results from this research project may be shared at professional conferences or published in scholarly journals; however, all identifying information will be removed from publications and/or presentations. Your participation in this study is entirely voluntarily. In addition, you may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Further services, if needed, may be provided outside the scope of this study.

Whereas no assurance can be made concerning results that may be obtained (as results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice.

If you agree to participate, please read, sign, and return the following page. Please keep this letter for your records. If you have any questions about this study, please contact Brandy Hunt at (266.5255; brandy.hunt@eagles.usm.com) or Dr. Heather E. Sterling-Turner (266.5255; heather.turner@usm.edu). This project and this consent form have been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820.

Sincerely,

_____
Brandy Hunt, Ed.S.
School Psychologist in Training

_____
Heather E. Sterling-Turner, PhD.
Associate Professor of Psychology
School Psychology Training Director

THIS SECTION TO BE COMPLETED BY TEACHER

Please Read and Sign the Following:

I have read the above documentation and consent to participate in this project. I have had the purpose and procedures of this study explained to me and have had the opportunity to ask questions. I am voluntarily signing this form to participate under the conditions stated (i.e., I will complete a consultation session to provide information pertaining to my students' behaviors of concern. I will identify one target student who demonstrate disruptive behavior at higher levels than peers. If my classroom qualifies for participation, I will be trained to implement a simple, classroom-based intervention.) I have also received a copy of this consent. I understand that I will be asked to implement a classroom-based intervention, and observations will be conducted in the classroom on the students' behavior. In order to do so, I will be required to complete a consultation session, to implement the intervention, and to complete a structured questionnaire to assess my satisfaction with the intervention. In addition, I will be trained on all of the intervention procedures by the primary experimenter. I further understand that all data collected in this study will be confidential and that my name and the students' names will not be associated with any data collected. I understand that I may withdraw my consent for participation at any time without penalty, prejudice, or loss of privilege.

_____ _____

Signature of Teacher *Date*

_____

Signature of Witness

APPENDIX B

PARENT CONSENT

Dear Parent,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi working under the guidance of Dr. Heather Sterling-Turner. As part of my dissertation, I am researching the effectiveness of an intervention designed to decrease mild, disruptive behaviors in the classroom while increasing academic engagement. Your child has recently been referred for exhibiting mild behavior problems in the classroom by his or her teacher.

If you agree to allow your child to participate, your child's teacher will be asked to do several things during subsequent meetings with me. Initially, the teacher will be asked to complete an interview with me to clarify the nature of the behavior referral. Following the interview, observations will be conducted during ongoing classroom activities by me and/or trained observers from the USM School Psychology Program. If your child's classroom qualifies for participation, I will then train the teacher to implement a simple, classroom based intervention called the Good Behavior Game (GBG). The GBG involves playing a game in which your student's classroom is divided into two teams. In order to win the game, team members must follow classroom rules. At the end of the game, the team with the fewest rule violations wins the game. However, both teams could win the game is they receive fewer than a specific number of rule violations. Winning team members receive special items. If your child's classroom does not qualify for participation other services will be made available to the teacher.

Following the interview and observations, your child's teacher will receive training on how to implement the GBG. In the initial phase of the study, I will conduct several classroom observations during which I will collect both data for your child's and three comparison peers' disruptive and academic behaviors. The GBG will not be implemented at this point. During the next phase, the teacher will be asked to implement the GBG. The teacher may also receive daily feedback on the implementation of the intervention. After the intervention, the teacher and students will be asked to fill out a survey assessing their satisfaction with the GBG.

Benefits for participating in this research project may include: (a) your child may have decreases in inappropriate classroom behavior, (b) your child may have increases in appropriate behavior, and (c) your child's teacher may acquire new strategies to implement in the classroom.

Your child will be monitored to ensure undesired effects (e.g., increase in inappropriate behaviors) do not happen. If any unanticipated, untoward effects on your child's behavior are observed, appropriate modifications or discontinuation of the procedure will occur, and your child will be provided with other appropriate services. Minimal risks are anticipated for involvement in this research project. Your child should not experience any discomfort from the implementation of the recommended intervention.

All interviews, observations, and other information obtained during this study will be kept strictly confidential. All identifying information will not be disclosed to any person not connected with this study. Results from this research project may be shared at professional conferences or published in scholarly journals; however, all identifying information will be removed from publications and/or presentations. Your child's participation in this study is entirely voluntary and you may withdraw your child from this study at any time without penalty, prejudice, or loss of benefits.

Whereas no assurance can be made concerning results that may be obtained (as results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice.

If you agree to participate, please read, sign, and return the following page. Please keep this letter for your records. If you have any questions about this study, please contact Brandy Hunt at (266.5255; brandy.hunt@eagles.usm.com) or Dr. Heather E. Sterling-Turner (266.5255; heather.turner@usm.edu).

This project and this consent form have been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820.

Sincerely,

_____
Brandy Hunt, Ed.S.
School Psychologist-In Training

_____
Heather E. Sterling-Turner, PhD.
Associate Professor of Psychology
School Psychology Training Director

THIS SECTION TO BE COMPLETED BY PARENT

Please Read and Sign the Following:

I have read the above documentation and consent for my child to participate in this project. I have had the purpose and procedures of this study explained to me and have had the opportunity to ask questions. I am voluntarily signing this form to have my child participate under the conditions stated. I have also received a copy of this consent. I further understand that all data collected in this study will be confidential and that my child's name and the teacher's name will not be associated with any data collected. I understand that I may withdraw my consent for my child's participation at any time without penalty, prejudice, or loss of privilege.

_____ _____

Signature of Parent *Date*

_____

Signature of Witness

APPENDIX C

HUMAN SUBJECTS REVIEW CONSENT

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **11012401**
PROJECT TITLE: **Using the Good Behavior Game to Decrease Disruptive Behavior While Increasing Academic Engagement with a Preschool Population**
PROPOSED PROJECT DATES: **10/01/2010 to 06/30/2011**
PROJECT TYPE: **Dissertation**
PRINCIPAL INVESTIGATORS: **Brandy Hunt**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Reviw Approval**
PERIOD OF APPROVAL: **02/07/2011 to 02/06/2012**

Lawrence A. Hosman — 2-8-2011

Lawrence A. Hosman, Ph.D.
HSPRC Chair

Date

APPENDIX D

GOOD BEHAVIOR GAME SCRIPT

Step 1: Announce the game and rules, divide students into teams, and write the teams on the board

The teacher will announce the game and the game rules. The teacher will divide the students into two teams and develop team names. The teacher will write the team names on the board and the write the team members underneath.

Step 2: Remind the teams not to exceed the criterion

The teacher will explain to the students that they will receive check marks next to his or her name if they do not follow the rules.

Step 3: Start the game

The teacher will begin the game and remind the children not to break the rules.

Step 4: Identify and Record Disruptive Behavior

The teacher will make check marks on the chalkboard as appropriate.

Step 5: Announce the end of the game, tally the checkmarks, and announce winning team(s)

At the end of the period the teacher will announce that the game is over. The teacher will count the check marks out loud for the class and announce the winning team(s).

Step 6: Allow the winning team(s) access to the treasure box

The teacher will allow the winning team(s) to pick an item from the treasure box. The losing team will be asked to engage in another task while the winning team picks out prizes.

APPENDIX E

INTERVENTION RATING PROFILE – 15 (IRP-15)/MODIFIED VERSION

Please respond to each of the following statements thinking about the intervention you used. Please then circle the number associated with your response. Be sure to answer all statements.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
This was an acceptable intervention for the problem behavior(s).	**1**	**2**	**3**	**4**	**5**	**6**
Most teachers would find this intervention appropriate for a behavior problem in addition to the one(s) described.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention proved effective in helping to change the problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
I would suggest the use of this intervention to other teachers	**1**	**2**	**3**	**4**	**5**	**6**
The behavior problem was severe enough to warrant the use of this intervention.	**1**	**2**	**3**	**4**	**5**	**6**
Most teachers would find this procedure suitable for the problem behavior described.	**1**	**2**	**3**	**4**	**5**	**6**
I would be willing to use this intervention again in the classroom setting.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention did *not* result in negative side effects.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention was appropriate for a variety of children.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention was consistent with those I have used in the classroom setting.	**1**	**2**	**3**	**4**	**5**	**6**
The intervention was a fair way to handle problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention was reasonable for the problem behavior described.	**1**	**2**	**3**	**4**	**5**	**6**
I liked the procedures used in this intervention.	**1**	**2**	**3**	**4**	**5**	**6**
This intervention was a good way to handle the behavior problem.	**1**	**2**	**3**	**4**	**5**	**6**
Overall, this intervention was beneficial.	**1**	**2**	**3**	**4**	**5**	**6**

Taken and adapted from, Martens, B. K., Witt, J. C., Elliott, S. N., & Darveaux, D. (1985). Teacher judgements concerning the acceptability of school-based interventions. Professional Psychology: *Research and Practice, 16*, 191-198.

APPENDIX F

CHILDREN'S INTERVENTION RATING PROFILE/MODIFIED VERSION

1. Did you like the Good Behavior Game used in your classroom?

2. Did you like playing the Good Behavior Game?

3. Do you think others kids would like to play the Good Behavior Game?

4. Did you like the rewards used in the Good Behavior Game?

5. Do you think the Good Behavior Game has helped you do better in school?

6. Do you think the Good Behavior Game was fair?

7. Do you think the Good Behavior Game cause any problems for you?

8. Do you think the Good Behavior Game caused any problems for your friends?

Adapted from Witt, J. C., & Elliott, S. N. (1985). Acceptability of classroom intervention strategies. In T. R. Krotochwill (Ed.), Advances in School Psychology (Vol.4, pp. 251-288). Hillsdale, NJ; Erlbaum. Copyright 1985 by Lawrence Erlbaum Associates, Inc. Reprinted.

APPENDIX G

TEACHER INTEGRITY CHECKLIST

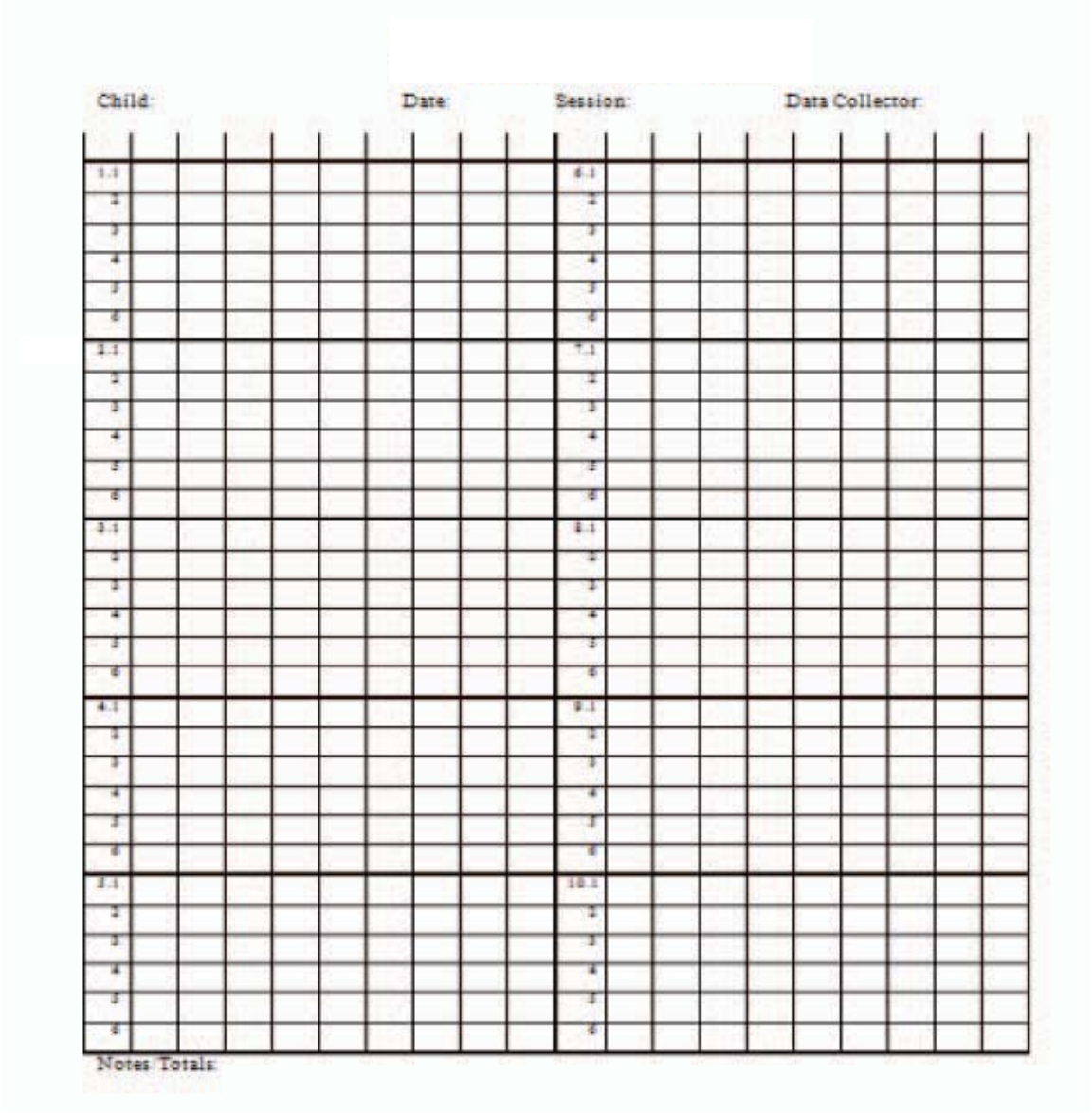
Date: _____ Observer: _____

	Training Steps	Yes	No
1	Announce the game and rules, divide students into teams, write names on board		
2	Remind the teams not to exceed the criterion		
3	Start the game		
4	Identify and record disruptive behavior		
5	Announce end of game, tally checkmarks, announce winner team(s)		
6	Allow winning team(s) access to the treasure box		

Percentage of steps competed: _____

APPENDIX H

OBSERVATION FORM ANDN BEHAVIORAL DEFINTIONS



Child: Date: Session: Data Collector:

1.1										6.1									
2										2									
3										3									
4										4									
5										5									
6										6									
2.1										7.1									
2										2									
3										3									
4										4									
5										5									
6										6									
3.1										8.1									
2										2									
3										3									
4										4									
5										5									
6										6									
4.1										9.1									
2										2									
3										3									
4										4									
5										5									
6										6									
5.1										10.1									
2										2									
3										3									
4										4									
5										5									
6										6									

Notes/Totals:

Disruptive Behaviors include the following:

Noncompliance: failure to initiate or terminate the response appropriate to the classroom teacher's or the instructional aide's demand within 5 s of the instruction (e.g., "Sally, sit down." "Everyone, count to 10 aloud.")

Inappropriate vocalizations: as any audible verbalization or sound made without teacher permission (e.g., speaking without permission, crying, screaming, and/or cursing).

Aggression: physical contact with a peer or teacher that has the potential to cause harm (e.g., pushing classmates or teachers, kicking classmates or teachers, and/or hair pulling) or contact with a peer or teacher through the use of an object that could cause harm (e.g., hitting a classmate or teacher with an object and/or throwing an object in the direction of a classmate or teacher).

Out of Area: the buttocks breaking contact with the designated seating surface (e.g., rug or chair) for 3 or more seconds, being outside of approximately 12 inches of the designated seating area for 3 or more seconds, not being oriented in the proper direction for 3 or more seconds, lying down for 3 or more seconds, legs not crossed in a "criss-cross apple sauce" seated position for 3 or more seconds (if seated on the floor), and legs not under the table for 3 or more seconds (if seated at table).

Playing with Objects: manipulation of stimuli not part of one's physical body for 3 or more seconds.

Academic Engagement: orienting eyes toward the classroom teacher or aide when directions and/or instructions are provided, talking with the teacher or aide about relevant topics or activities, and/or engaging appropriately in classroom discussions and activities for 7 consecutive seconds.

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