The Good Behavior Game: Effects On and Maintenance of Behavior in Middle-School Classrooms Using Class Dojo

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THE GOOD BEHAVIOR GAME: EFFECTS ON AND MAINTENANCE OF BEHAVIOR IN MIDDLE-SCHOOL CLASSROOMS USING CLASS DOJO

by

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A Dissertation
Submitted to the Graduate School
and the Department of Psychology
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for the Degree of Doctor of Philosophy

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ABSTRACT

THE GOOD BEHAVIOR GAME: EFFECTS ON AND MAINTENANCE OF BEHAVIOR IN MIDDLE-SCHOOL CLASSROOMS USING CLASS DOJO

by Komila Dadakhodjaeva

August 2017

Classroom management is one of the key components for successful instruction and affects both instructors and learners. Although most frequent discipline strategies in schools involve punitive actions, research suggests that using positive statements to teach and reinforce desirable behaviors is more appropriate and effective. A form of a group-oriented contingency that focuses on desirable behaviors is a positive variation of the Good Behavior Game (GBG). The GBG has been used widely in its original form focusing on undesirable behaviors, and more research is needed on its positive version. Another strategy that can be used within classrooms is Class Dojo, a free Internet application that tracks student behaviors. Very few studies have evaluated the effectiveness of the GBG in combination with Class Dojo within classroom settings. Additionally, no peer-reviewed studies have assessed the effects of the GBG using Class Dojo and the maintenance of intervention effects on middle school classwide behavior. The present study utilized a multiple baseline design across two classrooms and a nonconcurrent multiple baseline in a third classroom to evaluate the effectiveness and maintenance of the GBG using Class Dojo at increasing classwide academically engaged behavior, and reducing disruptive and passive off-task behaviors in the middle school classrooms. Specifically, maintenance of behaviors while withholding portions of the
GBG using Class Dojo was evaluated during two maintenance phases. The results indicate that the GBG using Class Dojo was effective at improving academically engaged behavior, and decreasing disruptive behavior, although improvements for passive off-task behavior were modest, with generally similar results found during the maintenance phases.
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CHAPTER I - INTRODUCTION

All teachers encounter complex student problem behaviors regardless of their experience (Supaporn, Dodds, & Griffin, 2003). Frequently reported problem behaviors include, but are not limited to, talking out, getting out of seat, playing with objects, arguing, and off-task behaviors. Disruptive behaviors negatively affect the learning process, instruction time, and student academic success (Luiselli, Putnam, & Sunderland, 2002), as well as contribute to the ineffectiveness of instruction, teacher stress, and teacher dissatisfaction (Martin & Norwich, 1991; McCormack, 1997).

In addition to overtly disruptive behaviors, off-task behaviors might disrupt the classroom environment and result in a loss of instruction time (Walker, Ramsey, & Gresham, 2003); students who demonstrate low levels of academic engagement risk missing learning opportunities and have academic difficulties (Lannie & McCurdy, 2007). Furthermore, Marks (2000) found that academic engagement declines once students reach middle school. Behavior management within the classroom is directly correlated with the levels of student behavior such as participation and academic achievement (Reinke, Lewis-Palmer, & Merrell, 2008); however, according to a national survey, teachers across all grade levels indicated feeling a strong need for additional training and support in classroom management (Coalition for Psychology in Schools and Education, 2006). Kratochwill (2009) also reported that teachers indicate a strong need for support with classroom management. Therefore, developing and evaluating effective classroom behavior management strategies are crucial both for student and teacher success.
It is common for teachers and school administration to use aversive approaches, such as punishment (Horner et al., 1990), in an attempt to reduce future disruptive behavior, instead of teaching appropriate replacement behaviors. Maag (2002) also reported that punishment is the most commonly used management strategy in schools. Some of the punishment strategies include suspensions, office discipline referrals, and conferences, all of which contribute to the loss of instruction time. According to Scott and Barratt (2004), a discipline referral costs 20 minutes of instruction time for the student, 10 minutes to process a referral, and 45 minutes to process a suspension for the school administrator. Thus, student disruptive behavior in conjunction with ineffective classroom management can lead to a loss of instruction time and cause student academic difficulties (Bidell & Deacon, 2010). Consequently, it is crucial that teachers are provided with effective classroom management strategies as higher rates of disruptive behavior and ineffective behavior management strategies are correlated (Reinke, Herman, & Stormont, 2013).

One adjunct used in conjunction with classroom management strategies that has recently been introduced to researchers and school districts involves the use of technology. With the introduction of the computer in the 1970s, educators have been exposed to the many possibilities of technology with assisting and improving students’ learning (Hew & Brush, 2007). In addition to enabling adoption of novel instruction methods and modification of the framework of instruction, learning, and assessment, technology makes teaching the same material in a routine manner easier and faster (Lawless & Pellegrino, 2007). According to the United States Department of Education (2010), teachers and parents perceive technology as an essential part of offering a high-
quality education. Furthermore, a national teacher-level survey found that 97% of the teachers in public elementary and secondary schools had one or more computers in their classroom and 93% reported having internet access (Gray, Thomas, & Lewis, 2010). Therefore, it is feasible to use technological resources to integrate some of the behavioral management strategies within the classroom. An example of a free and interactive technological resource, Class Dojo (2015), which provides engaging feedback on student behaviors can easily be integrated into instruction (described in later sections).

Addressing the behavioral needs of all children is particularly important for educators due to the No Child Left Behind Act of 2001 (NCLB, 2001). There is an increasing demand placed on educators who are responsible for the instruction of academic skills and classroom and school behaviors. Although teacher concerns typically consist of disruptive behaviors of several students and sometimes the whole classroom (Tingstrom, Sterling-Turner, & Wilczynski, 2006), interventions are often implemented to address only one student’s problem behavior without taking into account the risk of other children developing similar disruptive behaviors (Benedict, Horner, & Squires, 2007). Therefore, it might be more feasible to utilize group-oriented contingencies that focus on increasing appropriate behaviors instead of individual contingencies that are usually reactive rather than proactive (Conroy & Brown, 2004). Additionally, the latter may be very time-consuming and difficult to carry out when more than one student engages in disruptive classroom behavior (Tingstrom et al., 2006).

Group-oriented interventions have been successful in managing behavior and typically include a reward-based component (Thorne & Kamps, 2008). Littow and Pumroy (1975) identified three kinds of group-oriented contingencies: independent,
dependent, and interdependent. An independent contingency involves earning a reward contingent upon individual performance (e.g., any student obtaining three stickers receives a homework pass). A dependent contingency involves earning a reward contingent upon one or a few group members’ performance (e.g., if a specific student earns three stickers, his or her team receives homework passes). An interdependent contingency involves earning a reward contingent upon the whole group’s performance (e.g., if the class earns twenty stickers, all class members receive homework passes).

Numerous studies have evaluated the effectiveness of group-oriented contingencies for decreasing disruptive behavior and increasing academic engagement (e.g., Christ & Christ, 2006; Popkin & Skinner, 2003). Little, Akin-Little, and Neill (2015) conducted a meta-analysis that evaluated the efficacy of group contingencies between 1980 and 2010. Little et al. (2015) found that group contingency interventions were effective both in improving behaviors and academic performance. While group-oriented contingencies promote positive student and teacher interactions (Conroy, Sutherland, Snyder, & Marsh, 2008), Gresham and Gresham (1982) found that when compared to the independent group contingency, the dependent and interdependent group contingencies were more effective in reducing disruptive behavior. Additionally, Skinner, Cashwell, and Dunn (1996) suggested that interdependent group contingencies have an advantage over other contingencies due to the responsibility of all group members to work toward a specific goal (i.e., reach a criterion), thus making the attainment of consequences contingent upon the whole group’s performance. Skinner et al. (1996) also attributed the interdependent group contingencies’ benefits to the minimization of the class’s chance of losing rewards due to one or few students’ behavior.
Group-oriented contingency procedures that address classwide behavior management and involve teaching positive behaviors and rewarding behaviors are consistent with Positive Behavioral Intervention and Support Systems (PBIS). PBIS is a systems change behavioral framework that was developed to decrease or prevent problem behaviors in students to accomplish a more positive educational atmosphere leading to academic success (Sugai & Horner, 2002), and it has been receiving significant support and has grown in popularity (Dunlop, 2013). PBIS consists of evidence-based intervention strategies designed to help minimize problem behaviors and to teach socially desirable behaviors (Koegel, Koegel, & Dunlap, 1996). PBIS is divided into three tiers, which include implementing a structured support for all students and providing more specialized support for students in need. Tier I addresses primary prevention at the school-wide and classroom-wide level and focuses on eliminating variables that might be maintaining student problem behaviors. It consists of teaching school-wide rules to students, integrating praise and reinforcement to reward appropriate behavior, and re-teaching the behavioral rules during redirections (Reinke et al., 2013). Tier II focuses on smaller groups of students who are at risk for failure or need specialized support. Tier III addresses students who are at great risk for behavioral, social, or emotional failure and consists of rigorous individualized interventions (Riley-Tilman, Chafouleas, & Briesch, 2007). An intervention that can be considered as a Tier I and Tier II classroom management strategy is described in the section that follows.

The Good Behavior Game

One of the most empirically evaluated and effective group-oriented interventions that may qualify as Tier I and Tier II of PBIS is the Good Behavior Game (GBG; Barrish,
Saunders, & Wolf, 1969). A recent meta-analysis of single-case research evaluating the GBG included 21 studies conducted between 1969 and 2013 using pre-kindergarten through high school populations (Bowman-Perrott, Burke, Zaini, Zhang, & Vannest, 2015). The overall effect size was large, with the Game significantly improving problem behaviors, prosocial behaviors, and off-task behaviors of the students (Bowman-Perrott et al., 2015).

The GBG is an interdependent group contingency procedure that has been used widely with different populations (i.e. general education classrooms, special education classrooms, kindergartners, high-schoolers, alternative settings) and across various behaviors (i.e. prosocial, disruptive, off-task, academic, adaptive) (Tingstrom et al., 2006). In the first study using the GBG, Barrish and colleagues (1969) utilized an ABAB design with a fourth-grade class of 24 students. The target behaviors included talking out and being out-of-seat. The teacher told the students that they would play a game, after which the teacher introduced the game and explained the game rules to the class. The teacher divided the class into two teams, and each time a team member broke a game rule, the teacher placed a mark under that team’s name on the blackboard. At the end of the game, the teacher counted the marks earned by the teams, and the winner of the game was either the team that earned the fewest marks, or both teams if each team remained under the five-mark criterion. The winning team members had access to different reinforcers such as victory tags, stars on a chart, or lining up first for lunch. The losing team members did not have access to rewards (Barrish et al., 1969).

The median number of intervals of talking-out and being out-of-seat was approximately 96% and 82%, respectively, during baseline. Talking-out and getting out-
of-seat decreased considerably to 19% and 9% of intervals, respectively, upon the implementation of the GBG. Withdrawal and re-implementation of the GBG resulted in similar levels of disruptive behaviors found in baseline and the GBG phases. Specifically, when the game was withdrawn, the levels of disruptive behavior were similar to those in the initial baseline, and when the game was reintroduced in the last phase, there was a considerable decline in the disruptive behaviors. Additionally, the teacher and students found the GBG as a popular and acceptable intervention (Barrish et. al., 1969).

Since its original implementation, the GBG has been adapted and modified for utilization in educational settings, including general and special education, as well other settings, such as residential and rehabilitation facilities, school cafeteria, library, and alternative settings (Tingstrom et al., 2006). The majority of the GBG research has focused on decreasing disruptive behaviors of students, such as talking, out-of-seat, name-calling, cursing, and aggression, with its implementation to increase academic and prosocial behaviors occurring to a lesser degree (Tingstrom et al., 2006).

The GBG is a universal intervention, which applies to the whole classroom instead of one or a few target students (i.e. goal for Tier I of PBIS); thus, reducing the risk of singling out and stigmatizing students who engage in problem behaviors (Kellam et al., 2011). The GBG can also be used to support small groups of children who might be at risk for school failure and need more specialized assistance (i.e. goal for Tier II of PBIS). The effectiveness of the GBG has been attributed to the following factors: explicit criteria for target behaviors, immediate feedback regarding behaviors, reinforcement contingent upon group behavior, and positive peer pressure (Rathvon, 2008). The majority of studies have used the GBG in its original form (i.e. Barrish et al., 1969) and
more research is needed on the effectiveness of the GBG in which its focus on marking instances of undesirable behavior is altered. Specifically, to be more consistent with PBIS, more research is needed on a positive variation of the GBG, which consists of marking instances of students’ desirable behavior.

In addition to fitting well into a PBIS framework, tracking student desirable behavior might inadvertently increase chances of teachers focusing on appropriate student behavior and providing positive feedback to the students in the future. Using positive statements has been shown to produce better results within PBIS (Reinke et al., 2013), and interventions that focus on appropriate behaviors and provide positive feedback might be more effective in decreasing disruptive behaviors and concomitantly increasing appropriate behaviors. Although research suggests that teaching appropriate behaviors might be more beneficial for children, no peer-reviewed studies have evaluated the effectiveness of the positive variation of the GBG and its maintenance with middle school students. Furthermore, no known peer-reviewed studies have evaluated the effectiveness and maintenance of a positive variation of the GBG using Class Dojo. In the sections that follow, research with positive variations of the GBG, behavior maintenance, and Class Dojo are discussed.

Positive Variations of the GBG

Robertshaw and Hiebert (1973) utilized an AB design to conduct the first study of a positive variation of the GBG, the Good Astronaut Game, within a first-grade classroom. Target behaviors included the number of completed seatwork papers and attentiveness, and data were collected for a target student and classroom peers. The students were divided into four teams and team members could earn tokens for each page
of seatwork completed, as well as for displaying appropriate behavior. At the end of the
week, the teacher recorded the number of completed seatwork papers. The Game resulted
in improved attentiveness to work and increased the number of seatwork papers
completed. The target student demonstrated inattentiveness during an average of 44% of
intervals, and the classroom completed an average of 9.5 seatwork papers per week
during baseline. The target student demonstrated inattentiveness during an average of 4%
of intervals, and the class completed an average of 36 seatwork papers per week upon the
implementation of the Game (Robertshaw & Hiebert, 1973).

Another positive version of the GBG was implemented by Darch and Thorpe
(1977), who called it The Principal Game. The authors used an ABACA withdrawal
design to assess the Game’s impact on on-task behavior of ten fourth-grade general
education students. In The Principal Game, the classroom was divided into five teams;
however, there was no between-team competition. During the Game, a bell timer sounded
six times, and the teacher visually examined the teams’ on-task behaviors after each bell
timer signal. Contingent upon demonstration of on-task behavior, a team(s) was awarded
a point. The teams were required to have five out of six points to access reinforcement.
When a team(s) met the criterion, the team members received praise and attention from
the principal at the end of the period. After the withdrawal phase, an individual
consequence phase was introduced, where the students received consequences based on
individual behavior rather than group behavior. The Game was more effective in
increasing on-task behavior during the team consequence phase than during the
individual consequence phase.
A positive version of the GBG was also assessed across the classroom and library settings by Fishbein and Wasik (1981). They evaluated the GBG in fourth-grade students using an ABCB design. Specifically, the game’s effects on increasing task relevant behavior and reducing off-task and disruptive behavior were assessed. The modifications consisted of allowing student input in creating rules, stating the rules as positive statements, and the teams earning points for exhibiting appropriate behavior. No reinforcement was provided to the team(s) during the C phase. Although implementation of the GBG (phase B) resulted in increased on-task behavior and decreased problem behaviors, reimplementation of the GBG with a no rewards (phase C) resulted in levels of behaviors similar to those in baseline. Finally, when the GBG was re-implemented in the last phase, the target behaviors improved with similar levels as in the initial implementation.

The following year, a different study targeted dental hygiene skills in first- and second-grade students. Swain, Allard, and Holburn (1982) utilized a positive version of the GBG, called the Good Toothbrushing Game, in order to establish effective dental hygiene skills. The authors used a multiple baseline design across classrooms with a nine-month follow-up to evaluate treatment effects. All students received a dental kit containing a toothbrush, toothpaste, and also attended a lecture and demonstration on oral hygiene provided by a dental hygiene student. During the Good Toothbrushing Game, four children were randomly chosen to represent their team each morning. 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 team with the lowest OHI-S won the game each day. The
results indicated improved oral hygiene, which was maintained at the nine-month follow-up (Swain et al., 1982).

One of the variations of the GBG was assessed by Darveaux (1984), who added a merit component to the game. The researcher referred to it as the GBG plus Merit (GBG+M), and used an ABAB design to evaluate its effects. The participants included two students in a second-grade classroom, and data were collected for disruptive behavior demonstrated by the two target students and assignment completion for the classroom as a whole. The classroom was divided into two teams with one target student on each team. The modifications to the original GBG included providing merits (cards with “one merit” printed on them) to students who completed assignments with at least 75% accuracy and participated in classroom discussions. Additionally, marks against the team could be removed: for every five merits received, one mark on the board was erased. A team(s) receiving five or fewer marks could access reinforcement.

Both target behaviors improved as a result of the GBG+M. The mean percentage of intervals for disruptive behavior was 71.9% for the two target students during baseline, 11.6% during the first introduction of the GBG+M, 83.8% during withdrawal, and 6.25% during the final phase. Darveaux (1984) reported that average assignment completion from baseline and withdrawal to intervention phases for the two target students increased from 40% to 75%, and classwide assignment completion from baseline and withdrawal to intervention phases increased from 77% to 88%.

A modified GBG was also assessed with preschoolers. Swiezy, Matson, and Box (1992) used an ABC multiple baseline design to implement the Game to increase compliance in four preschool-aged children in a church-affiliated program. Two teams,
each consisting of dyads of boys and girls, served as participants. The participants could earn stickers for joint compliance to commands. The researcher wore a hand puppet, “Buddy Bear,” which asked the children to complete tasks (e.g., “children, shake hands”). If a team met or exceeded the pre-set criterion, the two team members received a reward (i.e. graham crackers, animal cookie). Therapists implemented the GBG in a church-affiliated resource room or school kitchen separately for each team, and the children’s free play behavior on the playground was observed for generalization effects.

Compliance for team one increased from 11.7% of intervals during baseline to 74.7% of intervals during intervention, and compliance for team two increased from 27.3% of intervals during baseline to 76.5% of intervals during intervention. Although the GBG increased compliance, and the results generalized across therapists, the results did not generalize across settings.

More recently, McGoey, Schneider, Rezzetano, Prodan, and Tankersley (2010) evaluated the GBG Plus Merit (GBG-PM) in three kindergarten classrooms using an ABAB design. The modifications consisted of a student(s) losing a sticker from a team poster for breaking the rules; however, if five students were praised for appropriate behavior, the sticker was returned to that team. Target behavior was antisocial behavior that included negative social engagement, off-task behavior, disobeying established rules, and engaging in a tantrum. The GBG-PM resulted in decreases of antisocial behaviors in two of the three classrooms. During baseline, antisocial behaviors averaged 34%, 21%, and 31% of the intervals in classrooms A, B, and C, respectively; implementation of the game resulted in decreases of the aforementioned behaviors to 13%, 11%, and 18% of the intervals, respectively. When the game was withdrawn, antisocial behaviors averaged
25%, 7%, and 28% of the intervals in classrooms A, B, and C, respectively. Upon reintroduction of the GBG-PM, antisocial behaviors averaged 10%, 4%, and 13% of the intervals in classrooms A, B, and C, respectively.

In addition to assessing the positive version of the GBG, studies have also been conducted to compare the two versions of the Game. Tanol, Johnson, McComas, and Cote (2010) used an ABACBC withdrawal design to compare the two versions of the GBG: GBG-response cost and GBG-reinforcement with six target students in two kindergarten classrooms. Rule following and rule violations served as student target behaviors, and praise and response to rule violations served as the teacher target behaviors. Although both variations of the Game decreased levels of disruptive behavior, the GBG-reinforcement resulted in slightly better effects. Rule violations in Classroom 1 occurred during approximately 50% of the intervals during baseline, 30% of the intervals during the GBG-response cost phase, 50% of the intervals during the withdrawal phase, 25% of the intervals during the GBG-reinforcement phase, 35% of the intervals during the second GBG-response cost phase, and 25% of the intervals during the second GBG-reinforcement phase. Rule violations in Classroom 2 occurred approximately 50% of the intervals during baseline, 15% of the intervals during the GBG-reinforcement phase, 50% of the intervals during withdrawal, 25% of the intervals during the GBG-response cost, 15% of the intervals during the second GBG-reinforcement phase, and 39% of the intervals during the second GBG-response cost phase. Anecdotally, teachers indicated that they preferred the positive version of the GBG as it resulted in a positive classroom environment (Tanol et al., 2010).
Another study that compared the two versions of the Game was conducted by Wright and McCurdy (2011). They utilized an ABAC design to compare the effects of a positive variation of the GBG, the Caught Being Good Game (CBGG), with the traditional version of the game with kindergarten and fourth-grade students. Disruptive and on-task behaviors were targeted. During the CBGG the teacher scanned the class on a variable interval schedule to establish if students were on-task or off-task. If each team member was on-task, that team(s) was awarded a point. The ABAC design was counterbalanced across each class. The GBG resulted in increased on-task behavior and decreased disruptive behavior in the kindergarten class. The CBGG also resulted in decreased disruptive behavior; however, the mean level of on-task behavior was lower when compared to the GBG phase (78% vs. 88% of intervals). Although both GBG and CBGG resulted in similar levels of decreased disruptive behavior in the fourth grade class, the results for on-task behavior were better during the CBGG (95%) when compared to the GBG (87%). Each variation of the game was rated acceptable by both the teachers and the students, with the CBGG being rated as slightly more acceptable by the kindergarten teacher and the GBG being rated as slightly more acceptable by the fourth grade teacher.

The first study utilizing a positive version of the GBG in the secondary setting was conducted by Lynne (2014). Lynne (2014) evaluated the effects of the GBG on reducing disruptive behavior and increasing appropriate behavior utilizing an ABAB withdrawal design with a multiple baseline element across three classrooms. Each class was divided into two teams and earned a point each time the whole team(s) exhibited appropriate behavior. If one team earned more points than the second team or when each
team reached a set criterion, rewards were provided to that team(s). The positive variation of the GBG resulted in improved classroom behavior. During baseline, Classrooms A, B, and C’s disruptive behavior averaged 27%, 39%, and 28% of the intervals, respectively. The GBG resulted in an average of 10%, 23%, and 9% of the intervals with disruptive behavior in the three classrooms, respectively. Withdrawal and reimplementation produced similar results to the baseline and the GBG phases, respectively (Lynne, 2014).

Lynne (2016) extended her initial study by utilizing an ABAB withdrawal design to evaluate the effectiveness of the positive variation of the GBG using Class Dojo (www.classdojo.com) on reducing student disruptive behavior and increasing academic engagement. Participants included students and teachers of two fourth-grade and one first-grade classrooms. In addition to observing student behaviors, Lynne (2016) also observed the levels of teacher praise. The teachers divided their classes into teams and awarded a team(s) with a Class Dojo point displayed on an interactive whiteboard if an entire team displayed on-task behavior. Upon reaching a pre-set criterion of points, the winning team(s) had access to rewards. Classrooms A, B, and C engaged in disruptive behavior during an average of 36%, 30%, and 28% of intervals, respectively, during baseline. Implementation of the GBG with Class Dojo resulted in 11%, 18%, and 5% of intervals with disruptive behavior in the three classrooms, respectively. Withdrawal and reimplementation of the Game resulted in similar levels of disruptive behavior found in the baseline and the GBG phases, respectively. Academic engagement averaged 53%, 61%, and 63% of the intervals in Classrooms A, B, and C, respectively, during baseline. The Game resulted in an average of 88%, 80%, and 92% of the intervals with academic engagement in the three classrooms, respectively. Withdrawal and reimplementation of
the intervention produced similar levels of academic engagement found in the baseline and the GBG phase. Additionally, teacher praise was increased for two of the three teachers, and the intervention was rated acceptable by all three teachers (Lynne, 2016). Lynne (2016) also noted that Class Dojo was possibly perceived as more attractive by teachers, as they expressed that the notion of integrating technology into instruction was favorable. Although both studies by Lynne (2014, 2016) utilized positive versions of the GBG, which resulted in improved behaviors, adding Class Dojo into the intervention may also reduce teacher response effort, thereby increasing teacher acceptability of the intervention.

Maintenance

Although the effectiveness of the GBG has been demonstrated multiple times, except for Dadakhodjaeva’s (2015) unpublished thesis no research has assessed whether withholding the game’s components while retaining rule-reviewing maintains improved behavior. Cooper, Heron, and Heward (2007) refer to maintenance as “response maintenance,” and define it as “the extent to which a learner continues to perform the target behavior after a portion or all of the intervention responsible for the behavior’s initial appearance in the learner’s repertoire has been terminated” (p. 615). Horner and Billingsley (1988) define maintenance as “a stimulus control relationship that is stable or consistent across time” (p. 197). Very few studies have evaluated maintenance of treatment effects, and researching it has been overlooked (Carr et al., 1999). Maintenance of treatment effects is usually assessed during a follow-up phase several weeks after the treatment phase (Carr et al., 1999), and more research is required to assess whether withholding some of the treatment components is effective at maintaining behavior.
Three potentially appropriate designs for the evaluation of response maintenance have been proposed: sequential-withdrawal, partial withdrawal, and partial-sequential withdrawal (Rusch & Kazdin, 1981). The sequential withdrawal design requires one component of a treatment to be withdrawn first, followed by the withdrawal of a second component, and so on, until all of the components have been withdrawn. The partial withdrawal design requires one or all of the components of a treatment to be withdrawn from only one of the baseline panels in a multiple baseline design (i.e. a component of an intervention for student A is withdrawn while students B and C continue with all of the components of the intervention). Finally, the partial-sequential design requires a part or all of the intervention to be withdrawn from one of the baselines in a multiple baseline design, followed by withdrawal from a second baseline, and so on (Rusch & Kazdin, 1981). Barnett, Daly, Jones, and Lentz (2004) suggested that the systematic or partial withdrawal design can be utilized to examine the maintenance of intervention effects because of the design’s ability to demonstrate whether treatment effects are maintained if an element of a treatment package is withheld.

One of the studies that utilized a sequential withdrawal design assessed maintenance of acquired skills by withdrawing elements of the treatment package after teaching preschoolers with disabilities independence skills (Sainato, Strain, Lefebvre, & Rapp, 1990). The treatment package included reinforcement, matching teacher observations with preschoolers’ observations, and preschoolers’ self-assessments. Upon demonstration of skill acquisition by the preschoolers, two elements of the treatment package (i.e. reinforcement and matching teacher observations) were first withdrawn. The use of only self-assessments demonstrated maintenance of independence skills.
A partial withdrawal design was utilized by Vogelsberg and Rusch (1979) to evaluate the maintenance of street crossing skills with three adolescents with severe physical disabilities (as described in Rusch & Kazdin, 1981). The researchers used instructions, feedback, and practice to teach street crossing skills. During a partial-withdrawal phase, feedback was eliminated with one student. Street crossing skills were maintained using only instructions and practice; however, there was a decrease in frequency in one of the four acquired skills (i.e. looking). Because looking skills decreased in one student, the researchers introduced behavioral rehearsal and modeling for the remaining two students, which resulted in maintenance of all the acquired skills (as described in Rusch & Kazdin, 1981).

Finally, one of the studies with the use of a partial-sequential design was utilized to first teach target preschoolers’ peers peer-initiation interventions, and then systematically fade the intervention components to assess target students’ social interactions (Odom, Chandler, Ostrosky, McConnell, & Reaney, 1992). Specifically, a teacher first trained the peers on the intervention and provided prompts, which was followed by the addition of visual feedback. Then, verbal prompts were faded and the visual feedback remained in place. Next, visual feedback was faded, which was finally followed by a maintenance phase with no prompts or feedback. Systematic fading of the prompts and visual feedback with the peers resulted in the target students’ maintenance of social interaction at the levels found during the full intervention (Odom et al., 1992).

The majority of the research evaluating behavior maintenance has utilized fading procedures. Fading usually refers to gradually removing an intervention or reinforcement while behavior is maintained. Cooper et al. (2007) define stimulus fading as “a procedure
for transferring stimulus control in which features of an antecedent stimulus…
controlling a behavior are gradually changed to a new stimulus while maintaining the
current behavior” (p. 695). Rock and Thead (2007) trained students on a self-monitoring
intervention to increase academic engagement, productivity, and accuracy, and then
assessed maintenance by fading treatment. The experimenters utilized an ABABC
withdrawal design and conducted 5 fading phases within the last fading component.
Within the last phases, the students’ use of a self-monitoring recording sheet was reduced
gradually until they were no longer used. The students’ behaviors were generally
maintained above baseline levels; however, fading procedures did not result in
maintenance of the same levels of behaviors found during the intervention (Rock &
Thead, 2007).

multiple baseline design to evaluate the effects and maintenance of the GBG in three
kindergarten classrooms with one target student in each classroom. The GBG was
conducted as originally proposed by Barrish et al. (1969). Classwide and target student
disruptive and academically engaged behaviors were observed. The GBG resulted in
significant improvements of both classwide disruptive and academically engaged
behaviors. Results for the target students were less pronounced; however, when
compared to baseline levels, the GBG resulted in less variability and improved behaviors.

During the maintenance phase (phase C), the GBG was played two to three times
per week, while the rest of the days the teacher merely reviewed the behavioral rules that
were in place during the game. During the days when the GBG was not played, the
students were not divided into teams, marks were not provided, and rewards were not
distributed. Results indicated that the effects of the GBG were maintained with similar levels of behavior seen during the intervention phase. Although the GBG clearly improved the students’ behaviors, the overall average rating of acceptability of the GBG was modest for the teachers, with the exception of the rating of the time of effectiveness (i.e. time required for the GBG to produce treatment effects), which was rated as acceptable by two of the teachers. Upon further questioning, the teachers indicated that they would be willing to continue with the implementation of the GBG if they played it one time at the start of the week and withheld the portions of the GBG during the rest of the week. Therefore, more research is needed on the evaluation of the effects, maintenance, and social validity of the GBG when its usage is faded further beyond two to three times per week (i.e. once per week) following the intervention phase.

Class Dojo

Another strategy that has been gaining popularity among school districts and researchers involves the use of technology and the internet in conjunction with classroom management procedures. Class Dojo is a free internet application that provides teachers with opportunities to track student behavior and to provide immediate feedback via animations and sounds in order to improve student behavior. The animations are displayed on an interactive whiteboard, projector, or computer. Each student is assigned an avatar (i.e. the animation) and can either earn a reward point or lose a reward point depending on exhibiting appropriate or problem behavior. Class Dojo can be used as a progress-monitoring method for student behavior, as well as a strategy to share a certain student’s behavior with parents.
To start utilizing Class Dojo, teachers simply create a free account, list their students’ names, and individualize their page to address specific behavioral needs of their class. Specifically, teachers might choose to reward their students with specific positive statements (e.g., *Great job raising your hand*) and feedback statements (e.g., *Got up without permission*). In addition to teachers tracking their class’ behavior and providing immediate feedback on student behavior via a display or a whiteboard, Class Dojo allows the teachers to assign points using their mobile phone application, making the process easy and reducing interference with instruction, as the teachers can move around the classroom freely.

Although Class Dojo is free of cost, easy to use, and provides a great foundation for classwide and individual student behavioral data collection, limited research has been conducted to assess its effects with students. In an unpublished master’s thesis, Johnson (2012) utilized an ABAB design to evaluate the effectiveness of Class Dojo and another new technology in a self-contained classroom on reducing five special education students’ off-task behavior during language and mathematics. The second technology used consisted of “clickers,” which were used by students to answer multiple choice questions, subsequently obtaining visual feedback on a projection board. While the teacher tracked on-task and off-task behavior via Class Dojo throughout all phases, the use of “clickers” was introduced only during the intervention phases (i.e. phases B). Off-task behavior and academic engagement in language class were improved during the intervention phases; however, reimplementation of the intervention in math class did not produce similar high rates of on-task behavior as seen in the initial implementation.
Some of the limitations of the study consisted of ambiguity regarding the use of Class Dojo as an intervention as it was utilized during each phase; thus, comparison between baseline and intervention phases was not possible. Additionally, it is unclear whether the students received feedback or were aware of Class Dojo. Finally, interobserver agreement and integrity data were not collected, which posits a major threat to the internal validity of the results.

Another study with Class Dojo was conducted by Maclean-Blevins and Muilenburg (2013), who used an AB design to evaluate the program’s effectiveness on increasing on-task and decreasing negative learning behavior in a third-grade classroom. Students were provided with Class Dojo points for displaying on-task or appropriate behaviors. In addition, independent observers coded 10 appropriate and inappropriate behaviors of the students. The classroom was observed prior to the intervention and after three weeks of the intervention use and the percent change in mean frequency of behaviors was reported.

Student behaviors improved considerably, and the students reported enjoying the intervention. Nevertheless, there were major limitations within the study. Only one classroom participated in the study, which notably hinders the generalization of the results. Operational definitions of the 10 dependent variables were not provided, which potentially limits internal validity and adds to the difficulty of future replications. Additionally, interobserver agreement and integrity data were not obtained, also posing potential limitations to internal validity. Finally, the design of the study (AB design) does not allow attribution of treatment effects to the intervention, nor is able to rule out various threats to internal validity.
As reviewed previously, Lynne (2016) successfully utilized Class Dojo with a positive variation of the GBG to considerably increase academic engagement and decrease disruptive behavior with first- and fourth-graders. Given that Lynne’s results were consistent with previous studies on the effectiveness of the GBG without the use of Class Dojo, implementing the GBG using Class Dojo might reduce teacher response effort (i.e. teacher does not write student names on the board, does not walk to a board to assign points, and can use a phone to assign points). Using Class Dojo might also be perceived as more appealing for students as their teams are assigned avatars (animations). Additionally, students receive an audio signal for every assigned point, which may add to the reinforcing component of the points after being paired with praise.

More recently, Dillon (2016) evaluated the effectiveness of the Class Dojo with a group contingency procedure, Tootling, to decrease disruptive behavior and increase academic engagement in fifth-grade classrooms. Tootling is a positive peer reporting intervention that consists of observing peers and recording positive peer behaviors on note cards, which are then read aloud by the teacher. To access reinforcement as a group, students need to reach a certain number of tootles. Dillon (2016) modified Tootling by having students record peer prosocial behaviors using the Class Dojo and publicly posting tootles on an interactive white board. Implementing Tootling with the Class Dojo produced substantial improvements in disruptive and academically engaged behavior in all three classrooms. Lynne (2016) and Dillon (2016) extended the Class Dojo literature base and addressed the limitations of previous studies by implementing sound single-subject methodology/designs, and including interobserver agreement data, treatment integrity data, and social validity data.
Purpose of the Present Study

The literature provides evidence that the GBG is an effective group contingency intervention that has been successful in decreasing disruptive behaviors and increasing appropriate behaviors in many different settings (Tingstrom et al., 2006). Additionally, the GBG integrates well into a PBIS framework; however, a majority of the studies evaluating the effectiveness of the GBG have focused on the utilization of the traditional GBG, which consists of providing students with marks for rule violations or exhibiting problem behaviors. Marking instances of and providing feedback on undesired behaviors might inadvertently increase negative teacher statements and provide no opportunities for praising desired, alternative behaviors. A useful strategy that does provide teachers with the opportunity to teach and promote appropriate student behavior is using a positive variation of the GBG. The latter strategy might help teachers to scan the class and identify students who are engaging in appropriate behaviors, subsequently increasing praise rates and encouraging a positive classroom environment. Studies using a positive variation of the GBG have found that it can be used effectively to decrease disruptive behavior, improve academic and social engagement, increase compliance, and even improve oral hygiene.

Although positive variations of the GBG have resulted in clear improvements in student behavior, few methodologically sound studies have examined its effectiveness in conjunction with Class Dojo, with the exception of Lynne (2016), and no peer-reviewed studies have assessed the positive variation of the GBG using Class Dojo with middle school students. Class Dojo may reduce teacher response effort, as well as be more appealing to students. Additionally, maintenance of the GBG effects has only been
evaluated in one unpublished master’s thesis (Dadakhodjaeva, 2015). Further fading the intervention might improve teacher implementation due to reduction of teacher response effort and provide evidence for continuation of improvements in behavior while gradually withdrawing the intervention. Therefore, the purpose of the present study was to evaluate the effects and maintenance of a positive version of the GBG using Class Dojo on increasing academically engaged behavior, reducing disruptive behavior, and its effects on passive off-task behavior in middle school classrooms. In addition, the social validity of the procedures was also assessed with students and their teachers.

Research Questions

The following research questions were investigated:

1. Will a positive variation of the Good Behavior Game using Class Dojo be effective in increasing classwide academically engaged behavior in middle school students?

2. Will a positive variation of the Good Behavior Game using Class Dojo be effective in decreasing classwide disruptive and passive off-task behaviors in middle school students?

3. If a positive variation of the GBG using Class Dojo is effective at increasing classwide academically engaged behavior, will the effects be maintained during maintenance phases?

4. If a positive variation of the GBG using Class Dojo is effective at reducing classwide disruptive and passive off-task behaviors, will the effects be maintained during maintenance phases?
5. Will a positive variation of the GBG using Class Dojo be perceived socially valid and acceptable by teachers and students in middle school classrooms?
CHAPTER II – METHOD

Participants and Settings

The participants included students and teachers of three sixth-grade middle school classrooms using PBIS located in a southeastern state with a population of 302 students, including 54% female students, 46% male students, 91% African-American students, 4% Caucasian students, 4% Hispanic students, and 1% Asian and Pacific Islander students. All of the students were receiving free lunch. The school was transformed from an elementary school setting into a middle school academy before the start of the current academic year; therefore, the previous year’s School-Wide Evaluation Tool (SET) data were examined. The SET is an assessment tool used to evaluate implementation of positive behavior supports (Horner et al., 2004) with scores ranging from 0-100. The following guidelines are used to determine whether a school is considered to be: not targeted/started (0-50), in the planning phase (50-80), and in the implementation phase (80 or above) of PBIS. Due to the school’s transformation from an elementary to a middle school setting, only the previous year’s SET score was available, which was 91.8 (implementation/maintenance phase).

Three classrooms were referred for participation by school administration for low levels of academically engaged behavior and/or high levels of disruptive behavior. The primary researcher served as the consultant for all three classrooms. Teacher consent for classroom participation, parent consent for student perceptions of intervention acceptability, and child assent for perceptions of acceptability were obtained prior to data collection (Appendices A, B, and C). All materials and procedures of the study were
approved by a university-based Human Subjects Protection Review Committee (see Appendix D).

The primary researcher approached the teachers regarding participation in the study, and the classrooms were screened for inclusion. Prior to screening, each teacher completed a teacher demographics form (Appendix E). Additionally, the primary researcher interviewed each teacher via the Problem Identification Interview (PII) (Appendix F; Kratochwill & Bergan, 1990) regarding student problem behaviors, following which the primary researcher and the teachers determined the target behaviors to be observed and operationally defined. A screening observation was then conducted to ensure that selected classrooms were appropriate for the study and that academically engaged behavior occurred during less than 70% of observation intervals.

The teacher in Classroom A was a Caucasian female with a Bachelor’s degree in her first year of teaching. She taught Project Lead the Way (PLTW) class, which focuses on different aspects of engineering (e.g., designing and creating robots and simple mechanical projects). The class activities during observations consisted of watching videos of designing items and consequent involvement in hands-on designing of items. Classroom A consisted of 22 African American students. Of those students, 11 were female. Teacher A reported having nine students with Individualized Education Plans (IEPs) in her class. The eligibility categories for those nine students included Specific Learning Disabilities (reading comprehension, written expression, reading fluency, math computation), Other Health Impairment (Attention Deficit/Hyperactivity Disorder), autism, Speech and Language Impairment (impaired articulation, language impairment), and Emotional Disturbance. Teacher A indicated that the students in her classroom
frequently engaged in talking out, being out of seat, and playing with objects during instruction time.

The teacher in Classroom B (Science) was a Caucasian male with a Bachelor’s degree in his first year of teaching. The class activities during observations remained consistent throughout the study and involved teaching a curriculum. Classroom B consisted of 15 African-American students, 1 Asian student, 1 Caucasian student, 1 Hispanic student, and 1 Pacific Islander student. Of those students, 12 were females. Teacher B reported that none of the students in his classroom had IEPs for special education concerns. Teacher B indicated that the students frequently engaged in shouting answers, talking back, excessive talking, getting up without permission, and being off-task during instruction time.

The teacher in Classroom C was an African-American female with an Education Specialist degree in Higher Education and had eight years of teaching experience. She also taught Science. Classroom activities during observations were consistent throughout the study and consisted of teaching a curriculum. Classroom C consisted of 18 African-American students and 1 Hispanic student with no IEPs in place. Of those students, 11 were female. Teacher C indicated that the students in her classroom frequently spoke without permission, had difficulty following directions, and were off-task.

Materials

Teacher materials used for the project included a computer equipped with the Class Dojo program, a projection screen visible to the class, a smart phone, a GBG script, a maintenance script, a rules poster, a container with slips of paper containing names of the rewards, and a rewards box. The GBG script consisted of rules and procedures of the
game and was used by the teacher to introduce and implement the intervention as intended (Appendix G). The maintenance script consisted of the procedures that the teachers used during the non-game days (Appendix H). Teachers used a computer and a smart phone to keep track of student behavior and award points, which were displayed on a projection screen. A rules poster was developed for each classroom after teacher consultations and consisted of the behavioral expectations in accordance with PBIS expectations and target behaviors. The teachers and primary researcher generated a rewards menu, which was then assessed for student preference via voting. Highest voted rewards were written on small slips of paper, placed in a container, and drawn contingent upon a team(s) winning the game. The primary researcher provided the teachers with the script, rules poster, container with slips of paper, and rewards box.

The Problem Identification Interview Form (PII) (Appendix F; Kratochwill & Bergan, 1990) was utilized during the initial teacher interview. The PII facilitated the identification of the most disruptive behaviors in the class. The PII has no reported psychometric properties; however, it is widely used as a behavioral consultation instrument (Zuckerman, 2005).

Social Validity

The Behavior Intervention Rating Scale (BIRS) (Appendix I; Elliot & Treuting, 1991) was used to evaluate the social validity of the intervention by the teachers. The BIRS was provided to Teachers B and C on the final day of data collection. Teacher A withdrew from the school before the completion of the study; therefore, her perceptions of the intervention could not be obtained. The BIRS is a 24-item Likert scale questionnaire (1 = strongly disagree and 6 = strongly agree), which includes items related
Scores range between 24 and 144, with higher scores representing a higher acceptability rating. The BIRS has high internal consistency ($\alpha = .97$) and good content and construct validity (Elliott & Treuting, 1991). Additionally, Acceptability, Effectiveness, and Time of Effectiveness factors have alpha coefficients of .97, .92, and .87, respectively (Elliott & Treuting, 1991).

The Children’s Intervention Rating Profile (CIRP) (Appendix J; Witt & Elliott, 1985) was used to evaluate student acceptability of the GBG. Students in Classrooms B and C were provided with parental consent forms after the final day of data collection and told to have their parents read and sign the forms (Appendix B). Students were told that they would receive rewards for returning the signed forms to the teacher (whether with or without parental permission). Five students in each classroom returned the signed forms, subsequently completing the CIRP upon signing the child assent forms (Appendix C).

The CIRP is a 7-item scale that includes items related to child perceptions of acceptability. The items are rated using a 6-point Likert-scale and higher ratings suggest higher acceptability. The CIRP has a reported alpha coefficient of .89 (Witt & Elliott, 1986).

**Dependent Variables**

Academically engaged behavior (AEB) served as the primary dependent variable. Academically engaged behavior was defined as orienting eyes toward the classroom teacher when directions and/or instructions are provided, talking with the teacher about relevant topics or activities, and/or engaging appropriately in classroom discussions and
activities. The definition of AEB was based on and adapted from Hunt (2012) and Hawken and Horner (2003).

Disruptive behavior and passive off-task behavior served as secondary dependent variables. Specific disruptive behaviors were identified during teacher consultations prior to data collection and included talking out, getting out of seat, and playing with objects. Talking out was defined as any verbalization made without teacher permission (e.g., speaking, singing, yelling, humming). Getting out of seat was defined as a student’s buttocks breaking contact with the designated seating surface. Playing with objects was defined as manipulating any item not related to the class assignment, manipulating an item in a manner not consistent with what it was designed for, or throwing an object. The definitions of disruptive behaviors were based on and adapted from Hunt (2012).

Passive off-task behavior was defined as any inattentive behavior, including breaking eye contact with academically-relevant materials, placing one’s head on the desk, and fixing one’s eyes on academically-irrelevant stimuli. Including passive off-task behavior as a target behavior assisted in capturing the entire possible array of student behavior and evaluating the effects of the intervention on all student behaviors (i.e. academic, disruptive, and off-task).

Observation Procedures and Data Collection

Observations were conducted by the primary researcher and trained graduate students during the referred (i.e. most problematic) class periods four times each week. The observations took place during classroom activities that lasted at least 20 minutes. A 10-second momentary time sampling method of observation was utilized to record
academically engaged behavior, disruptive behavior, and passive off-task behavior (Appendix K). An audio recording was used to cue the observers of changes in intervals.

Observers used an individual-fixed observation procedure to generate an estimation of the entire class’ behavior. During an individual-fixed observation procedure, the order in which students were observed was pre-determined and fixed, and observers scored the behavior of a single student during each interval (Briesch, Hemphill, Volpe, & Daniels, 2014). Specifically, the first student was momentarily observed, and a mark was placed in the relevant box of the observation sheet for any occurrence of academically engaged behavior, disruptive behavior, or passive off-task behavior. A second student was observed for the second interval, followed by a third student, followed by a fourth student, etc. until all students were observed, after which the observation continued again with the first student until the end of the observation period. Each observation day, the students’ academically engaged behavior, disruptive behavior, and passive off-task behavior data were each collapsed, and total percentages of intervals were graphed to represent the classroom. The percentage of intervals of occurrence of each dependent variable was calculated by dividing the total number of intervals of occurrence by the total number of intervals and multiplying this number by 100.

Experimental Design and Data Analysis

The present study utilized an ABC multiple baseline design across two classrooms with a third classroom nonconcurrently with a GBG phase (Phase B) followed by two maintenance phases (Phases C1 and C2). The study was originally designed as a multiple baseline design, which was implemented across three classrooms; however, after a few baseline observations, one of the classrooms was terminated from the study due to
implementing different activities each observation day (i.e. watching a video, computer reading game, whole class discussion). Therefore, a different third classroom was recruited, which screened into the study by having low levels of classwide academically engaged behavior after a screening observation. Baseline data collection (Phase A) began on the same day for Classrooms A and B and a few days later for Classroom C.

Given that the primary purpose of the study was to evaluate the effects of the intervention on academically engaged behavior, phase change decisions were based on classwide academically engaged behavior. Baseline data were collected until a relatively stable level and/or decreasing trend in academically engaged behavior was observed. Once there was stability or a decreasing trend in academically engaged behavior in the baseline phase in Classroom A, the GBG was implemented in Classroom A, while Classrooms B, and C remained in the baseline phase.

Upon implementation of the game, treatment effects were analyzed for trend, level, variability, immediacy of effect, and non-overlap. Once there was a clear treatment effect in Classroom A, the GBG was implemented in Classroom B and the GBG continued in Classroom A. Once there was a clear treatment effect in Classroom B, the GBG was implemented in Classroom C, while Classrooms A and B continued the GBG phase. Upon the implementation of the GBG in Classroom C and obtaining treatment effects, the first maintenance phase (Phase C1) started in Classroom A (i.e. GBG in place two times per week rather than every day). Effects of the first maintenance phase on students’ behavior were monitored, and the procedures for introducing this phase to Classrooms B and C were conducted in a similar order as for introducing the GBG. Upon demonstration of treatment and maintenance effects in Classroom C, the second
maintenance phase (Phase C2) was introduced to Classroom A – instead of playing the GBG two times per week, the teachers played the Game once per week. Introduction of the second maintenance phase to the remaining classrooms was identical to the aforementioned procedures of introduction of the GBG and the first maintenance phases.

In order to evaluate treatment effects, in addition to visual analysis, effect sizes were also calculated. Specifically, Tau-U (Parker, Vannest, Davis, & Sauber, 2011) was utilized, which combines nonoverlap between baseline and treatment phases and takes into account trend in baseline (Parker et al., 2011). Tau-U offers a comprehensive index of change between baseline and treatment phases and does not include artificial ceilings (Parker et al., 2011). In a recent research article, Vannest and Ninci (2015) suggested the following guidelines for Tau-U effect size interpretations: a score of 0.20 is considered a small effect, scores from 0.20 to 0.60 are considered moderate effects, scores from 0.60 to 0.80 represent large effects, and scores above 0.80 are considered large to very large effects.

Procedures

*Screening*

Upon obtaining teacher consent and consultation with teachers, classrooms were observed for potential participation during the referred classroom periods. There was no intervention nor planned contingencies in place for the dependent variables during screening. Participation requirements included the classroom demonstrating academically engaged behavior in less than 70% of the observation intervals to prevent potential ceiling effects. All referred classrooms met the screen-in criterion.
Baseline

The screening observation served as the first baseline datum. A baseline phase occurred during the same classroom periods, and there were no planned contingencies for the target behaviors. Teachers were instructed to manage their classroom in their typical manner, using the available reinforcement and consequent procedures. Baseline procedural integrity observations were conducted during all of the baseline sessions to ensure that no components of the GBG were in place (Appendix L). Teachers randomly scanned their class and marked the instances of academically engaged behavior of the class on a sheet of paper (on a clipboard), without the students’ knowledge. Baseline levels of academically engaged behavior were reviewed by the primary researcher and the teacher in order to identify the behavioral criterion (i.e. number of points to win).

Teacher Training

The primary researcher trained the teachers on the steps of the intervention subsequent to baseline. Training entailed examining the GBG script, modeling the steps, role-playing, and providing performance feedback (Appendix M). Additionally, the primary researcher assisted the teachers on the creation of the Class Dojo account and its use. Implementing the GBG was practiced with the teachers and the primary researcher until 100% integrity was achieved. Praise for implementation and corrective feedback for missed steps were provided to the teachers during and after the first implementation of the GBG with the classroom, as well as after each implementation of the game with any missed steps.

The behavioral criterion for winning the GBG was determined upon reviewing the teachers’ baseline marks of academically engaged behavior. To determine the criterion,
the team factor (two teams per classroom) was accounted for by dividing the mean number of marks in half. The criterion for each class was set approximately 20% above the number of marks. Classroom A was assigned a criterion of 4 marks per team, Classroom B was assigned a criterion of 6 marks per team, and Classroom C was assigned a criterion of 8 marks per team.

Preference Assessment and Reward Determination

Prior to the intervention phase, the teacher used the rewards menu with a list of prizes (i.e. snacks, candy, computer time, homework passes, bonus points, etc.) to acquire a list of the class’ highest rated preferences. Specifically, the teachers read the reward names to their students, who were instructed to raise their hands to show their preference to each desirable item. The teacher counted the number of raised hands for each item sequentially and wrote the number next to that item’s name on the rewards menu. Across the three classrooms, the highest rated items consisted of chocolate candy, hard candy, chewing gum, bonus points, listening to music, and homework passes. The primary researcher provided the teachers with all tangible items. The names of the highest rated items were written on small slips of paper and placed in a container. At the end of each intervention session and upon a team(s) winning the game, a teacher drew a slip of paper with a reward for that day, and a winning team(s) had access to that reward immediately after the intervention.

GBG

Following baseline, the teachers introduced the GBG procedures to the students using the GBG script (Appendix G). The teachers reviewed each behavioral rule and gave examples of each to the class. The teachers then divided the students into two teams,
shared the pre-set criterion with the class, and explained that they would be randomly scanning the teams for rule-following and that a team that follows the rules would earn a point. The teachers informed the students that to receive a reward, the teams had to either earn the most points or reach or exceed the pre-set criterion. The teachers randomly scanned the teams’ behaviors. To provide positive feedback on the students’ behavior, the teachers used Class Dojo statements that were displayed via a projector: each time a team followed a rule that team received a rule-specific statement (e.g., “Raising hand” or “Staying on-task”). Each time teachers provided a team with a point, an audio signal (i.e. beep) from the Class Dojo application sounded. At the end of the game, teachers tallied Class Dojo points and announced the winner(s), who received access to rewards. Teachers were provided with a treatment integrity checklist (Appendix N) to help ensure all the steps of the intervention were implemented as intended.

**Maintenance**

The first maintenance phase was introduced to the classrooms following obtaining treatment effects of the GBG and relative stability. Teachers were provided with a script and an integrity checklist for maintenance procedures (Appendices H and O). During the first maintenance phase, teachers were instructed to implement the GBG two days per week – in the same manner as in the GBG phase. The days when the GBG was played were randomized by the researcher so that the students did not know when they would play the Game. The primary researcher notified the teachers of the days the GBG was or was not to be played. On days when the GBG was not played, the students were not divided into teams and the teachers stated to the class that they would not play the GBG that day but that they might play the following day. The teachers did, however, review
the rules that were in place during the GBG with the students; however, no rewards were provided, nor points awarded.

Upon demonstration of intervention and maintenance effects, the second maintenance phase began. During this phase, the GBG was played randomly one day per week and the primary researcher notified the teachers of the day the GBG was to be played.

**Interobserver Agreement**

Trained school psychology graduate students were recruited to conduct behavioral observations by the primary researcher. Observers were provided with behavioral definitions of target behaviors as well as the observation forms (Appendix K). The primary researcher trained the observers until 90% or higher interobserver agreement (IOA) was achieved prior to data collection. If IOA fell below 80%, the observer was retrained. IOA was obtained for each classroom for a minimum of 25% of sessions in each phase. IOA was calculated by adding the total number of agreements for occurrence and nonoccurrence of academically engaged behavior, disruptive behavior, and passive off-task behavior between the two observers and dividing that number by the total number of intervals and multiplying by 100. IOA for procedural and treatment integrity was calculated by dividing the number of agreements of steps completed or uncompleted by the total number of possible steps.

For Classroom A, IOA was collected for 33% of baseline sessions, 30% of the GBG sessions, 33% of the Maintenance 1 sessions, and 50% of the Maintenance 2 sessions. IOA in Classroom A averaged 89.5% (range = 89% - 90%) during baseline, 95.6% during the GBG phase (range = 91.1% - 98.9%), 94.6% (range = 93.3% - 95.7%)
during the first maintenance phase, and 96.8% (range = 94.6% - 99.2%) during the second maintenance phase.

For Classroom B, IOA was collected for 25% of baseline sessions, 36.4% of the GBG sessions, 36.3% of the Maintenance 1 sessions, and 25% of the Maintenance 2 sessions. IOA in Classroom B averaged 88.8% (range = 85.8% - 91.7%) during baseline, 90.3% (range = 82.2% - 95.8%) during the GBG phase, 94.1% (range = 91.3% - 96.7%) during the first maintenance phase, and 92.5% (range = 90% - 97.8%) during the second maintenance phase.

For Classroom C, IOA was collected for 33.3% of baseline sessions, 37.5% of the GBG sessions, 40% of the Maintenance 1 sessions, and 28.5% of the Maintenance 2 sessions. IOA in Classroom C averaged 93.35% (range = 92.5% - 94.2%) during baseline, 96.4% (range = 94.2% - 98.3%) during the GBG phase, 97.7% (range = 96.7% - 98.3%) during the first maintenance phase, and 93.6% (range = 90% - 98.3%) during the second maintenance phase.

Procedural integrity IOA was collected during teacher training. The percentage of IOA sessions for treatment integrity data collection was identical to that of IOA for target behaviors (range = 25% - 40% of sessions). IOA for procedural and treatment integrity was 100% during all of the observations sessions.

Additionally, Kappa values were calculated for agreement between observers for the dependent variables. The Kappa coefficient is a conservative measure of interrater agreement, which accounts for potential chance agreements (Sattler & Hoge, 2006). Kappa values less than .40 suggest poor agreement, values between 0.40 and 0.59 suggest fair agreement, values between 0.60 and 0.74 suggest good agreement, and values of 0.75
and greater suggest excellent agreement (Cicchetti, 1994). Kappa values for all three classrooms suggested excellent agreement between observers and averaged 0.87 for Classroom A, 0.83 for Classroom B, and 0.93 for Classroom C.

Procedural and Treatment Integrity

To ensure that the training procedures were reliable across all teachers, the primary researcher examined the procedural integrity checklist during the training while a trained graduate student simultaneously assessed procedural integrity (Appendix M). Procedural integrity was computed by dividing the number of correct steps by the number of total possible steps and multiplying by 100. Procedural integrity was 100% for all three teachers during training sessions.

The primary researcher and trained graduate students collected baseline integrity and treatment integrity data throughout all phases (Appendices L, N, and O). Baseline integrity data helped ensure that no components of the intervention were in place during baseline. All teachers demonstrated 0% integrity during baseline sessions. That is, no GBG procedures were in place. Treatment integrity was computed by dividing the number of correct steps by the number of total possible steps and multiplying it by 100. Treatment integrity was also evaluated during both maintenance phases using the treatment integrity checklists for the game days and non-game days (Appendices N and O). If treatment integrity fell below 80%, the primary researcher retrained the teachers on the missed steps.

Teacher A demonstrated 94.2% treatment integrity (range = 77.8% - 100%) during the GBG phase, 95.3% treatment integrity (range = 72.7% - 100%) during the first maintenance phase, and 98.4% treatment integrity (range = 90.9% - 100%) during the
second maintenance phase. Teacher B demonstrated 91.9% treatment integrity (range = 82% - 100%) during the GBG phase, 96.7% treatment integrity (range = 82% - 100%) during the first maintenance phase, and 98.2% treatment integrity (range = 80% - 100%) during the second maintenance phase. Teacher C demonstrated 95.6% treatment integrity (range = 83.3% - 100%) during the GBG phase, 98% treatment integrity (range = 80% - 100%) during the first maintenance phase, and 95.8% treatment integrity (range = 80% - 100%) during the second maintenance phase.
CHAPTER III - RESULTS

Classwide Effects

*Academically Engaged Behavior*

The percentage of intervals of classwide AEB across phases in each classroom is shown in Figure 1. Students in Classroom A (top panel) demonstrated AEB in 48.9% of the observation intervals (range = 35.8% - 60%) during baseline, with variability across the phase and a downward trend in the final sessions. Upon the introduction of the GBG, the percentage of intervals with academic engagement increased immediately to an average of 63.7% (range = 35.8% - 78.6%). With the exception of one session (GBG session 3), the levels of academic engagement were higher, more stable, and improving across the last four GBG sessions when compared to baseline. It should be noted that during session 3, Teacher A introduced the game to the students with an irate demeanor and used an unnecessarily loud voice to review the rules. Upon the introduction of the first maintenance phase, AEB remained at similar levels as in the GBG phase with an exception of one data point, and averaged 59.9% of intervals (range = 33.3% - 73.1%). It should be noted that the lowest percentage occurred during session 6 of the first maintenance phase during which the teacher introduced the game and reviewed the rules in a similar manner as in session 3 of the GBG phase. The primary researcher provided Teacher A with performance feedback and rationale for conducting the game in a pleasant manner after both sessions. Upon the introduction of the second maintenance phase, AEB remained stable and high, with an average of 63.2% of intervals (range = 61.1% - 64.6%). The final data point in Classroom A was the last day of school before the winter holidays. Teacher A withdrew from the school during the break, which
explains the lack of additional data and the shorter final phase when compared to Classrooms B and C (Figure 1).

Figure 1. Percentage of intervals with classwide behaviors.

Note. AEB = Academically engaged behavior, DB = disruptive behavior, and OTB = passive-off task behavior for Classroom A (top panel), Classroom B (middle panel), and Classroom C (bottom panel).
Students in Classroom B (middle panel) demonstrated AEB in 50.4% of the intervals during baseline (range = 36.7% - 65%), with variability in level and a decreasing trend. During the GBG phase, percentage of intervals with academic engagement immediately increased to an average of 67.9% (range = 56.7% - 76.2%) with an increasing trend. Upon the introduction of the first maintenance phase, AEB remained at a slightly lower but more stable level than during the GBG phase: 62.2% (range = 57.8% - 68.2%). Upon the introduction of the second maintenance phase, percentages of intervals as well as level and trend of AEB were similar to those in the GBG phase, with an average of 66.4% (range = 59.2% - 73%).

Students in Classroom C (bottom panel) demonstrated AEB in 58.9% of the intervals during baseline (range = 52.5% - 66.7%), with variability across the phase. Upon the implementation of the GBG, percentage of intervals with AEB immediately increased to an average of 84.2% (range = 80.3% - 89.2%), with high and stable levels evident throughout the phase. Introduction of the first maintenance phase resulted in slightly lower, yet stable levels of AEB when compared to the previous phase, with an average of 73.6% of intervals (range = 70% - 76.7%). The second maintenance phase resulted in similar levels of AEB as the first maintenance phase, with an average of 72.4% of intervals (range = 65% - 74.2%). Introduction of the GBG and both maintenance phases resulted in high levels and stable AEB.

Disruptive Behavior

The percentage of intervals of classwide disruptive behavior in each classroom is also depicted in Figure 1. Students in Classroom A (top panel) demonstrated disruptive behavior in 39% of the observation intervals (range = 28.3% - 53.3%) during baseline,
with a downward trend toward the end of the phase. Upon the introduction of the GBG, the percentage of intervals with disruptive behavior decreased to an average of 27.6% (range = 15.5% - 42.5%), with a downward trend throughout most of the phase. The levels of disruptive behaviors were lower compared to baseline levels. Upon the introduction of the first maintenance phase, the percentage of intervals with disruptive behavior remained at similar levels as during the GBG phase, with an average of 26.9% of intervals (range = 21.3% - 41.9%), with relatively low and stable levels with an exception of one session (see description of session 6 on page 38). The last maintenance phase resulted in a decreasing trend and low levels of disruptive behavior, which averaged 27.8% of intervals (range = 20% - 31.9%).

Students in Classroom B (middle panel) demonstrated disruptive behavior in 34.3% of the observation intervals (range = 24.1% - 46.7%) during baseline, with variability evident across the phase. Upon the implementation of the GBG, the percentage of the intervals with disruptive behavior decreased to an average of 26.4% (range = 17.7% - 38.9%), with lower levels and a decreasing trend across the phase. With the introduction of the first maintenance phase, the percentage of the intervals with disruptive behavior remained low and fairly stable with an average of 26.6% (range = 18.9% - 34.4%). When the second maintenance phase was introduced, disruptive behaviors were maintained at low and stable levels with a decreasing trend with an average of 22.6% of intervals (range = 12% - 33.3%).

Students in Classroom C (bottom panel) demonstrated disruptive behavior in 25.9% (range = 18.3% - 34.2%) of intervals during baseline, with variable levels across the phase. Upon the introduction of the GBG, the percentage of intervals with disruptive
behavior decreased abruptly to an average of 9.5% (range = 5.8% - 11.7%), with a stable level throughout the phase. When the first maintenance phase was introduced, average percentage of intervals with disruptive behavior was 16% (range = 11.7% - 19.2%), with lower and more stable levels of disruptive behavior when compared to baseline. The second maintenance phase resulted in a similar percentage of intervals of disruptive behaviors (15.9%; range = 12% - 23.3%), with similar stability.

**Passive Off-Task Behavior**

The percentage of intervals of classwide passive off-task behavior in each classroom is shown in Figure 1. Students in Classroom A (top panel) demonstrated passive off-task behavior in 14.5% of the observation intervals (range = 5.8% - 28.3%) during baseline, with an upward trend toward the end of the phase. Upon the introduction of the GBG, the percentage of intervals with passive off-task behavior decreased to an average of 8.2% (range = 3% - 14.2%), with stable levels and a decreasing trend except for one data point (see description of session 3 on page 38). The introduction of the first maintenance phase resulted in the percentages of intervals with passive off-task behavior similar to those during baseline, with an average of 12.9% (range = 5.4% - 24.7%), with some variability throughout the phase. It should be noted that the data point with the highest level of passive off-task behavior coincided with the day when the teacher conducted the game with an inappropriate demeanor (described previously). The last maintenance phase resulted in low levels of disruptive behavior, which averaged 8.8% of intervals (range = 4.4% - 16.7%); however, an increasing trend was evident at the end of the phase.
Students in Classroom B (middle panel) demonstrated passive off-task behavior in 17% of the observation intervals (range = 10% - 29.2%) during baseline, with an increasing trend toward the end of the phase. Upon the implementation of the GBG, the percentage of intervals with passive off-task behavior decreased immediately to an average of 5.8% (range = 2% - 10%) and remained low and stable across the phase. With the introduction of the first maintenance phase, the percentage of the intervals with passive off-task behavior remained low and stable, yet slightly higher with an average of 11.2% (range = 5.5% - 16.7%). When the second maintenance phase was introduced, passive off-task behaviors were maintained at low and relatively stable levels, with an average of 10.9% (range = 6.7% - 15.1%).

Students in Classroom C (bottom panel) demonstrated passive off-task behavior in 15.3% (range = 6.6% - 24.2%) of intervals during baseline, with variable levels and an increasing trend across the phase. Upon the introduction of the GBG, the percentage of intervals with passive off-task behavior decreased abruptly to an average of 6.3% (range = 2.5% - 9.2%), with stable levels and a decreasing trend near the end of the phase. When the first maintenance phase was introduced, average percentage of intervals with passive off-task behavior was 10.2% (range = 4.1% - 13.4%), with lower and more stable levels when compared to baseline. The second maintenance phase resulted in a similar percentage of intervals of passive off-task behaviors, which averaged 11.6% (range = 8.3% - 16.7%), with stable levels.

Classwide Effect Sizes. A weighted effect size (i.e. combined effect size) for AEB across all three classrooms was calculated for between phase comparisons. For the GBG’s effectiveness in increasing AEB from baseline to the GBG and from baseline to
the first maintenance phase, effect size estimates indicated overall large effects: \( \tau-U = 0.88 \) and 0.85, respectively. During the second maintenance phase, weighted effect size estimates across all classrooms from the baseline phase indicated very large effects: \( \tau-U = 0.94 \). Individual classroom effect sizes for classwide AEB are shown in Table 1.

Table 1

*Tau-U Effect Sizes for the GBG and Maintenance Phases*

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>GBG</th>
<th>GBGM1</th>
<th>GBGM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classroom A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AEB</td>
<td>0.73 (L)</td>
<td>0.75 (L)</td>
<td>1.00 (VL)</td>
</tr>
<tr>
<td>DB</td>
<td>0.69 (L)</td>
<td>0.83 (L)</td>
<td>0.86 (L)</td>
</tr>
<tr>
<td>OTB</td>
<td>0.64 (L)</td>
<td>0.15 (S)</td>
<td>0.51 (M)</td>
</tr>
<tr>
<td><strong>Classroom B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AEB</td>
<td>0.91 (VL)</td>
<td>0.82 (L)</td>
<td>0.89 (L)</td>
</tr>
<tr>
<td>DB</td>
<td>0.52 (M)</td>
<td>0.59 (M)</td>
<td>0.78 (L)</td>
</tr>
<tr>
<td>OTB</td>
<td>0.99 (VL)</td>
<td>0.67 (L)</td>
<td>0.69 (L)</td>
</tr>
<tr>
<td><strong>Classroom C</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AEB</td>
<td>1.00 (VL)</td>
<td>1.00 (VL)</td>
<td>0.95 (VL)</td>
</tr>
<tr>
<td>DB</td>
<td>1.00 (VL)</td>
<td>0.93 (VL)</td>
<td>0.93 (VL)</td>
</tr>
<tr>
<td>OTB</td>
<td>0.79 (L)</td>
<td>0.58 (M)</td>
<td>0.48 (M)</td>
</tr>
</tbody>
</table>

Note. GBG = Good Behavior Game, GBGM1 = first maintenance phase, GBGM2 = second maintenance phase, AEB = academically engaged behavior, DB = disruptive behavior, OTB = passive off-task behavior, S = small effects, M = moderate effects, L = large effects, VL = very large effects.

A weighted effect size (i.e. combined effect size) for disruptive behavior was also calculated for between phase comparisons. For the GBG’s effectiveness in decreasing disruptive behavior from baseline to the GBG, from baseline to the first maintenance phase, and from baseline to the second maintenance phase, effect size estimates indicated
overall large effects: $\text{Tau-U} = 0.72$, 0.78, and 0.85, respectively. Individual classroom effect size estimates for disruptive behavior are depicted in Table 1.

A weighted effect size (i.e. combined effect size) for passive off-task behavior in all three classrooms was calculated for between phase comparisons. For the GBG’s effectiveness in decreasing passive off-task behavior from baseline to the GBG phase, effect size estimates indicated large effects: $\text{Tau-U} = 0.81$. During the first and second maintenance phases, effect size estimates indicated moderate effects from baseline: $\text{Tau-U} = 0.47$ and 0.56, respectively. Individual classroom effect sizes for classwide passive off-task behavior are shown in Table 1.

Teacher and Student Acceptability

Following the last day of data collection, Teachers B and C completed the BIRS (Elliot & Von Brock-Treuting, 1991) to assess the social validity of the GBG. Due to Teacher A’s withdrawal from the school, she and her class were no longer participating. The overall average rating on the BIRS indicated positive perceptions of the intervention by the two teachers ($M = 4.69$; Slightly Agree). Averaging scores across factors indicated positive perceptions of social validity on the factors of acceptability ($M = 4.69$; Slightly Agree), effectiveness ($M = 4.35$; Slightly Agree), and time of effectiveness ($M = 4.5$; Slightly Agree).

The teacher in Classroom B rated the GBG as acceptable and effective (Average $= 4.92$, Acceptability $= 4.92$, Effectiveness $= 4.71$, and Time of Effectiveness $= 5.00$). The teacher in Classroom C rated the GBG as slightly acceptable and effective (Average $= 4.46$, Acceptability $= 4.46$, Effectiveness $= 4.00$, and Time of Effectiveness $= 4.00$).
Upon the completion of the study, five students in Classroom B and five students in Classroom C had returned parental consents for completing social validity rating forms. After child assents were obtained from those students, they were instructed to complete the CIRP (Witt & Elliott, 1985). Students in Classroom B rated the GBG using Class Dojo as an acceptable and effective intervention, with an average rating of 5.38 (Agree). Students in Classroom C also rated the intervention as acceptable and effective, with an average rating of 5.10 (Agree).
CHAPTER IV – DISCUSSION

Although the GBG has gained a strong reputation among researchers and practitioners for improving behavior, it has most often been used in its original form. Utilizing a modified, positive version of the Game has also proved to be effective for improving behaviors. However, no studies have assessed a positive version of the GBG in combination with Class Dojo, subsequently assessing the Game’s effects on behavior maintenance. Additionally, although middle school students generally demonstrate lower levels of academically engaged behavior (Marks, 2000), no peer-reviewed studies exist that have evaluated the effects of the positive version of the GBG using Class Dojo on the academically engaged behavior in middle school settings. Therefore, the present study sought to assess whether conducting the positive variation of the GBG using Class Dojo would have beneficial effects on middle school students’ academically engaged, disruptive, and passive off-task behaviors and whether improved behaviors would be maintained once some components of the Game were withheld.

A positive version of the GBG aligns well with PBIS, as it involves providing positive feedback or praise for appropriate behaviors. It also involves awarding points for appropriate behaviors, which might increase chances of teachers focusing on positive student behavior and providing positive feedback. Interventions that concentrate on appropriate behaviors might be more effective in increasing desirable behaviors, as positive statements produce better results within PBIS (Reinke et al., 2013). Therefore, evaluation of the positive variation of the GBG within the classroom settings is imperative.
Teacher implementation of the GBG using Class Dojo may require less response effort when compared to the teacher response effort of walking to the board to award each point, which is a consistent element of the original Game (as implemented in Barrish et. al, 1969). During the present study teachers carried their smart phones with the Class Dojo application, walked around class freely, and awarded Class Dojo points using their phones. Additionally, the Class Dojo application was visible to class via a projector and included team names with avatars (vs. team names written on a board). Furthermore, students were provided with both visual (i.e. Dojo points for raising a hand, staying on-task) and audio (i.e. beep) cues for engaging appropriately during class; thus, perhaps making the earned points more reinforcing.

In addition to using Class Dojo to implement the positive variation of the GBG, the present study also sought to assess whether behavioral improvements during the intervention phase would continue to be maintained during the two maintenance phases. Specifically, during the first maintenance phase, teachers implemented the Game randomly twice per week, while the rest of the days teachers merely reviewed the rules with class. During the second maintenance phase, teachers implemented the Game randomly only once per week and other days they again simply reviewed the rules. Withholding components of the Game on some days might reduce teacher response effort while concomitantly increasing treatment integrity. Additionally, withholding some components of the Game and reviewing rules that are in place during the intervention might be sufficient for the continuation of classwide behavioral improvements. Therefore, the present study evaluated the effects and maintenance of the positive
variation of the GBG using Class Dojo with middle school students. The following section describes the findings of the present study with regard to each research question.

Research Questions

Research Question 1

Research Question 1 asked whether a positive variation of the GBG using Class Dojo would be effective in increasing classwide academically engaged behavior in middle school classrooms. Classwide levels of academically engaged behavior increased immediately and substantially, were more stable, and generally had an increasing trend for all three classrooms. Additionally, conservative effect size estimates (Tau-U) indicated large effects for increasing academically engaged behavior. Utilization of technology (Class Dojo) did not appear to affect the GBG’s effectiveness and was demonstrated to be successful within the middle school classroom setting. The results suggest that the positive variation of the GBG using Class Dojo is an effective intervention at increasing middle school students’ academically engaged behavior, thereby affirming Research Question 1.

Research Question 2

Research Question 2 asked whether a positive variation of the GBG using Class Dojo would be effective in decreasing disruptive and passive off-task behaviors. The intervention resulted in decreased disruptive behaviors in all three classrooms, with lower and more stable levels when compared to baseline in all three classrooms, as well as decreasing trends for two classrooms (A and B). The weighted effect size estimates across classrooms revealed large effects. Additionally, the percentages of intervals with disruptive behavior were lower during the GBG phase when compared to baseline.
Passive off-task behavior also decreased in all three classrooms, with lower and more stable levels, as well as a decreasing trend in all classrooms when compared to baseline. The weighted effect size estimates across classrooms indicated large effects for passive off-task behavior. Additionally, passive off-task behavior percentages were smaller during the GBG phase when compared to baseline. The effectiveness of the positive variation of the GBG using Class Dojo on decreasing middle school students’ disruptive and passive off-task behavior was demonstrated with large effects, thus affirming Research Question 2.

**Research Question 3**

Research Question 3 asked whether the effects of the positive variation of the GBG using Class Dojo on academically engaged behavior would be maintained during the maintenance phases. The first maintenance phase resulted in slightly lower levels of academically engaged behavior when compared to the GBG phase; however, they were higher and more stable when compared to baseline (with an exception of one data point in Classroom A). The obtained weighted effect size estimates revealed large effects for academically engaged behavior across all three classrooms.

During the second maintenance phase, levels of academically engaged behavior were maintained at high and stable levels. It should be noted that the weighted effect size estimates were very large during the second maintenance phase. The effectiveness of the positive version of the GBG using Class Dojo on maintaining academically engaged behavior was demonstrated, thereby affirming Research Question 3. The results suggest that once some of the components of the intervention are withheld, the levels of academically engaged behavior can be maintained at similar levels as those during the
intervention sessions. One component which remained consistent across all phases, reviewing the behavioral rules, may be responsible for continued maintenance of behavioral improvements while withholding some of the components of the intervention.

**Research Question 4**

Research Question 4 asked whether the effects of the positive variation of the GBG using Class Dojo on disruptive and passive off-task behaviors would be maintained during the maintenance phases. The first maintenance phase resulted in similar levels of disruptive behavior to those during the GBG phase in Classrooms A and B, and slightly higher levels in Classroom C; however, they were lower and more stable when compared to baseline (with an exception of one data point in Classroom A). The combined effect size estimates revealed large effects across all classrooms. During the second maintenance phase, levels of disruptive behavior were again similar to those in the GBG phase. Additionally, the weighted effect size estimates indicated large effects across all classrooms.

Passive off-task behavior during the first and second maintenance phases was lower and more stable for Classrooms B and C when compared to baseline. The weighted effect size estimates demonstrated moderate effects across three classrooms. Classroom A’s passive off-task behavior did not appear to have been maintained after the GBG phase. Although Classroom A’s academically engaged and disruptive behaviors were improved and maintained, classwide passive off-task behavior was not successfully maintained via merely reviewing the rules during the first maintenance phase. It should be noted that during the second maintenance phase, the Game was played only once, and during the rest of the days (5 non-game days), only the rules were reviewed. As there
were only six days in the phase, it is unknown whether classwide passive off-task behavior would have improved had the phase continued. It appears, though, that for classrooms with high levels of passive off-task behaviors during the GBG phase more frequent game-days might be required. Overall, the effectiveness of the positive version of the GBG using Class Dojo on maintaining lower levels of disruptive behavior were demonstrated with overall large effects, and on maintaining lower levels of passive off-task behavior was demonstrated with overall moderate effects, thereby affirming Research Question 4.

Research Question 5

Research Question 5 asked whether the positive variation of the GBG using Class Dojo would be considered socially valid and acceptable for use with middle school teachers and students. Overall, teachers rated the intervention as slightly effective (mean = 4.69), acceptable (mean = 4.69), and efficient (mean = 4.5). Teacher B rated the intervention as slightly effective with an average score of 4.92 and Teacher C rated the intervention as effective with an average score of 5.38. Anecdotally, Teacher C stated that she liked the intervention and that she would continue playing the game and reviewing the rules on different days. Students in Classrooms B and C rated the intervention as effective and acceptable with the average ratings of 5.38 and 5.10, respectively. These results are consistent with previous findings that have assessed the social validity of classwide interventions employing technology (Bellini, Akullian, & Hopf, 2007; Christ & Christ, 2006; Radley, Dart, & O’Handley, in press), and affirm Research Question 5.
Limitations and Directions for Future Research

Although the present study demonstrated the effectiveness and maintenance of the positive variation of the GBG using Class Dojo in improving middle school classrooms’ behaviors, some limitations should be noted. First, the present study utilized a multiple baseline design across two classrooms (A and B) and a nonconcurrent multiple baseline design in one classroom (C). The study was originally designed as a concurrent multiple baseline, but due to one teacher’s implementing different activities during observation times, it was necessary to recruit a different classroom and adopt a nonconcurrent multiple baseline design for that classroom. Thus, Classroom C started the baseline phase a few days later than Classrooms A and B. Although nonconcurrent multiple baseline designs might not yield as strong controls for internal validity as concurrent multiple baseline designs, the former offer more flexibility in the start of baseline observations (Harvey et al., 2004), which is frequently needed within the school settings. Specifically, it might be difficult to recruit and start baseline observations in three or more classrooms simultaneously, or ethical issues may arise with regard to withholding treatment in one or two classrooms where assistance is needed while waiting on having another classroom. Therefore, a nonconcurrent multiple baseline design was implemented in the present study to address the three classrooms’ behaviors.

Second, aggregate student data were utilized to represent classwide behavior. Thus, it is unknown whether the intervention had the same impact on all students’ behavior, and whether these data are a true representation of the classroom behavior. Additionally, disruptive behavior data were also aggregated: data on specific behaviors were not collected, making assessments of the intervention on specific disruptive
behaviors not possible. It might also be possible that although the target behaviors in the present study were determined by consulting with each teacher, the whole array of possible disruptive behaviors were perhaps not included in the study (e.g., aggressive behavior, spitting).

Third, treatment integrity in Classroom A was low on two occasions (i.e. 77.8% and 72.7%) during the GBG and the first maintenance phases, respectively. Teacher A was retrained on the steps of the intervention after both observations. The first time, Teacher A failed to announce the end of the game, determine the winning team(s), and allow the winning team(s) to access the rewards. The second time, Teacher A failed to correctly determine the winning team(s) and to allow the winners to access rewards. Despite low treatment integrity, classwide behaviors remained improved during the implementation. These missed steps of the GBG might not constitute as critical elements; nevertheless, future studies may investigate each step of the GBG independently.

However, there were two occasions in which treatment integrity was high, but classwide behaviors were at less than desirable levels (i.e. session 3 of the GBG phase and session 6 of the first maintenance phase). During those two sessions the teacher introduced the game to class with an apparent unpleasant demeanor and used a loud tone of voice during the intervention. Following both occasions, the primary researcher provided Teacher A feedback on the rationale for the positive use and implementation of the Game. Apart from those two occasions, the intervention was implemented with relatively positive demeanor and tone of voice throughout the study. Nevertheless, future studies assessing qualitative characteristics of teacher implementation of the intervention are warranted. Additionally, Teacher A withdrew from the school after the sixth observation session in
the last phase; therefore, additional data could not be collected nor her perceptions of the intervention and its social validity assessed.

Fourth, the primary researcher served as an expert consultant throughout the present study. External validity of the present findings might be affected due to expert consultation as the results of the study might have been different—had the primary consultant not invested time and resources, the teachers implemented the intervention on their own. Additionally, the primary researcher provided all the tangible rewards to be included in the rewards box. Although tangible items were of low cost, it might be costly for teachers to continuously maintain the rewards box. However, rewards consisted of both purchasable and free-of-cost items (i.e., candy, gum, homework passes, extra credit), and students obtained rewards only one to two days per week during the maintenance phases, which greatly reduces the cost of tangible items. Nevertheless, future studies should attempt to replicate current findings using only nontangible rewards.

Finally, the population with which the intervention was conducted limits the generalizability of the present findings. The positive variation of the GBG using Class Dojo was effective at improving and maintaining three middle school classroom’s behavior; however, it is unknown whether the intervention would produce similar results within other settings. Future studies evaluating the effects and maintenance of the positive version of the GBG using Class Dojo with different populations are warranted.

Conclusion

The present study evaluated the effectiveness and maintenance of a positive version of the GBG using Class Dojo within a middle school setting. The results indicated increases in academically engaged behavior in all three classrooms, decreases
in disruptive behavior for at least two classrooms, and decreases in passive off-task behavior for at least one classroom, with these behaviors being maintained during two maintenance phases. Additionally, teachers and students rated the intervention as effective and acceptable for use in middle school classrooms. One of the components that remained consistent throughout the study and was implemented during the maintenance phases was reviewing the rules with the class. Teaching and reviewing the behavioral rules as well as providing positive statements for appropriate behavior are integral parts of PBIS and may be the link to the maintenance of improved behaviors following the intervention phase. Additionally, implementing the GBG using Class Dojo might reduce teacher response effort and be perceived as more engaging by students. Overall, withholding some of the portions of the intervention and continuing to obtain positive classwide results concomitantly reducing teacher effort might be a useful strategy.
Dear Teacher,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi working under the guidance of Dr. Daniel Tingstrom. As part of a guided research project, I am researching the effectiveness of an intervention designed to decrease disruptive behaviors in the classroom. Your classroom has been referred 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. Second, if your classroom qualifies for participation, I will then train you to implement a simple, classroom-based intervention. In order to participate in the study, student disruptive behavior must occur during a school day activity that lasts at least 15 min in duration, but not longer than 60 min in duration. Additionally, your classroom must demonstrate academic engagement in less than 70% of the observation intervals during the time deemed most problematic in order to continue into the study. You will also be asked to tally times when your class is academically engaged. These marks will be used to determine criterion level for the intervention. If the classroom does not qualify for participation, 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. Three 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’ target behavior. The recommended intervention will not be implemented at this point. During the second phase, you will implement the recommended intervention. The recommended intervention 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 and earn points for doing so. At the end of the game, the team with the most points wins the game. However, both teams could win the game if they reach or exceed the criterion. Winning team members receive special items. You may receive daily feedback on your implementation of the intervention. While the traditional version of the intervention requires teacher to manually award points on a board and provide verbal feedback, this intervention will assess the effectiveness of using an automated feedback program: Class Dojo. As part of the intervention, you will be required to use the Dojo program to award points to teams. The Dojo program will then provide visual feedback to the team awarded the point. I will assist you in setting up your free Class Dojo account prior to beginning the intervention. During the third phase, the game will not be played every day, but two or three days per week, but you will remind the students the rules that were in place during the game. Within the third phase, there will be a brief phase, during which you will play the game only one day per week. After completion of the phases, I will ask you to complete a structured questionnaire in order to assess your satisfaction with the intervention.

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 voluntary. 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 Komila Dadakhodjaeva or Dr. Daniel Tingstrom at (601) 266-5255. 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,

Komila Dadakhodjaeva, M.S.
School Psychologist in Training
Department of Psychology
The University of Southern Mississippi
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. 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         Date
Dear Parent,

As part of a research project, your child’s teacher has employed a new classroom management strategy over the past several weeks. Your child is being asked to complete a brief questionnaire that takes 1-2 minutes to complete and asks if he/she liked the intervention. The survey should not cause any discomfort to your child. If you choose for your child not to complete the survey, he/she will be asked to engage in other classroom tasks while his/her classmates complete the survey. Your child’s academic standing will not be affected by completion or non-completion of the survey. No identifying information (i.e. names) will be collected.

This survey will be used by researchers at The University of Southern Mississippi to assess the acceptability and effectiveness of the intervention. The intervention was implemented by your child’s teacher over the past several weeks to determine its effects on classwide academic engagement and disruptive behavior. The goal of this project is to improve the services provided for children in public schools and this project is not associated with agencies other than The University of Southern Mississippi and your child’s school district.

A copy of the survey will be made available to you upon request. Students returning a signed copy of this form will be provided with a small reward. Rewards will be provided for any child returning the form regardless of parental decision of consent.

If you have any questions or concerns, please contact Komila Dadakhodjaeva by phone or e-mail.

Komila Dadakhodjaeva
(601) 266-5255
komila.dadakhodjaeva@eagles.usm.edu
THIS SECTION TO BE COMPLETED BY PARENT

By signing below, I acknowledge that I have read the information in this form. I agree to allow my child to take part in this brief survey.

______________________
Child’s Name

__________________________
______________
Parent/Guardian’s Name                                                          Parent/Guardian’s Signature

__________________________
Relationship to Child

__________________________                                              ______________
__________________________                                              _________________________
Child’s Name                                                          Parent/Guardian’s Name                                                          Parent/Guardian’s Signature

By signing this portion of the consent form, I acknowledge that I have read the information in this form. I will not allow my child to take part in this survey.

______________________
Child’s Name

__________________________
______________
Parent/Guardian’s Name                                                          Parent/Guardian’s Signature

__________________________
Relationship to Child

__________________________                                              ______________
Relationship to Child

Date
Dear Student,

As part of a research project, your teacher has employed a new classroom management strategy over the past several weeks. You are being asked to complete a brief questionnaire that takes 1-2 minutes to complete and asks if you liked the intervention. The survey should not cause any discomfort to you. If you choose not to complete the survey, you will be asked to engage in other classroom tasks while your classmates complete the survey. Your academic standing will not be affected by completion or non-completion of the survey. No identifying information (i.e. names) will be collected.

This survey will be used by researchers at The University of Southern Mississippi to assess the acceptability and effectiveness of the intervention. The intervention was implemented by your teacher over the past several weeks to determine its effects on classwide academic engagement and disruptive behavior. The goal of this project is to improve the services provided for children in public schools and this project is not associated with agencies other than The University of Southern Mississippi and your school district.

If you have any questions or concerns, please contact Komila Dadakhodjaeva by phone or e-mail.

Komila Dadakhodjaeva  
(601) 266-5255  
komila.dadakhodjaeva@eagles.usm.edu

______________________  ____________________
Child’s Name                       Person Soliciting Assent  

______________________  ____________________
Date                                     Date

THIS SECTION TO BE COMPLETED BY CHILD

I agree to complete this brief survey. The project has been fully explained to me and I was given the chance to ask any questions I have about it. I understand that I can agree NOT to complete the survey.

______________________  ____________________
Child’s Name                       Person Soliciting Assent  

______________________  ____________________
Date                                     Date
THE UNIVERSITY OF SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4777 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board 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: 15090802
PROJECT TITLE: The Effects and Maintenance of the Good Behavior Game Using Class Dojo
PROJECT TYPE: New Project
RESEARCHER(S): Komila Dadakhodjaeva
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 09/18/2015 to 09/17/2016
Lawrence A. Hosman, Ph.D.
Institutional Review Board
Teacher Demographics:
Number of years teaching ____________
Race _______________
Gender _____________
Highest Degree earned _______________________

Classroom Demographics:
Number of students in the class _________
Number of: Males _________ Females _________
Number of: African-American _____ Asian _____ Caucasian _____ Hispanic _____

Circle one: General Education Special Education Inclusion

Number of SPED students in your classroom: __________
Please list the disability categories of each child in SPED (do not include names or any other identifying information):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
______________________________
APPENDIX F – Problem Identification Interview Form

Student: _____________________  Teacher (s): _______________________________

School: _____________________  Age: ______  Sex:  Male  Female

Date: _______________________

1. Describe the class’ behavior problems in order of severity and give examples.

2. How manageable is the problem behavior?

3. In what settings does the problem behavior occur?

4. Goals for the problem behavior (what would you like to see happen)

5. Tell me about what happens before the behavior occurs. After the behavior occurs?

6. Intervention attempts, degree of success, reasons for failure.
   a. What procedures have you tried in the past to deal with this problem behavior?
   b. What, if anything, have you done to deal with similar behavior problems in the past?
   c. What’s worked? What hasn’t?

7. Rules and typical procedures carried out in the classroom (constraints and assets).

8. Reinforcers - used now and potentials for future (e.g., praise, activities, or notes sent home).

9. Any data collected presently?

10. Ask teacher for any additional comments or questions.

APPENDIX G – Good Behavior Game Script

Step 1: Announce the game and divide students into teams
Inform students that they will now play a game each day during the set time within the class period. Divide the class into two teams and tell the students of the team composition.

Step 2: Review the rules
Tell the students of and demonstrate each behavioral rule. Tell the class that each time a team follows a rule, that team will earn a point.

Step 3: Explain the GBG procedures
Show the students Class Dojo and explain that it will be used to keep track of points. Explain that at random times you will scan the class and award a point to a team exhibiting appropriate behavior. At the end of the game, the team with most points or the team(s) reaching or exceeding the criterion will earn a reward.

Step 4: Start the game
Begin the game and visually scan the classroom periodically and assign one point to teams exhibiting rule-following behavior. Ignore minor rule violations.

Step 5: Announce the end of the game, tally the checkmarks, and announce winning team(s)
At the end of the game announce that the game is over. Count the points out loud for the class and announce the winning team(s).

Step 6: Allow the winning team(s) access to a reward
Randomly select a reward slip and let the winners know of the selected reward and when it can be accessed.

Adapted from Lynne, B. M. (2016). Implementing a positive variation of the good behavior game with the use of a computer-based program. (Unpublished doctoral dissertation). University of Southern Mississippi, Hattiesburg, MS.
APPENDIX H – Maintenance Day Script

Step 1: Teacher announces the game will not be played and rewards will not be provided
“OK class, we will not play the game today, but we may play another day.”

Step 2: Teacher reminds class of the rules
“Although we are not going to play the game today, remember these rules (review the rules that were in place during the game)”

Step 3: Teacher does not divide class into teams
Class is not divided into teams.

Step 4: Teacher does not award points
Points are not given for academic engagement.

Step 5: Teacher does not provide rewards
Rewards are not provided to students.
APPENDIX I – Behavior Intervention Rating Scale

Behavior Intervention Rating Scale (BIRS; Elliot and Von Brock Treuting, 1991)
1=Strongly Disagree 2=Disagree 3=Slightly Disagree 4=Slightly Agree 5=Agree 6=Strongly Agree

This was an acceptable intervention for the students’ problem behavior(s).

1 2 3 4 5 6

Most teachers would find this intervention appropriate for behavior problems in addition to the one(s) described.

1 2 3 4 5 6

The intervention proved effective in changing the students’ problem behavior(s).

1 2 3 4 5 6

I would suggest the use of this intervention to other teachers.

1 2 3 4 5 6

The students’ behavior problem(s) were severe enough to warrant use of this intervention.

1 2 3 4 5 6

Most teachers would find this intervention suitable for the behavior problem(s) described.

1 2 3 4 5 6

I would be willing to use this in the classroom setting again.

1 2 3 4 5 6

The intervention would not result in negative side-effects for students.

1 2 3 4 5 6

The intervention would be appropriate intervention for a variety of students.

1 2 3 4 5 6

The intervention is consistent with those I have used I have used in classroom settings.

1 2 3 4 5 6

The intervention was a fair way to handle the students’ problem behavior(s).

1 2 3 4 5 6

The intervention is reasonable for the behavior problem(s) described.

1 2 3 4 5 6

I like the procedures used in the intervention.

1 2 3 4 5 6

The intervention was a good way to handle these students’ behavior problem(s).

1 2 3 4 5 6
Overall, the intervention was beneficial for the students.

The intervention quickly improved the students’ behavior.

The intervention will produce a lasting improvement in the students’ behavior.

The intervention improved the students’ behavior to the point that it is not noticeably deviate from other students’ behavior.

Soon after using the intervention, the teacher noticed a positive change in the problem behavior.

The students’ behavior will remain at an improved level even after the intervention is discontinued.

Using the intervention should not only improve the students’ behavior in the classroom, but also in other settings (e.g., other classrooms, home).

When comparing these students with well-behaved peers before and after the use of the intervention, the students’ and the peer’s behaviors are more alike after using the intervention.

The intervention produced enough improvement in the students’ behavior so the behavior no longer is a problem in the classroom.

Other behaviors related to the problem behavior(s) were also improved by the intervention.

### APPENDIX J – Children’s Intervention Rating Profile

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>I liked the intervention</td>
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<td>I think other students would like the intervention</td>
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<tr>
<td>I liked the rewards used in the intervention</td>
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<tr>
<td>The intervention helped me do better in school</td>
<td>1</td>
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<td>The intervention was fair</td>
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<td>The intervention did not cause problems for me</td>
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<td>The intervention did not cause problems for others</td>
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APPENDIX K – Observation Sheet

Teacher Initials: ______     Date: __________     Observer: ___________     IOA: _________

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<th>AEB</th>
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AEB: ____/120 = ____%    DB: ____/120 = ____%    OTB: ____/120 = ____%

APPENDIX L – Baseline Integrity Checklist

Teacher Name: ______________          Observer: ______________

Date: ______________          IOA: ______________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>1. Teacher divides class into teams</td>
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</tr>
<tr>
<td>2. Teacher reviews the rules</td>
<td></td>
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<tr>
<td>3. Teacher awards points</td>
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<tr>
<td>4. Teacher provides rewards</td>
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<tr>
<td>Steps completed</td>
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<td></td>
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<tr>
<td>Percentage of steps completed</td>
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## APPENDIX M – Procedural Integrity for Teacher Training Checklist

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<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The trainer explains the rules and procedures of the intervention to the teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The trainer reviews the teacher script with the teacher</td>
<td></td>
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<tr>
<td>3. The trainer helps the teacher develop and set up a Class Dojo account</td>
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<tr>
<td>4. The trainer role-plays the intervention with the teacher, allowing the teacher to act as a student in the classroom.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The trainer role-plays the intervention with the teacher, allowing the teacher to practice implementing the steps of the game.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The trainer provides appropriate feedback contingent upon teacher mistakes during the role-play implementation session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The trainer insures the teacher has a full understanding of the intervention components</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steps completed

Percentage of steps completed

APPENDIX N – Teacher Treatment Integrity Checklist (GBG)

Teacher Name: _______________  Observer: _____________

Date: _______________  IOA: _______________

<table>
<thead>
<tr>
<th>Integrity Steps</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher announces the start of the game</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Teacher divides the class into two teams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teacher displays the teams on Class Dojo</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Rules poster is posted</td>
<td></td>
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<tr>
<td>5. Teacher reviews rules with the class</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Criterion level is told to the students</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. Teacher reminds students of how to win the game</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8. Teacher gives points contingent upon following the rules</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9. Teacher announces when the game has ended</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10. Teacher correctly determines the winning team(s)</td>
<td></td>
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<tr>
<td>11. Teacher draws a reward slip and announces the reward to the students</td>
<td></td>
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<tr>
<td>12. Teacher allows winning team(s) to access the reward</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steps completed

Percentage of Steps completed

### APPENDIX O – Teacher Treatment Integrity (Maintenance)

**Teacher Name:** _____________  
**Observer:** _______________

**Date:** ________________  
**IOA:** ________________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher announces the game will not be played and rewards will not be provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Teacher reviews the rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teacher does not award points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Teacher does not divide class into teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Teacher does not provide rewards</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Steps completed**

**Percentage of steps completed**
REFERENCES


University of Southern Mississippi. Hattiesburg, MS.


Ford, W. B. (2014). *An Analysis of a variation of an interdependent group contingency intervention: the good behavior game in high school classrooms implementing*


Hunt, B. M. (2012). *Using the good behavior game to decrease disruptive behavior while increasing academic engagement with a headstart population*. (Doctoral dissertation). The University of Southern Mississippi, Hattiesburg, MS.


Lynne, S. (2016). *Implementing a positive variation of the good behavior game with the use of a computer-based program* (Doctoral dissertation). The University of Southern Mississippi, Hattiesburg, MS.


