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Effects of a multi-component interdependent group contingency game on the classroom behavior of typically developing elementary school children

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Effects of a Multi-Component Interdependent Group Contingency Game on the
Classroom Behaviors of Typically Developing Elementary School Children

by

Stacey D. Simonds

A thesis submitted in partial fulfillment
of the requirements for the degree of
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Effects of a Multi-Component Interdependent Group Contingency Game on the Classroom Behaviors of Typically Developing Elementary School Children

Stacey D. Simonds

ABSTRACT

Research in the field of applied behavior analysis indicates that all group-contingency programs have been effective in both increasing academic and behavior success in the classroom environment. Among the three types of group-contingency programs, this study investigated the effects of a multiple component interdependent group-oriented contingency program on the behavior of typically developing elementary students. The purpose of this study was to develop and analyze the effects of a classroom management system that teachers or educators could utilize to minimize problematic classroom behaviors while increasing adaptive classroom behaviors. The study was conducted within two third-grade classrooms from a local school which accommodates low socio-economic status and high risk students. This intervention included the use of visuals, positive teacher praise, a reinforcement lottery system, a criterion level lottery system, a token economy reinforcement system, and positively stated expectations. A multiple baseline design was used to analyze the effects over multiple classrooms and with multiple target students within each classroom setting. Results indicate that the intervention had a positive effect on behaviors for both the classrooms and five of the target students.

Chapter One

Introduction

The field of applied behavior analysis has contributed to classroom management through the development of individual and group-oriented contingency interventions. Although there are many effective individual interventions (i.e. interventions that focus on one individual's behaviors and apply consequences only to that individual) to decrease problematic behaviors, applied behavior analysis has continued to develop classroom management procedures by concentrating on group-oriented contingency techniques. Research indicates that group-oriented contingency programs are as effective as individual contingency interventions (Axelrod, 1973; Grandy, Madsen, & Mersseman, 1973; Herman & Tramontana, 1971; Long & Williams, 1973; Solomon & Tyne, 1979).

Types of Group-Oriented Contingency Programs

There are three types of group-oriented contingencies that have been utilized throughout the research in applied behavior analysis. Within all group-oriented contingency programs, the consequences are the same for the entire group or class of students; however, the structure of the contingency differs for each group type. A dependent group-oriented contingency is in effect when reinforcement is contingent on the behavior of a target individual or a small group; however, reinforcement is delivered to all members if this target individual or small group meets the criterion level (Cooper, Heron, & Heward, 1987; Litow & Pumroy, 1975; Allen, McLaughlin, & Harman, 1980).

Therefore, the group reinforcer is contingent on the behavior of the target individual or small group. An independent group-oriented contingency is in place when reinforcement is contingent on the behavior of each student within the group meeting the group criterion level (Cooper et al., 1987; Cashwell, & Dunn, 1996; Skinner, Skinner, Skinner, & Cashwell, 1999; Litow & Pumroy, 1975). If a student within the group does not meet the behavior criterion, s/he would not receive the reinforcer. This type of contingency system is much like an individual contingency program; however, is set apart by the fact that the same consequence and criterion level is set for the entire group and not on an individual basis (Allen et al., 1980). When using an interdependent group-oriented contingency, the group functions as a single organism. Reinforcement is delivered to the entire group contingent on the group meeting a set group performance criterion level. In other words, the entire group will receive reinforcement, but only if the group works together to perform the required response at a predetermined criterion level (Cooper et al., 1999; Gresham & Gresham, 1982; and Skinner et al., 1996; Litow & Pumroy, 1975). The group's behavior as a whole is observed and will determine if all the members of the group will receive the reinforcer. When developing an interdependent group-oriented contingency intervention, the group's performance criterion level can be structured in three different ways. First, the entire group could receive reinforcement if the group as a whole has met a pre-determined minimum group criterion level (Litow & Pumroy, 1975). Each student's score is examined and compared to the pre-determined criterion level to determine if the group reached their goal. For example, all students must get a 70% or higher on their spelling tests for the entire class to earn an ice cream party at the end of the month. Second, group performance can be determined by averaging the group's

performance levels and determining if they have met a pre-determined group criterion. This procedure consists of the contingency manager determining a criterion level for the group/s and averaging the scores of the group members. If the group average met the group criterion level, each group member receives reinforcement. If the group average did not meet the criterion level, no reinforcement is delivered. Third, a group's performance can be determined by randomly selecting a target student or group of students and comparing their scores with the pre-determined group criterion level (Cooper et al., 1987). If the randomly selected student/s scores meet the criterion level, the entire group receives reinforcement. The most common structure of the interdependent group-oriented contingency program used is the whole group structure; each member of the group has to meet the criterion level in order to gain access to the reinforcement (Cooper et al., 1987).

Results of Studies Comparing Individual and Group-Oriented Contingency Programs

Axelrod (1973) conducted a comparison study utilizing both an individual contingency and an interdependent group-oriented contingency response cost system within two special education classrooms. A response cost system is a form of punishment which results in taking away a reinforcer contingent on student inappropriate behavior. Results indicated that both conditions were effective in decreasing behaviors from previous baseline measures; however, the group-oriented contingency condition did result in an increase in verbal threats (Axelrod, 1973). This study suggests that using the punishment system within the framework of the interdependent group-oriented contingency condition may have resulted in the development of these collateral behaviors.

Another study that compared an individual contingency system with an interdependent group-oriented contingency system was conducted by Herman & Tramontana (1971) with typically developing headstart students (age ranging from 5-6 years of age). This study incorporated a token reinforcement system which allowed the students to earn ping pong balls as tokens that could be traded for a toy at the end of the observation session. In addition to comparing an individual contingency program and an interdependent group-oriented contingency system, this study incorporated a component to compare general and specific instructions of the topography of the appropriate student behavior. In the general instruction and reinforcement phase, student instructions included the teacher simply telling them to sit on the mat. The specific instruction and reinforcement phase included giving examples and non-examples of appropriately sitting on the mat. The results of this research indicated that both individual and interdependent group-oriented contingency systems were equally effective; however, students obtained better results when the teacher instructions were specific rather than general. Thus, these results suggest that behavioral interventions will be most effective when the contingencies are defined concisely for the students in order to communicate the boundaries of the intervention.

A study conducted by Solomon and Tyne (1979) used a multi-element design to compare an individual contingency system with an interdependent group-oriented contingency program to reduce the off-task behaviors of 20 first-grade students. Each day students were informed which condition would be in effect (individual, group, or baseline) and what the criterion performance level would be for that day. During the individual contingency condition, students received an individual reward for engaging in

off-task behaviors at or below the set criterion level. The interdependent group-oriented contingency condition consisted of the class working as a whole. The class received a reward for engaging in off-task behaviors at or below the class criterion level. During each condition, data were collected on teacher control statements (i.e.: verbal redirections to get student/s back on-task and/or teacher reprimands). The results of this study suggest that both contingency programs are equally effective. This study suggests that when utilizing both an individual and interdependent group-oriented contingency program to decrease off-task behavior, teacher control statements also decreased.

Benefits of using Group-Oriented Contingency Programs

There are several benefits to using a group-oriented contingency when compared to an individual contingency program within the school setting. First, contingency management is easier for teachers when using a group-oriented contingency program because teachers can implement, monitor, and revise one program for the entire class or a few smaller groups rather than several different individual programs (Axelrod, 1973; Skinner et al., 1996; Gresham & Gresham, 1982; Kratochwill, Elliott, & Rotto, 1995; Shapiro & Goldberg, 1986; Skinner et al., 1999). Because these programs are more efficient for teachers to implement, there is typically an increase in educator buy-in when implementing the program. This increased “buy-in” in turn increases the reliability of the program implementation (Axelrod, 1973). Another benefit to utilizing group-oriented contingency programs is that students’ negative behaviors are less likely to become obvious to the other students. When interventions call attention to inappropriate student behaviors, that student is set apart from the others and some social deficits could be created because some students may view this as an unfair advantage for the target student

(Skinner et al., 1996; Skinner et al., 1999). This could cause some students to engage in inappropriate behaviors in order to have an individual contingency plan developed for them, which would allow them access to novel and/or more reinforcers. Thus, individual contingency programs may lead the other students to misbehave in order to have the teacher develop an individual contingency plan and obtain reinforcement (Skinner et al., 1999). When using a group-oriented program, all groups receive the same contingency and reinforcement for behaviors; therefore, other students are less likely to discriminate the problematic behaviors of the target student/s (Cooper et al., 1987; Skinner et al., 1999). With group-oriented contingency programs, students are grouped together and are working with their group towards a common goal. This situation in turn will help to develop the communication needed to promote teamwork within that group. Another benefit to using a group-oriented contingency program is that reinforcers can be chosen from a larger pool. Therefore, these programs can be less costly because teachers can utilize a greater variety of reinforcers which can include activities rather than tangibles (Axelrod, 1973).

Effectiveness of Group-Oriented Contingency Programs

The research on the three types of group-oriented contingencies shows inconsistent results for both academic and behavior problems. Gresham and Gresham (1982) used an ABCDABCD reversal design in a study that compared the effects of dependent, independent, and interdependent group-oriented contingency programs in decreasing the disruptive classroom behaviors of twelve students identified as educably mentally retarded within a self-contained classroom. The interdependent group contingency condition consisted of dividing the class into two teams and having the

teams compete to receive the least inappropriate behavior marks. The dependent group contingency condition used the same teams; however, assigned the most disruptive student as the team captain and made reinforcement for the team contingent on the behavior of the team captains. The team captain that received the least marks would earn his/her team a reward. The independent group contingency condition consisted of all the students competing against a performance criterion of five or fewer marks to receive daily reinforcement. Results of this study indicate that all group-oriented contingency interventions were effective. However, the interdependent group-oriented contingency condition resulted in greater effects than the other group-oriented contingencies. Specifically, the average median frequency of disruptive behavior during interdependent conditions (Md=10) were lower than baseline measures (approximately Md=30.5). These measures were not as low during the dependent (Md=15.5) and independent (Md=27.5) conditions. Because this study utilized an ABCDABCD reversal design, it did not control for sequence effects; therefore, there is no clear comparison of the conditions. In fact, the interdependent conditions may have contributed to the frequency within the dependent conditions being lower than if these conditions followed a baseline condition (as in an ABACADABACAD design). Even with these carry over effects resulting from the sequence of the conditions, the response rates for the interdependent phases were lower than all other conditions. The authors, however, suggests that within the interdependent and dependent contingency conditions, students were observed prompting and praising each other. These effects were not observed during the independent condition because the students were working individually, suggesting that during the independent conditions the students were competitive with each other. This

study demonstrates that the interdependent contingency conditions were most effective with disruptive behaviors within a classroom setting. These results also indicate that the interdependent contingency conditions promote appropriate socialization within the groups of students.

Allen et al. (1980) researched the effects of both interdependent and independent group-oriented contingency programs on letter tracing behavior of nine children with emotional and neurological handicaps. The nine students were grouped into two groups. Each group received a baseline, interdependent contingency, independent contingency, and a differential reinforcement for other behaviors (DRO) condition. However, these conditions were counterbalanced between the two groups to eliminate any sequential effects. During the interdependent contingency condition, the students' reinforcement was contingent on the group score (total number of correctly traced letters) increasing from previous trials. The independent contingency condition required each student within the group to increase their own score from their personal best. A DRO condition was added between the first condition (Group 1 – interdependent and Group 2- independent) for each group. The students could earn 10 points for decreasing their individual number of correctly traced letters. This condition was to act much like a baseline condition, except students received a reward for decreasing their scores. In Group 1 an increase in letter tracing was observed for three out of the five students in both the independent and interdependent conditions. The overall mean number of letters traced correctly increased for three out of the four students in Group 2. With this study, it is difficult to determine if the reinforcer was affecting the letter tracing behavior, or if the increase in correct letter tracing was due to a practice effect from the continuous trials

within each condition. By using an alternating treatments design, this practice effect, although not eliminated, can be countered by alternating independent and interdependent conditions and continuously measuring which condition had more of an effect over time. Results of the study imply that both programs were effective with eight out of the nine students. This study adds to the research indicating that these contingency programs are as effective with both academic and behaviors within a classroom setting.

A study conducted by Sharpio and Goldberg (1986) compared the effects of the three types of group-oriented contingencies on the spelling academic responding of 53 sixth-grade general education students. The study examined these effects across three groups; low, middle, and high academic groups by utilizing an alternating treatments design. On the day prior to the test being given, the students were given the spelling list and were advised of what condition would be in effect on the test day (scheduled for the following day). During the independent group condition, the students that received a 90% or better on their test received a reward. For the interdependent group condition, the mean score of the students' tests was taken and if it met the 90% criterion level, the class received a reward. Reinforcement was contingent on a randomly selected student's score during the dependent group condition. The student that was selected must have earned a 90% or better in order for the entire group to earn reinforcement. The mean scores for the low (LO) group increased from baseline scores during all treatment conditions; however, the results during the independent condition resulted in a higher mean score and less variability than the results from the other two conditions. The middle (MI) group's mean scores were higher for all conditions over baseline scores; however, the mean score during the independent condition ($M=89.8$) was slightly higher than the mean scores for

the interdependent (M=86.4) and dependent (M=86.3) conditions. The MI group's mean scores during all conditions were fairly consistent. The high (HI) group resulted in only slightly higher scores during the three conditions over baseline scores. The baseline score for this group was a mean of 90.7. The mean scores during the three treatment conditions ranged from 95.6 to 94.7. The results of this study suggest that although all groups had an effect on the spelling behavior of the students, the independent group condition had greater effects with all groups. The results of the interdependent condition may have been affected by the size of the group. Sharpio and Goldberg (1986) point out that because the group was so large, the social aspect (i.e., peer pressure or peer encouragement) is thinned. A student may be more inclined to perform at a higher rate when the scores are averaged with fewer students. This concern is even greater when the HI group is a sample of 25 students out of the 44; the mean score of this group being 90.7. By dividing the classroom into smaller groups, the interdependent condition may have had better results on the academic behavior of the LO and MI groups. Another limitation to this study is the criterion level that was set for the treatment conditions. The criterion level was set at 90% for all treatment conditions. The LO group during the independent condition met the criterion level four times out of the 12 trials, three times out of 12 during the interdependent condition, and four times out of 12 trials during the dependent condition. The MI group met the criterion 9 out of 12 trials during the independent condition, 6 out of 12 trials during the interdependent condition, and 6 out of 12 trials during the dependent condition. The HI group met the criterion during all but two of the total 36 trials (all 12 trials during the independent, 10 trials during the interdependent, and 11 trials during the dependent). The criterion may have been set too

high for the LO and MI groups. This problem can be countered by utilizing a randomized criterion level which will target all groups. When randomizing the criterion level, the teacher will choose the performance criterion out of a bin at the end of the week. By making the criterion level random, the students are more likely to respond appropriately which will maximize their opportunities to earn the reinforcers (Kelshaw-Levering et al, 2000).

Gresham and Gresham (1982) suggest that the interdependent group oriented program is the most effective in minimizing disruptive classroom behaviors. They imply that this is due to the group element; the teams functioned to aid in the encouragement of other students through continuous prompting and praise. These results may have been greater had the design controlled for sequence effects. Alternatively, the results of Allen et al. (1980) indicate that both interdependent and independent group-oriented contingency programs are equally effective. On the other hand, results of Sharpio and Goldberg (1986) imply that although all groups had an effect on academic behavior, the independent group contingency program had greater effects. However, these results may have been affected by the size of the group and the criterion level set for the group.

Research indicates that all group-oriented programs are effective with both academic and problematic behavior within the classroom setting. However, there is no clear conclusion as to which type is most effective; therefore, decisions on what type to use may be based on other elements of the procedures; such as, cost, social benefits for the students, the effectiveness of its components, and the ease of implementation of the contingency management of the program.

Benefits of using an Interdependent Group-Oriented Contingency Program

There are several benefits to using an interdependent group-oriented contingency program. Many students within a classroom tend to form social peer groups based on common characteristics (Skinner et al., 1999). By setting up groups to include students that are would not typically socialize and having them work together towards the common behavioral goal, they will build stronger social interactions between the different social sub-groups (Skinner et al., 1999; Gresham & Gresham, 1982).

Interdependent group-oriented contingency programs can also increase the options of reinforcers that can be used because the teacher can deliver the same reinforcer to a group of students rather than delivering different reinforcers to each student as would be done when using an individual contingency program (Skinner et al., 1999). Because the same contingency and consequences are applied to all members of the group, an interdependent group-oriented contingency program can be managed more efficiently (Allen et al., 1980, Skinner et al., 1999). Another benefit to using an interdependent group-oriented contingency is the teacher's ability to set up all her students to win. The teacher can set up the reinforcement contingency so that students that would rarely come into contact with any reinforcement will receive some kind of reward. This result can be achieved by setting the class criterion level based on the class baseline data (Skinner et al., 1999).

The classroom baseline data can be analyzed to determine at what level students perform without an intervention. The performance criterion level for the intervention can be set slightly higher than this baseline level to ensure that majority of the students will meet the criterion; thus, ensuring they will come into contact with the reinforcer. By setting the criterion level so that majority of the students will receive some reinforcement, the

teacher will create a positive tone for the environment. Skinner (1968) suggests that by creating a positive classroom for all students, the teacher can help to make school a more pleasant experience for these students.

Limitations to using an Interdependent Group-Oriented Contingency Program

While there are several benefits to utilizing an interdependent group-oriented contingency program, there are also some limitations. First, ethical dilemmas must be considered. Skinner et al. (1996) discusses the ethical issues in depriving a student of an educational opportunity based on behavioral disabilities. If a teacher utilizes an educational activity as a reinforcer, those students that have some behavior limitations can be deprived of the opportunity to benefit from that educational activity. Skinner et al. (1999) suggests that by using tangibles this problem can be minimized. Secondly, students may engage in verbal threats toward the target student/s that engage in problematic behaviors (Axelrod 1973; Skinner et al., 1996). One reason these verbal threats may occur is due to the structure of the teams. In Barrish, Saunders, and Wolf (1969), students were grouped without any type of pre-assessment. While grouping the students, two students that had been referred to the principal on several occasions were grouped on the same team. Because of this grouping, the team received many marks during the good behavior game intervention and contributed to team losses during several observation sessions. Therefore, each student must be assessed before deciding on the structure of the groups. When using an interdependent group-oriented contingency, the same consequence is provided to the entire group. These consequences can function as a reinforcer for some of the students within the group, but may be neutral or even aversive to others students (Skinner et al., 1999; Skinner et al., 1999). Because these

consequences may be aversive to some students, they may lose interest in participating in the program. Thus, the group-oriented contingency may not be effective with any of the groups because it may result in some students sabotaging the group's effort (Barrish et al., 1969).

Token economy systems can function as a solution to the problem of students losing interest (Skinner et al., 1999). A token economy system is developed so that the contingency manager can deliver a tangible token (i.e., poker chip, paper token, points on a chart, etc.). This token is delivered immediately contingent on appropriate behaviors, and can later be traded for backup, bigger reinforcers at designated times. Token systems allow the teacher to deliver the same reinforcer, token, to each student within the group; while giving the students the opportunity to purchase individualized backup reinforcers.

O'Leary, Becker, Evans, and Saudargas (1969) conducted a comparison study to evaluate the effectiveness of a token system combined with and without different elements. This study was conducted with seven second-grade students within a middle socio-economic school setting. This study was organized into four conditions in order to compare the different techniques against a token economy system. The first condition was the classroom rules condition, which included the teacher writing on the board the classroom rules and going over these rules two times per day with the students. The educational structure condition included dividing the class schedule into four 30-minute sessions each day as well as keeping the classroom rules in place. This process was to provide the students with a structured schedule within the classroom. The praise and ignore condition included praising students for appropriate behaviors and ignoring inappropriate behaviors; while keeping the classroom rules and educational structure in

place. The token conditions included classroom rules, educational structure, praise/ignore behaviors, as well as providing points to each student for following the classroom rules. These points were delivered four times per day. The results suggest that the classroom rules, educational structure, and praise/ignore behaviors conditions were not effective alone. However, when the token economy system was combined with the other elements, the disruptive classroom behaviors decreased within the classroom setting.

Another solution to this reinforcement problem is to randomize the reinforcement. Kelshaw-Levering, Sterling-Turner, and Henry (2000) indicate that by adding a randomization reinforcement component, students are unaware of the specific reinforcer. At the end of the time interval, the teacher will choose a reinforcer and delivery it then. At the beginning of the new interval, students are made aware that they can earn one of the reinforcers from the pool. This process helps to minimize some of the disadvantages of the reinforcers being weak or aversive to some of the students.

Skinner et al. (1999) suggest that in addition to considering reinforcement limitations, the contingency manager must consider the criterion level set for the students. Some students will always exceed the expectations of the teacher. However, others will struggle. It is important to set up the criterion level so that all students have an opportunity to come into contact with some of the reinforcement. Kelshaw-Levering et al (2000) attempted to control for this by utilizing randomized criterion levels. This study compared a randomized reinforcement alone condition with a randomized all components condition (included randomizing target behaviors, criterion for target behavior performance, and target groups). For example, all reinforcers were written on slips of

paper and placed in a reinforcer jar and one student was asked to choose a reinforcer from the jar at the end of the time interval. All other components were randomized utilizing the same system. The results show that when a lottery system is used to randomize the behaviors, reinforcement, and criterion level; less disruptive behavior occurred than simply randomizing reinforcement alone.

Purpose of This Study

This study examined the effects of an interdependent group-oriented contingency behavior game which incorporated appropriate assignment of small groups within the classroom, a token economy, positive teacher praise, randomization of reinforcement and criterion levels, positively stated expectations and visual displays. This procedure incorporated a positive reinforcement system rather than a punitive system and combined both lottery reinforcement and token economy reinforcement systems (Skinner et al., 1996). When utilizing an interdependent group-oriented contingency program, visuals should be incorporated within the environment (Skinner et al., 1999). These visuals can be in the form of a progress chart or poster, a list of expectations or behaviors, and/or a list of consequences or rewards. This study has included a progressive game board, a poster stating the expectations, and a poster stating the consequences for meeting those expectations. Cooper et al. (1987) suggests that prompts can be supplemented within an environment in order to increase the probability that an appropriate response will be emitted within the environment. The posters and game board functioned as visual prompts or discriminative stimuli which in turn set the occasion for appropriate behaviors. Skinner et al. (1999) recommends that progressive performance feedback be incorporated within an interdependent group-oriented contingency. The game board

functioned to provide this feedback on a continuous basis throughout the day. This allowed the students to monitor their team's progress while in the classroom setting. Expectations within the classroom were set up within each classroom based on the identified target behaviors. These were the identified classroom expectations that each team had to meet to gain access to the reinforcers. These expectations were phrased positively to promote the strengthening of the appropriate classroom behaviors (Skinner et al., 1999). Thus, these appropriate behaviors were reinforced within the students' repertoires, rather than punishing the inappropriate behaviors. Pigott and Higgin (1985) indicate that if behavior deficits are used or listed in a negative manner, students are more likely to threaten or punish those students that perform the negative behavior. Solomon and Tyne (1979) indicated that further research needed to be completed on the promotion of adaptive classroom behaviors rather than focusing on the punishment of inappropriate classroom behaviors. This study incorporated this element by identifying these adaptive, appropriate behaviors, while including the reinforcement components within the behavior game.

Skinner et al. (1999) suggests that too often educators focus on negative or inappropriate behaviors by providing teacher attention. Research indicates that teacher attention is a powerful reinforcer and in conjunction with tangibles or activities, increases behaviors (Hall, Lund, & Jackson, 1968). Thus, if teacher attention is applied to positive behaviors, these behaviors will continue to increase and maintain within the classroom setting. This study paired teacher praise with the earned game spaces for each team.

This study has also included smaller time intervals which will allow the students to move across the game board to earn reinforcers multiple times throughout the day.

This helped create more immediate reinforcement. The earned game spaces on the board functioned much like a token which helped to bridge the gap between the students' responses and their weekly reinforcement. Reinforcement needs to be immediate in order to lessen the student/s responding between the appropriate behavior and the reinforcer being delivered. Immediate reinforcement minimizes reinforcing any inappropriate behavior (Cooper et al., 1987). A token economy system was incorporated within the classroom. Daily reinforcers included tokens which were traded for weekly backup reinforcers. This token system helped to bridge the gap between the student/s behavior and the weekly backup reinforcement.

Long-term/weekly reinforcement was provided using a lottery system. A pool of reinforcers was put into a bin labeled 'reward bin'. At the end of the week, the teacher chose a reward from the bin and announced it to the children. All teams that met the weekly criterion received this reward. By utilizing a randomized lottery reinforcement system, students were not aware of the potential reinforcer; therefore, eliminating the aversive affects of contingencies not functioning as reinforcers for some of the group members (Skinner et al., 1999; Kelshaw-Levering et al., 2000). Kelshaw-Levering et al. (2000) suggests that by randomizing the criterion levels within the format of an interdependent group-contingency program, the students' progress is more rapid. The students were not aware of the criterion level until the end of the week when the reinforcer was delivered. Kelshaw-Levering et al. (2000) indicates by adding this component, students are more likely to respond appropriately to maximize the number of opportunities they have to meet the criterion level. By utilizing all of these behavioral techniques, this study created a classroom management system that teachers or educators

can utilize to minimize problematic classroom behaviors while increasing adaptive classroom behaviors.

Chapter Two

Methods

This study was conducted in a school located in Tampa, Florida. The school is designed to accommodate low socio-economic status and high risk students. The school accommodates students in Kindergarten through fifth grade levels.

Participants and Setting

Participants within this study included third (N=42) from three classrooms. These students were predominantly African American students (98%). Two classrooms were neighboring classrooms on the third grade wing of the school. Ms. H's classroom (N=22 students) consisted of 14 African-American males, 7 African-American females, and 1 Latino female. Ms. C's classroom (N=20) included 11 African-American males and 9 African-American females. Both are general education classrooms.

Within each classroom, target students were identified by the teacher and investigator as engaging in high frequency problematic behaviors. Several students were identified utilizing pre-baseline assessment procedures. As part of the pre-baseline assessment procedures all students were rated on their frequency of behaviors. Prior to this process, students were asked to have their parents consent to their participation as a target student. Only those students whose parents consented were part of the sample targeted. After the teacher completed the survey, referral data for the year was reviewed and compared to the survey sheet for only those students that parents consented for.

Based on these procedures (i.e., parent consent, teacher survey, and referral data review), three students from each class were identified as target students. Ms. H's target group consisted of two African American males and one African American female. Ms. C's targeted students consisted of one African American male and two African American female. Data on these students were collected to evaluate the effects of the intervention on individual student behavior in addition to the effects of the behavior in the classroom as a whole. These students were identified by conducting a pre-baseline assessment on students within both classes. Pre-baseline assessment procedures included teacher verbal report, referral data, and teacher surveys.

Design

A multiple baseline experimental design was used to analyze the effects of the behavior game on the target classroom behaviors across both classrooms and groups of target students. Within each class, three target students were identified. These three students made up a group of target students. Baseline data were collected on targeted classroom behaviors within both classrooms and on groups of target students from each class. During baseline, both teachers were asked to precede with their classroom management procedures as normal. Both classroom management systems were similar in that they included an individual response cost system for each student. Consequences consisted of a verbal warning by the teacher, note home, time out, loss of computer time, and/or an office referral. No token systems were present within the classrooms during the baseline phase.

Baseline data were collected in Ms. H's classroom for four days until data for three of the four behaviors for both the classroom and at least two of the three target

students either remained stable or moved in an upward trend. The behavior game was then implemented within Ms. H's classroom while Ms. C's classroom and target students continued in the baseline phase. Ms. C's classroom did not move into the Behavior Game phase until the data of three of the four behaviors for both the classroom and at least two of the three target students either remained stable or moved in an upward trend; and, Ms. H's classroom and two of the three students showed a downward trend from baseline phase levels.

Measurement/Instrumentation

Data collected for this study included both direct and indirect measurements. These measurements included teacher interviews, teacher surveys, permanent products (i.e., referral data), direct observations within the classroom setting, and a game piece record.

Teacher interviews. Teacher interviews included asking the teacher to describe the behaviors, how the behaviors were performed (topography), how often each behavior occurred (frequency), how long each behavior lasted (duration), as well as, if and how much damage or harm was caused by each behavior (intensity).

Teacher surveys. Surveys included a list of student names and three columns where the teacher rated each student on engagement in target behaviors. The ratings ranged from one to three. A rating of one included the student engaging in any target behavior 30% or less of the class time. A two rating included the student engaging in any target behavior between 31% to 50% of the class time. A three rating included the student engaging in any target behavior 51% or more of the class time (Appendix A).

Permanent product review. Referral data collected by the school was reviewed for each class. The frequency of incidents that warranted a referral was documented for each student within each classroom. This information included the general description of the behavior, the date of the referral, and what consequence the student received after receiving the referral.

Baseline and intervention direct observations. Data were collected utilizing partial interval recording on target behaviors identified for each classroom. Each observation session lasted twenty minutes per classroom and was divided into 5-second intervals. A 5-second observe then 5-second record pattern was used. During this observation, the observer first scanned the room for five seconds to observe the classroom target behaviors. All students other than the target students were observed during this scan. These behaviors were recorded during the following five seconds. Then the observer observed the first target student (labeled K1) for five seconds and recorded the behaviors observed during the following five seconds. The second and third target students followed the same pattern. After the third target student was observed, the observer recorded the classroom behaviors again. This pattern continued throughout the 20-minute observation. The data sheet was color-coded to help the data collector identify which student/s was being observed during each 5-second time interval (see Appendix B).

Game piece record. The space on which each team started and ended for each day was recorded using the game piece record. Each space was numbered on the game board. The beginning space number was noted at the beginning of the day by each

teacher. At the end of the day the ending space number was noted on the same game record sheet by each teacher (see Appendix C).

Target Behaviors

Based on the pre-baseline assessment information gathered, the classroom target behaviors for each classroom were identified. The targeted behaviors were consistent within each classroom. Verbal disruption was defined as talking out of turn, using profanity, mocking the teacher, speaking with another student while the teacher was giving instructions, socializing when working independently, and/or yelling in the classroom. Verbal disruption did not include speaking to the teacher when she asks a question, yelling an answer when the teacher asks the entire class to respond at the same time. If the teacher asked a question and a student yelled out profanity or a derogatory answer, this was scored as a verbal disruption. Out of seat behavior was defined as getting out of a student's seat without the teacher's permission. This behavior included getting up to high-five another student while the teacher was instructing, walking to another student's desk to get a pencil without permission, walking over to the computer area without permission, etc. This behavior did not include the student getting out of their seat when the teacher called the student to her desk or gave them permission (i.e., pointed toward the restroom, nodded her head yes, verbally gave permission, etc.) to leave their desk area. This behavior also did not include students standing up next to their desk or standing in close proximity to their desk area. Close proximity included students being no more than approximately one foot away from their desk. Off-task behavior was defined as completing any task other than that assigned by the teacher. Off-task was scored if a student did not have their math book out during direct instruction or

during math desk work. A student was scored off-task if they had their head down on their desk while the teacher was instructing the class, a student playing with items at their desk while the teacher was speaking to the classroom or instructing, a student reading a book during teacher instruction or a time when students should be working on a desk assignment, etc.. Physical disruption was defined as throwing items (i.e., pencil, eraser, chair, desk, etc.) in the classroom, slamming their hands on the desk, punching the wall, kicking the walls or other objects in the room, slamming a book or other object on the desk or floor, and/or pushing their desk or chair with force. This behavior typically resulted in a loud noise and classroom disruption for the other students. This behavior could or could not result in damage to an object/s in the classroom.

Expectations were identified as positively stated alternative classroom responses to replace the target behaviors. Three classroom expectations were identified based on the definitions of the target behaviors. These expectations included stay in seat, stay on-task, and use inside voice. For the purposes of the classroom visuals, these expectations were stated positively for the students and displayed within each classroom. For example, “I will stay in my seat” was posted for stay in seat, “I will use my inside voice” was posted for use inside voice, and “I will stay on-task (complete my classwork and listen while Ms. H is speaking)” for stay on-task.

Procedures

Procedures described in this section include participant recruitment, teacher and data collector training, procedures for pre-assessment baseline, baseline, and intervention phases.

Participant recruitment. The school principal was contacted initial via telephone. She was informed as to the investigator's association with the University of South Florida and the research project that is in association with obtaining a Master's Degree. Once the school was identified, the investigator submitted the necessary information for approval from both the IRB and the School District of Hillsborough County (SDHC). Upon receiving approval from both the IRB and SDHC, teachers were identified by the principal and a letter was disseminated to these teachers in order to inform them of the research project. The teachers were asked to contact the investigator directly to express their interest. Those teachers that participated in the study met with the primary investigator to discuss the study and sign a teacher consent form. During this meeting, teachers were informed that they would receive an incentive from the investigator for their time. This incentive consisted of a gift card for Staples to aide in their classroom supplies. These teachers were given student consent forms which were handed out to all students within their classrooms. The students were asked to return these forms within 5 school days. The returned were placed in an envelope and given to the primary investigator. The students were informed about the study and were asked if they would like to participate. All students gave verbal assent to participate in the study.

Data collector training. Data (i.e., observations) were primarily collected by the principal investigator. A second observer was recruited for interobserver agreement checks only. The first step of data collector training included giving clear and concise definitions of the target behaviors including examples and non-examples of each behavior. The observer received a copy of the data collection sheet and was informed of all abbreviations on the sheet. After referencing and reviewing the data sheet with the

observer, brief role plays were used to verify understanding of the material. Observation probes were utilized within the classroom setting prior to the baseline data collection phase by both the investigator and the second observer to calibrate the observation procedures for the second observer. During the session, both the investigator and the second observer recorded the behavior and a brief note on the behavior to reference later. After each session, the investigator met with the second observer independently to discuss the intervals that were scored differently utilizing these notes. This feedback helped to increase the accuracy of the data collectors. Interobserver accuracy/agreement on an interval by interval basis was calculated using the following formula: agreement intervals divided by total number of intervals multiplied by 100. This formula provided an agreement percentage for each observation session. These sessions continued until the second observer received at least 85% accuracy. Only one session was needed to calibrate the observation procedures for the second observer. During this session, the second observer scored 87% accuracy.

Pre-baseline assessment phase. Prior to the baseline condition, students were assessed based on their behavior using the teacher interviews and surveys discussed previously. Interviews were completed prior to the surveys and were conducted by the primary investigator. Next, each teacher was asked to complete a survey form for her class. Survey sheets include each student's name and a rating scale. The teachers were asked to rate the students based on their behavior using a one to three scale.

Each student was given a parent consent form and asked to have their parents review it and sign to consent. Only the students that returned signed parent consents were considered as part of the target student sample. Permanent product reviews were

conducted for only the students that parents consented for. These reviews were conducted once the teacher interviews and surveys were completed. Referral data were reviewed for each student that had parent consent within each class. This information was compared to the teacher interview and survey data in order to confirm the target behaviors and the students which engaged in these problematic behaviors.

This information was then used to structure the groups within each classroom. The investigator compared the permanent product data with the teacher survey data. Based on this information the teams were structured to include one student rated as a three (engagement in target behaviors 50% to 100%) with three or four additional students rated as one or twos. The investigator then discussed the group structures with the teacher to determine the appropriateness of the groups and the location of each group within the classroom. During this meeting, the teacher and investigator discussed the physical location of the teams within the classroom. Teams were physically arranged so that a student rated as a high frequency student (i.e., three rating) did not sit in close proximity to another high frequency student. The teams were structured so that the high frequency student in one team sat in close proximity to a one or two rated student in another team.

Target behaviors for the intervention were determined during the pre-baseline assessment period. The intervention included behaviors that were reported during this assessment phase and appropriate classroom behaviors were identified. These appropriate behaviors were defined based on the need of each classroom and constituted the expectations for the behavior game.

Baseline condition. During the baseline condition, teachers were asked to follow their typical classroom management procedures. The students did not receive instructions on the behavior game. During this phase, data were collected on both classrooms and the target students within each class. Direct observations were conducted during a designated, predetermined time each school day. This time was identified with the help of the teacher. Students were not assigned to their groups during the baseline condition.

Teacher training. After baseline data were collected and before the intervention was implemented, teachers were trained on the behavior game and the different components that were incorporated. The teachers were instructed by the investigator on the target behaviors, how to play the game, when to deliver reinforcers, what praise statements to use, and how to explain the expectations and rules of the game to the children. Each teacher was trained individually. Teacher training was conducted within one, one-hour session. After training, the teachers were asked to engage in a brief role play in order to determine their understanding of the intervention. During these role plays, each teacher's integrity on implementation of the behavior game was checked utilizing a teacher proficiency list (see Appendix D). The investigator reviewed the proficiency list and the overall proficiency score with the teacher at the end of the role play session. The teacher was given feedback on the role play which included advising the teacher of which step she implemented incorrectly and giving an example of how to implement that step correctly. The teacher continued role plays until she reached 100% accuracy on implementation of the behavior game. Each teacher had to reach 100% proficiency before the game was implemented within her classroom.

Teachers were also scored utilizing the teacher proficiency scale while implementing the behavior game within her classroom. Based on the data collected, each teacher was given performance feedback on the steps that were either eliminated by the teacher or scored as inaccurate. This feedback was given immediately after the teacher observations were conducted and another proficiency probe was conducted on the same day.

Intervention. The behavior game consisted of several components. Teachers were given a game board with numbered spaces (see Appendix E). These spaces were used to determine the criterion level on a weekly basis. Teachers were also given group game pieces and larger versions of the game pieces (see Appendix F) which were displayed above each group for easy identification for the teachers. Posters were provided stating the expectations or appropriate behaviors (see Appendix G) for each class and potential rewards for meeting these expectations (see Appendix H). The teacher was asked to post all of these items in the front of the classroom in clear view of all students.

Prior to implementation of the behavior game, each teacher was asked to divide their class day into five time intervals (or time blocks). The game, once implemented, was conducted within each classroom for the entire day. The teachers determined their time intervals based on their subject areas. Ms. H's time intervals included bellwork block, language arts block, reading block, science block, and math block (see Appendix I). Ms. C's time intervals consisted of bellwork block, math instruction block, math desk work block, language arts block, and reading block (see Appendix J). The students were given examples of the differences between math instruction block and math desk work

block. Math instruction included times when Ms. C was instructing the class on their lesson for the day. This included Ms. C standing in front of the classroom and engaging them in participation as necessary. Math desk work block consisted of Ms. C giving students their assignment and the students completing this assignment at their desk.

At the end of the day prior to the implementation, the teacher met with the primary investigator. During this meeting, the data were reviewed from the pre-baseline assessment phase. The groups were determined and game piece mascots were assigned. On this day, the classroom was arranged to group the students' desks together and the teams' mascots were displayed for each team. While considering the location of the groups, the physical arrangement was structured so that a high frequency student (i.e., a student rated as a three on the teacher survey) in one group was not sitting in close proximity to a high frequency student in another team. Only students that were rated a one (for majority of the teams) or a two on the teacher rating survey sat in close proximity to a student rated as a three.

On the first day of implementation, the teacher gave instructions on how the game would be played in the classroom. During this time, she discussed the classroom expectations (i.e., "I will stay in my seat, I will use my inside voice, I will stay on-task.") and provided the students with examples and non-examples of these expectations. At the end of the behavior game instruction, the teacher asked the students if they were ready to begin the game. The teacher was asked to give brief instructions on the game at the beginning of each day. During this time, she incorporated examples of the expectations and reminded the students of the rewards that they could earn.

Each game included three classroom expectations which were identified based on the target behaviors. Each classroom was divided into groups of students as previously discussed. Ms. H's classroom consisted of two groups of 5 students and three groups of 4 students. Ms. C's classroom consisted of five groups of 4 students. Each classroom had five groups or teams. Each team had to work together to meet each classroom expectation. Each group earned one space on the game board per expectations met per time interval. For example, if all the students in one group stayed in their seat, stayed on-task, and used their inside voice during the bellwork block, that team's game piece would move three spaces on the game board for that time interval. Each group had an opportunity to earn three spaces (one per expectations met) per time interval (five total) for a total of fifteen spaces on the game board per day. Each teacher was provided with a clip board and an expectation tracking sheet (see Appendix K & L). As the groups progressed through each time interval, the teacher was asked to cross off the expectation for a team that did not earn that expectation. For example, if a student in the football team engaged in verbal disruption, that team would not have earned the game space for using their inside voice and the teacher would have placed a line through the inside voice expectation on her tracking sheet. This tracking sheet was utilized only by the teacher to help her monitor the expectations earned by each team. It did not get displayed to the class.

A classroom token system was developed in each classroom. This system was used in conjunction with the behavior game. Ms. H and Ms. C bucks were utilized as tokens. The teachers were asked to give these tokens out during the day to reward good behavior. The students earned tokens within the classroom throughout the day and used

them to purchase rewards from the teacher at the end of the week. The students were asked to vote on types of reinforcers that they would like to purchase (see Appendix M & N).

The token system was used within the format of the behavior game. The game board spaces were constructed so that students could earn a token (short-term reward) on a fixed ratio schedule of six. For every six spaces on the game board that a team's game piece moved, each member of the group earned one classroom token. Groups received one token and positive praise contingent on their group's game piece either landing on or passing the token game board space. At no time did the groups lose spaces on the game board for inappropriate behaviors.

The behavior game also included randomized long-term reinforcement and randomized criterion levels. Both the rewards and performance levels were determined utilizing a lottery system. The students were advised that the numbers on the spaces will be placed into a performance level bin. The game board spaces were numbered from one to seventy-five, one space for every expectation met throughout the week. For example, fifteen spaces could be earned each day, with five school days in the week which totals the seventy-five spaces. The investigator took note of the days that were half days and calculated the appropriate number of opportunities. For example, on a half day, the classes would miss the last two time intervals; therefore, six game space numbers were taken out of the criterion bin for that week. This process kept the opportunity equal when either a school day scheduled off or if a half day was scheduled.

At the end of designated week, the teacher announced to the group that it was time to determine what teams would be participating in 'Fun Friday.' First, the teacher

pulled from the reward bin to determine what weekly activity the teams earned. This bin included several predetermined rewards that were selected prior to the game beginning (see Appendix O). The teacher announced the reward to the class and then announced that she would see which teams earned the activity. At this time, she pulled a number out of the performance level bin to determine what number space the group should be on or have passed in order to earn the reward. This number was announced to the class along with the groups that met the performance level. A changing criterion element was added to the long-term lottery system. Prior to the implementation of the game, a range of spaces were decided on by the investigator to place into the performance bin. This procedure was designed to ensure that all groups could have a better opportunity to come into contact with the reinforcer. The investigator utilized the first twenty-five game space numbers for the first week. In other words, the criterion was shifted to include only game spaces 1-25 for the first week. However, during this first week, the students were at an assembly for two time intervals; therefore, numbers 20-25 were removed from the bin in order to adjust for the missing game time. During the second week, the progress from the first week was considered. Therefore, the researcher added 10 additional numbers into the performance level bin. The students were unaware of this procedure.

Data were collected on the number of game spaces that each group earned during the day. The teacher was asked to record the number space that the group started and ended on each day. This information was utilized to tally the number of expectations that each group met during each day.

Prior to implementing the game, the teacher conducted a class survey in order to determine some preferred reinforcers for the long-term reinforcement. The teacher was

provided with a reinforcement survey to complete this task. The teacher asked the students to raise their hand if they would like to earn each reward on the list. Students were informed that they could vote more than one time. At least six long-term rewards were voted on. Once the long-term rewards (i.e., fun Friday activities) were determined, the teacher filled the reward slips and placed them into the reward bin. The weekly reward was delivered to each student in each group contingent on the group's game piece either landing on or passing the number space that was pulled from the performance level bin. Reinforcers were only drawn if at least one group met the performance level (Skinner, Cashwell, & Dunn, 1996).

The teacher followed the same procedure to survey the students on back-up reinforcers for the classroom token system. The teacher was provided with a reinforcement survey to complete the task. At least fifteen rewards were voted on. During the class's weekly reward time, the class store was opened for the students to purchase these backup reinforcers using the tokens that they had earned.

Interobserver Agreement

Interobserver agreement checks were conducted across 30% of the observation periods. Interobserver agreement was conducted by a trained observer utilizing a tape recorder, splitter, and separate head phones which prompted the beginning and end of each time interval. Interobserver agreement was calculated utilizing an interval-by-interval method. All intervals for both the investigator and the second observer were compared, and the total number of intervals that agreed between the two observers divided by the total number of intervals observed, multiplied by 100 provided a agreement percentage. The scores were compared for all intervals within each

observation session. The criterion selected prior to the study beginning was 85% or higher agreement. Agreement ranged from 87% to 97%.

Interobserver agreement checks were also conducted on the game piece data collected by the teachers. The researcher reported to the classrooms at the beginning of at least 30% of the days to conduct interobserver agreement checks. These checks consisted of recording the game spaces on which the groups began. At the end of the same day, the investigator returned to the classrooms to collect the data on the ending space. The number of spaces were calculated by subtracting the beginning space number by the ending space number. These data were verified by comparing the teachers' data sheet with the investigator's data sheet for the designated days. The criterion for interobserver agreement was 85% or higher. If the score was not at 85%, the teacher was given feedback regarding the investigator's observations for that day and another check was scheduled for the following day. Agreement was 100% for both teachers on all agreement checks.

Social Validity

The social value that the intervention had for the participants is just as important as the effectiveness of the intervention. Baer, Wolf, and Risley (1968) suggest that an intervention should not only be effective in changing the behaviors, but should be determined to be socially acceptable. A treatment although effective, may not be implemented correctly if it is not socially acceptable (Witt & Elliott, 1985). Witt and Martens (1983) developed and analyzed the Intervention Rating Profile as a tool to assess the acceptability of classroom interventions. This tool was developed to measure the appropriateness of the intervention, the amount of time needed to implement the program,

adverse effects on the students, and whether it poses unnecessary risk to the students (Witt & Martens, 1983). Reliability of the IRP has been established using Cronach's alpha and was found to be .91 (Witt & Elliot, 1985; Witt & Martens, 1983).

As part of this intervention, teachers were asked to complete a modified version of the IRP. The modified IRP asked teachers to score each item based on a 5-point Likert scale (i.e. 1= strongly agree, 2=agree, 3=neither agree nor disagree, 4=disagree, and 5= strongly disagree) (Appendix P). To evaluate the students' acceptability of the program, a modified version of the CIRP was utilized (Witt & Elliott, 1985). Reliability of the CIRP has not yet been established. The modified CIRP asked the students to score each item based on a 3-point Likert scale utilizing cartoon faces (i.e., 😊 - Yes, 😐 - Not sure, ☹️ - No) (Appendix Q). These surveys was conducted after observations and the weekly reinforcer activity on the last day of the study.

Chapter Three

Results

Data were collected on all target behaviors for both the classroom as it functions as one organism, as well as, each individual target student within each classroom (three students within each class). These data were calculated into percentage of intervals during which behaviors occurred and graphed on a daily basis. Data were also collected on the expectations that each group had met for each day as recorded on the game space sheet. Data collected on the expectations were recorded as percentage data. Permanent product data were analyzed throughout the study to determine if the number of referrals decreased during the intervention phase.

Visual inspection was utilized to determine the impact of the intervention. By utilizing the multiple baseline design, the data were analyzed to determine if the behaviors changed from the baseline phase to the intervention phase according to the sequential application of the intervention. Data were also analyzed by calculating means, shifts in the level, trends, and the variability of the data.

Classroom Level Data Analysis on Target Behaviors

The behavior game had a positive effect on the target behaviors of the students in both classrooms. Figure 1 illustrates the percentage of 5-second intervals behavior was observed within each daily observation session in Ms. H's and Ms. C's classroom. Ms. H's off-task baseline data ranged from 23% during the first observation to 100% on the

last observation with a mean score of 77% (see Table 1). During the behavior game condition, Ms. H's classroom off-task behavior decreased to a mean of 38% and ranged from 17% to 67%. Off-task data displayed an immediate change in level on the day of implementation (shifting from 100% to 40%). The data for off-task behaviors during baseline were stable and present an upward trend ending with the last two days at 100%. A slight downward trend was present for off-task behavior during the intervention phase. However, the behavior game data for off-task indicates some variability. On May 19th the data dropped to 17% (lowest during intervention) and on May 24th the data increased to 67% (highest during intervention). On the day that 67% of the intervals were scored off-task, the observation session was shortened due to an end of the year school award ceremony. This observation lasted only three minutes before the students had to leave the classroom (36 out of the 120 intervals were scored). The latency of change for off-task behavior was one day. Once the intervention began; off-task behavior decreased and remained lower than baseline levels.

Ms. C's class off-task baseline data ranged from 23% on the first observation to 100% on the last observation with a mean score of 73%. During the behavior game condition, off-task behavior decreased to a range of 17% to 77% with a mean score of 41%. Off-task behavior showed a clear upward trend during the baseline condition. On the last three days 100% off-task was observed showing clear stability before the intervention was implemented. On May 15th, the data fell below the previous day's levels and then increased the following day. This shift may have been due to a guest speaker (resource officer giving a presentation during the observation time). On the first day of intervention, off-task behavior occurred during 17% of the intervals. Therefore, a

shift in level occurred. A slight upward trend was present during the intervention condition with some variability. A peak in the data occurred on May 22nd. On this day, a physical altercation occurred prior to observation's beginning. One student was sent out of the classroom, while the other was present in the class during observations. This student remained off-task for the majority of the intervals data were collected.

Baseline data for out of seat behavior in Ms. H's classroom ranged from 3% to 63% with a mean score of 31%. The scores decreased during the behavior game condition. The range of scores for out of seat during this condition was 0% to 22% with a mean score of 12%. Although baseline data for out of seat behavior showed some variability and a downward trend, an immediate shift in level is present on the first day of the intervention phase. The data shifted from 73% on the last day of the baseline to 30% on the first day the intervention was implemented. The data for out of seat behavior during the intervention phase are more stable; however, display a slight upward trend. Out of seat baseline data for Ms. C's class ranged from 7% to 97% with a mean score of 53%. This behavior decreased during the behavior game condition to a range of 0% to 13% with a mean score of 7%.

Ms. H's classroom baseline data for verbal disruption ranged from 32% to 73% with a mean score of 57%. Percentages of verbal disruption decreased during the behavior game condition. The range of scores during this condition was 0% to 30% with a mean score of 16%. The 30% was scored on the first day of the intervention displaying an immediate shift from the baseline levels. Verbal disruption data show stability for both conditions. There is a clear upward trend during the baseline condition with clear stability for the last three data points. In addition to an immediate shift in level, verbal

disruption data during the intervention condition displays a clear downward trend.

Baseline data for verbal disruptions in Ms. C's classroom had a range from 0% to 100% with a mean score of 73%. Verbal Disruptions decreased for Ms. C's class during the behavior game condition to a range of 10% to 17% with a mean score of 13%.

Physical disruption baseline data for Ms. H's classroom ranged from 13% to 40% with a mean score of 27%. This behavior decreased during the behavior game condition to a range of 0% to 11% with a mean score of 3%. Physical disruption data show some variability during baseline; however, are clearly stable during the intervention condition. A slight upward trend is observed for the baseline data. A clear shift in the data was observed once the intervention was implemented. Ms. C's physical disruption data during the baseline condition ranged from 0% to 43% with a mean score of 14% and decreased during the behavior game condition. The ranges during this condition were 0% to 3% with a mean score of 2%.

Ms. C's classroom data collected for out of seat behavior, verbal disruption, and physical disruption showed some variability; however, displayed clear upward trends during the baseline condition. Clear stability was observed for these behaviors during the intervention condition. An immediate shift in levels occurred once the intervention was implemented. Referral data were collected; however, no referrals were recorded during either condition for either classroom.

Classroom Level Data Analysis on Expectations

Data were collected on expectations met by each team in each classroom. Ms. H's expectation data were variable between teams. Table 2 indicates the daily percentages of expectations met for each team in Ms. H's classroom. All of Ms. H's teams' data were

above 50% for each day of intervention; meaning that each team earned at least 50% of the game spaces available for that day. The averages for each team throughout the intervention condition ranged from 71% to 86% of the opportunities per day. The intervention was implemented within Ms. H's classroom at the end of one week and for the entire following week. Therefore, the class had two opportunities to earn the weekly reinforcers. The data for four out of the five groups within Ms. H's class increased during the second week. The baseball team increased from 77% during week one to 85% during the following week. The football team increased from 80% to 89%, the volleyball team increased from 63% to 75%, and the basketball team increased from 73% to 79%. The soccer team decreased from 80% during the first week to 67% during the last week of school. During the first week, this group had a couple of students that were out of the classroom but returned for the following week of school.

Table 3 shows the daily percentages of expectations met by Ms. C's classroom. Ms. C's class expectation data were also variable. However, all the teams' data grouped at approximately the same level each day. On May 23rd and 24th, the data were lower than the other two days of intervention. The averages for each team throughout the intervention condition ranged from 53% to 68% of the opportunities per day.

Experimental control was evident in this study based on the analysis of the data. While the intervention was implemented in Ms. H's classroom, Ms. C's classroom remained in the baseline condition. During these two days of continuation of the baseline condition, off-task behavior remained stable at 100%, while both verbal disruption and out of seat behavior data had an upward trend. Once the intervention was implemented within Ms. C's classroom, an immediate shift in levels for all the behaviors occurred.

This finding illustrates that there were not carry over effects from the intervention in Ms. H's classroom to the baseline condition for Ms. C's classroom. Thus, some experimental control was demonstrated.

Figure 1. Percentage of Ms. H's and Ms. C's classroom behaviors.

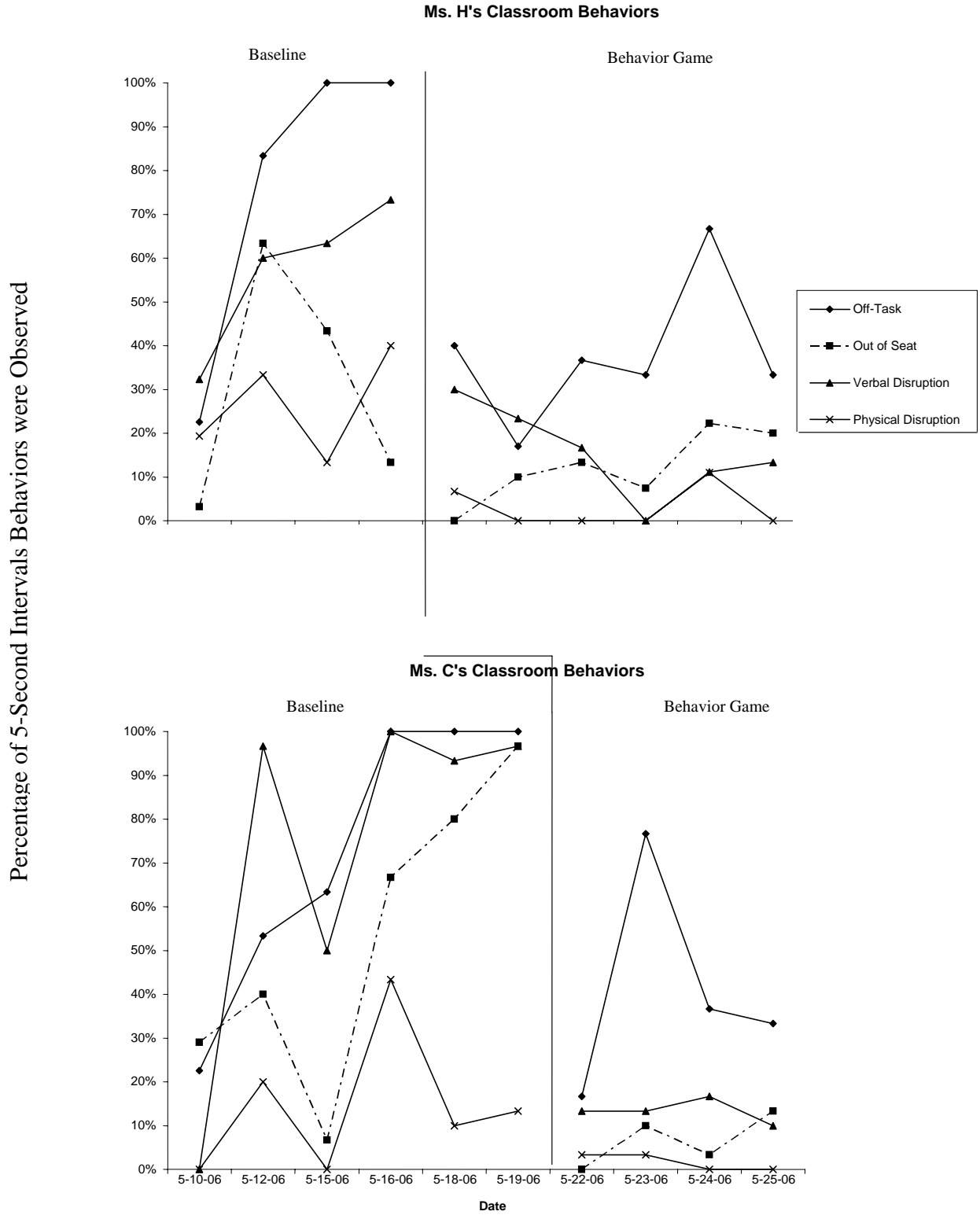


Table 1

Classroom Means of Target Behaviors Within Each Phase.

<i>Target Behaviors</i>	<i>Baseline Condition</i>	<i>Intervention Condition</i>
<i>Ms. H's Classroom</i>		
Off-Task	77%	38%
Out of Seat	31%	12%
Verbal Disruption	57%	16%
Physical Disruption	27%	3%
<i>Ms. C's Classroom</i>		
Off-Task	73%	41%
Out of Seat	53%	7%
Verbal Disruption	73%	13%
Physical Disruption	14%	2%

Table 2

Percentage of Expectations Met Per Day For Ms. H's Class

<i>Ms. H' Class</i>					
<i>Teams</i>					
<i>Date</i>	<i>Baseball</i>	<i>Football</i>	<i>Volleyball</i>	<i>Soccer</i>	<i>Basketball</i>
5-18-06	80%	67%	53%	80%	73%
5-19-06	73%	93%	73%	80%	73%
5-22-06	80%	100%	67%	53%	80%
5-23-06	67%	87%	73%	53%	87%
5-24-06	93%	80%	93%	73%	73%
5-25-06	100%	89%	67%	89%	78%

Table 3.

Percentage of Expectations Met Per Day for Ms. C's Class.

<i>Ms. C's Class</i>					
<i>Teams</i>					
<i>Date</i>	<i>Drum</i>	<i>Piano</i>	<i>Guitar</i>	<i>Harp</i>	<i>Violin</i>
5-22-06	50%	75%	58%	58%	83%
5-23-06	60%	40%	20%	27%	53%
5-24-06	33%	53%	33%	40%	47%
5-25-06	100%	100%	100%	100%	89%

Target Student Data Analysis

Data collected on target students in both classrooms indicate that the intervention had a positive effect on all four target behaviors. Baseline data for off-task behavior show an upward trend for all three target students in Ms. H's classroom (see Figure 2). However, Michael was absent from the classroom the day prior to implementation; however, his data indicate a strong increase from the 3% to 53% during baseline. Mean percentage scores range from 16% to 40% during baseline (see Table 4). Tammy's data displayed a stable upward trend during baseline, however, Michael and Brian's data were more variable.

Once the intervention was implemented, an immediate shift in level was observed. The mean percentage scores shifted for all three students; ranging from 3% to 11%. The data for all three students during intervention was more stable than baseline. Tammy's data indicate a slight downward trend during intervention. A strong effect was displayed in her data as her mean percentages were the highest during baseline and the lowest during the intervention. Michael's and Brian's data showed a slight upward trend the last two days of intervention; however, their levels were lower during intervention.

This upward trend began on the last two days of observation which were the last two days of the school year. Off-task baseline data for Ms. C's target students indicate upward trends for all three students (see Figure 2). The average mean scores for these students during baseline ranged from 16% to 39% (see Table 5). A shift in the levels was observed during the intervention phase for Walter and Michelle. Walter's mean scores shifted from 33% to 9% and Michelle's mean scores shifted from 39% to 2%. The data for Walter and Michelle showed more stability during intervention, while remaining at low levels. However, Lauren shifted up from 16% to 57%. This effect may have been due to only two observations sessions being conducted for Lauren. During the first intervention observation, Lauren was only observed three out of the thirty intervals. She left the classroom after the third interval scored on her behavior. During this observation, she was scored off-task for all of the three intervals scored. This observation alone brought her mean off-task percentage up.

Baseline data for out of seat behavior for Ms. H's target students range from 3% to 9% (see Figure 3). The data for all three students were stable. While Tammy's data indicated an upward trend, Michael's and Brian's data showed a downward trend. However, the levels during baseline were slightly higher than during intervention for all three students. The mean scores ranged decreased to a range from 1% to 4% during the intervention phase. The data for Ms. C's target students was slightly higher during baseline (see Figure 3). The data for all three students indicated upward trends. Once the intervention was implemented, the levels shifted down immediately to 0%. The mean levels during intervention ranged from 2% to 20% and decreased to 1% to 2%. The data

during baseline are clearly stable and remain at 0% until the last day of observation, which was also the last day of school.

Figure 4 indicates the data for verbal disruption across groups of target students. Baseline data for Ms. H's target students indicated slight downward trends during the baseline for all three students; however, the data show some variability. The mean scores ranged from 1% to 13% during baseline. The level shifted to 0% for all three students on the first day of intervention. The mean scores decreased to a range of 0% to 3% during intervention. A positive effect was also observed for two of the three target students for Ms. C's class. The data for all three students indicated upward trends during baseline. However, Lauren was only present for 50% of the observation sessions during baseline. The data for all three students are variable during baseline. Mean baseline scores range from 12% to 16%. Review of the mean scores indicated a clear shift in level for Walter and Michelle once the intervention was implemented. Mean scores for Walter decreased from 14% during baseline to 0% during the intervention phase. Mean scores for Michelle decreased from 12% during baseline to 1% during the intervention phase. The data for both Walter and Michelle show clear stability during the intervention phase. Walter remains at 0% during all of the intervention phase. Michelle remained at 0% until the last day of observations (also the last day of school) which increased to 3%.

Physical disruption data illustrated in Figure 5 indicates that the intervention had a positive effect for all the target students within both classrooms. Baseline data for Ms. H's target students indicated an upward trend for Tammy's data with some variability. The data for Michael and Brian are stable and level. The mean scores for these students are indicated on Table 4. Mean baseline scores ranged from 0% to 11%. A shift in level

was displayed in the data for Tammy. On the last day of baseline, Tammy was observed engaging in physical disruption 23% of the intervals scored. This decreased to 0% on the first day that the intervention was implemented and remained at 0% throughout the intervention phase. During the intervention phase, mean percentage of physical disruption was 0% for all Ms. H's target students. Baseline data for Ms. C's target students displayed upward trends. The data for Michelle is clearly the most stable. She was scored engaging in physical disruption 10% of the intervals scored for the last three baseline observation sessions. The mean percentage scores ranged from 0% to 11% during baseline and shifted immediately to 0% for all three students once the intervention was implemented. The mean percentage score throughout the intervention phase was 0%. Lauren's data; however, are not as reliable in making a conclusion regarding the intervention. Lauren was out of the classroom several days during the intervention. In addition, on the two days of observations during the intervention condition, Lauren left the room before the observations were completed. On May 24th, only 3 out of 30 intervals were scored for Lauren. On May 25th, only 50% of the intervals were scored (15 out of 30 intervals).

Figure 2. Off-task behavior for target students in each classroom.

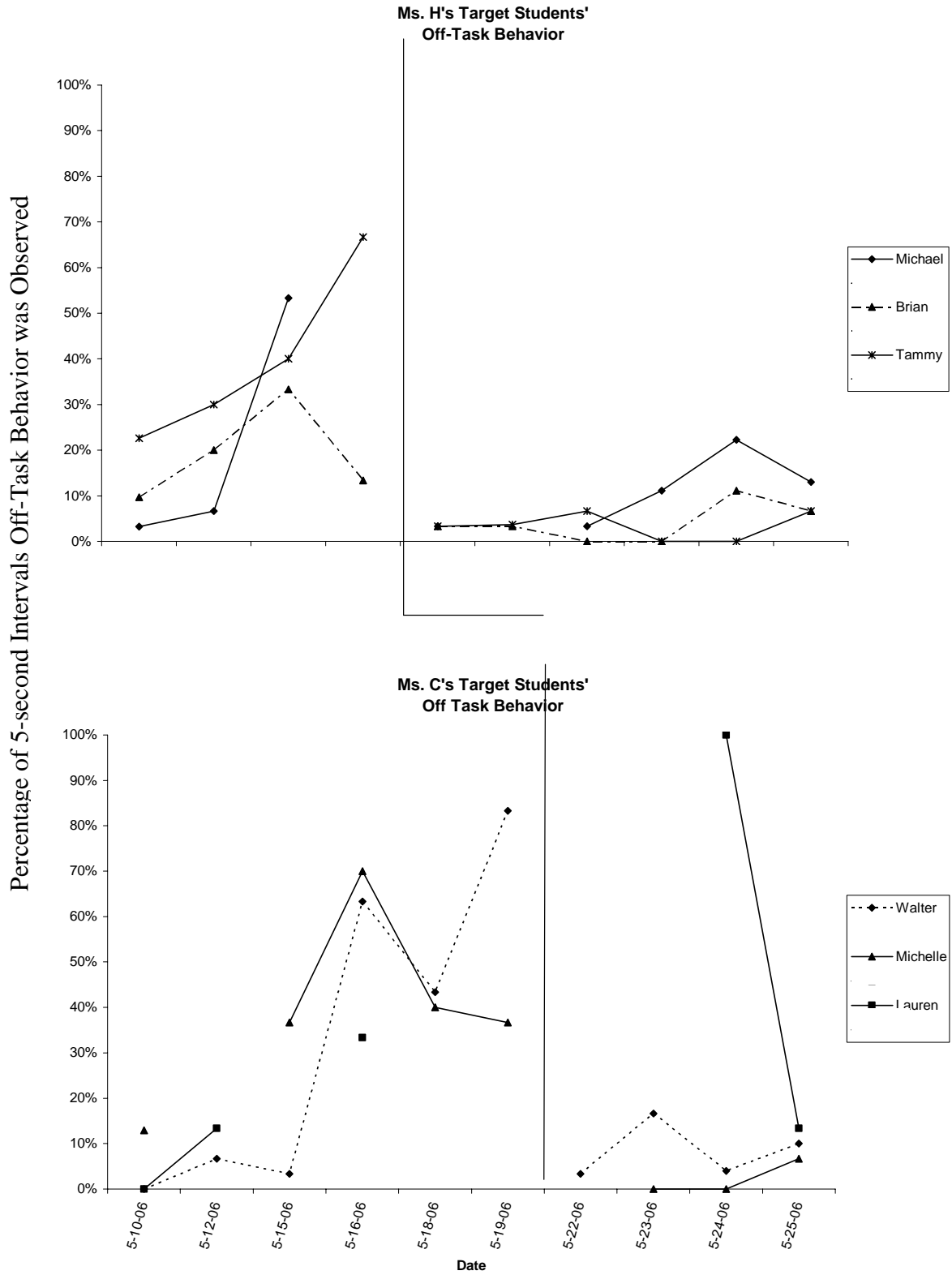


Figure 3. Out of seat behavior for target students in each classroom.

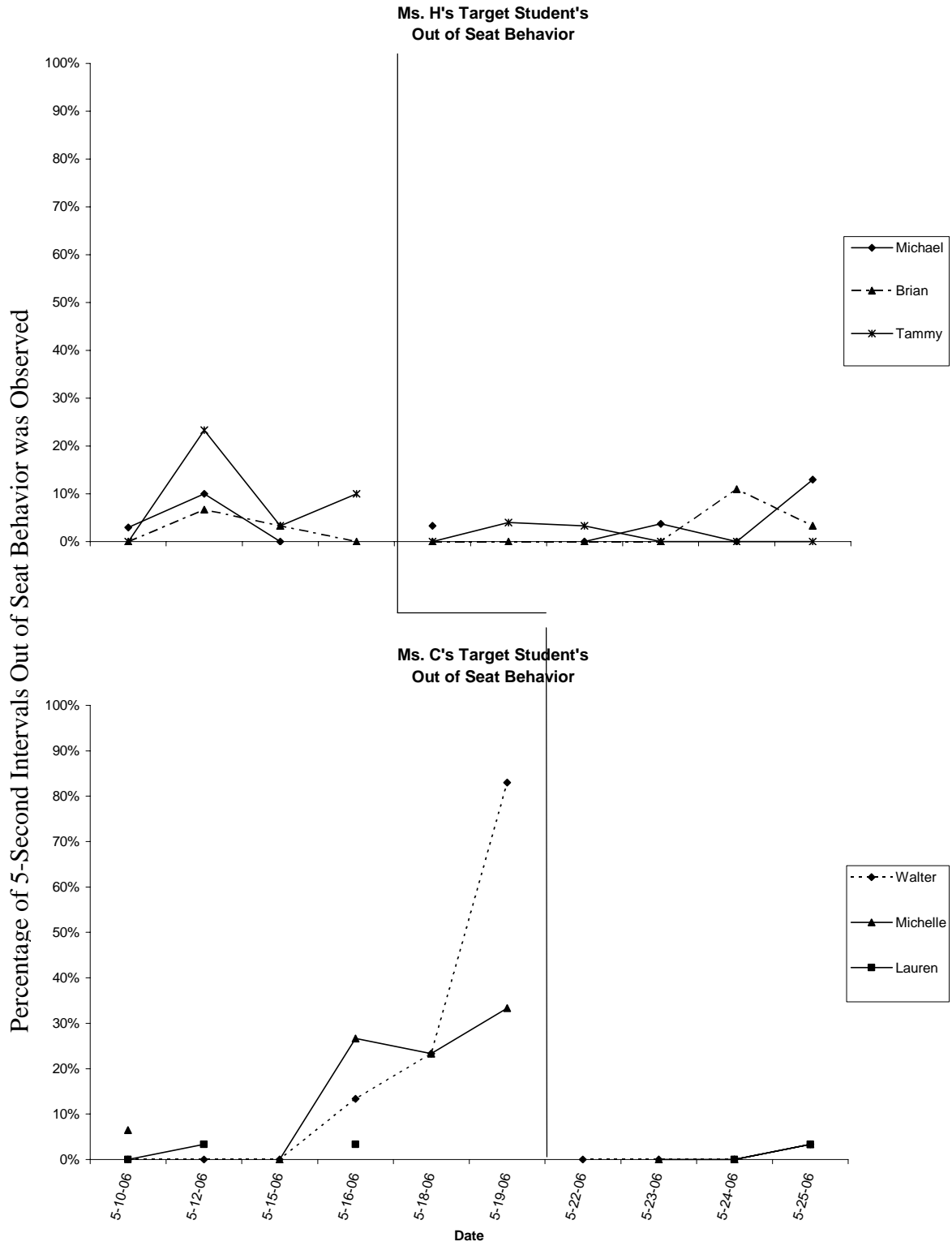


Figure 4. Verbal Disruption for target students in each classroom.

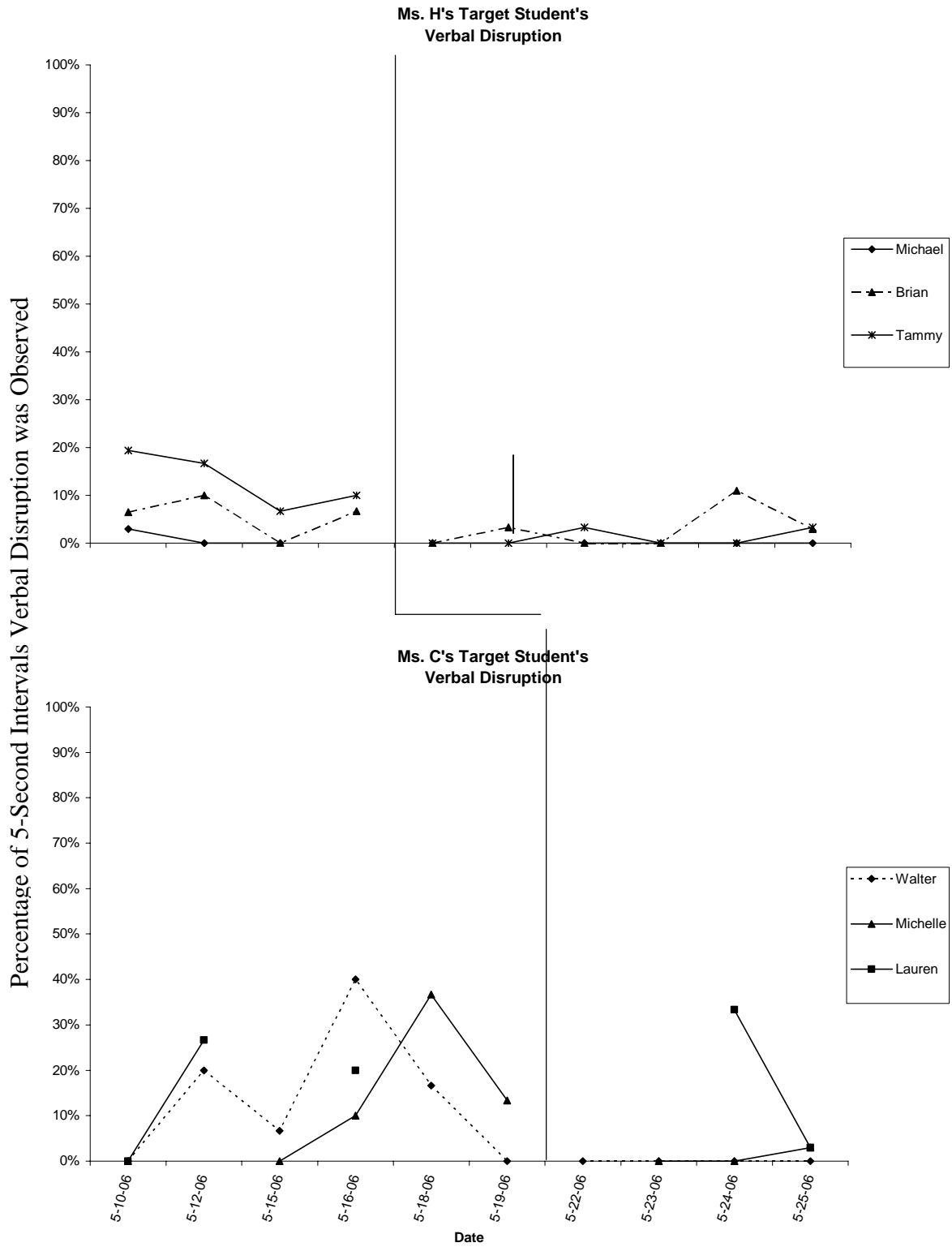


Figure 5. Physical Disruption for target students in each classroom.

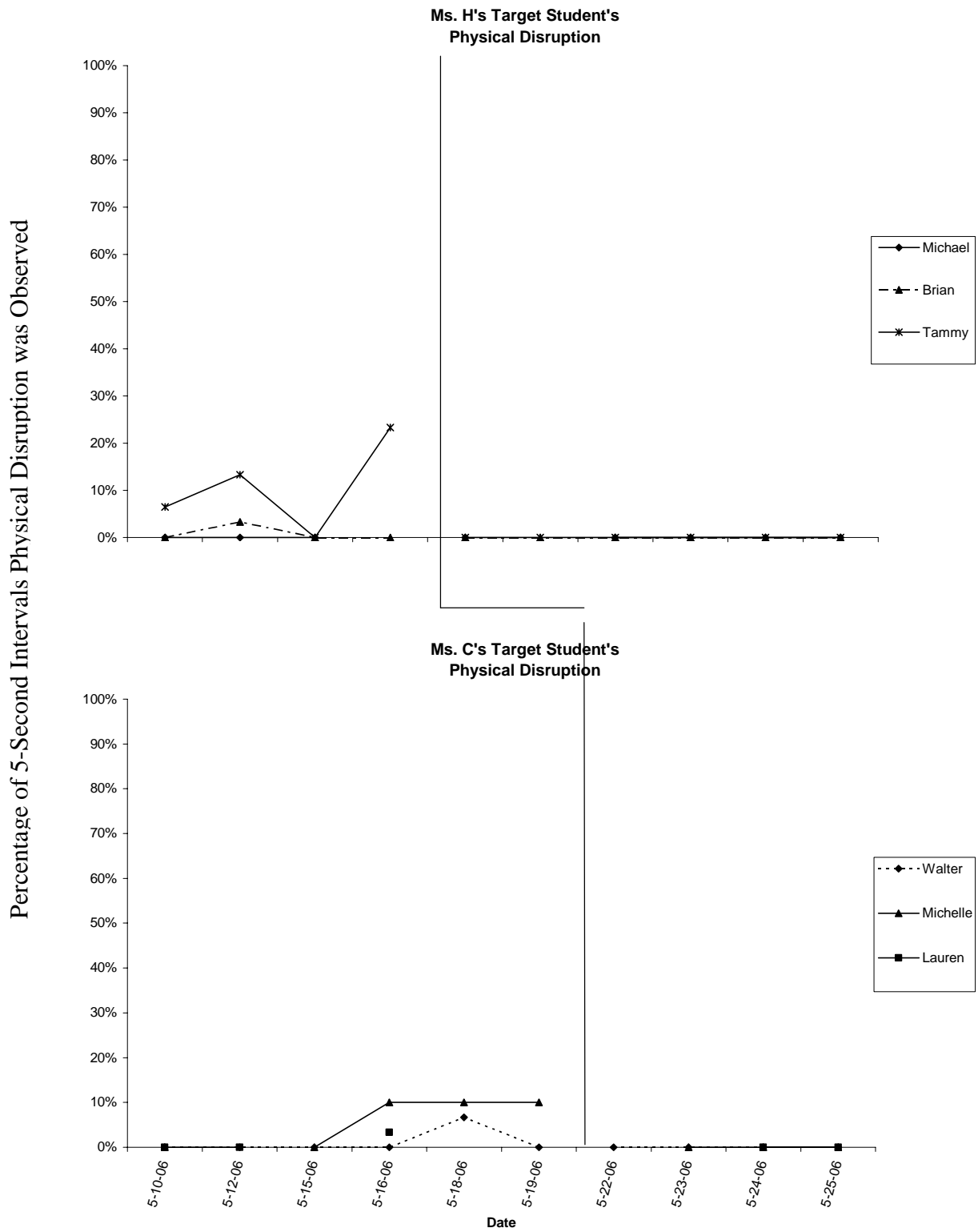


Table 4.

Mean Percentages for Target Students in Ms. H's Classroom

<i>Baseline Condition</i>		<i>Intervention Condition</i>	
<i>Behaviors</i>	<i>Mean %</i>	<i>Behaviors</i>	<i>Mean %</i>
Michael			
Off-task	16	Off-task	11
Out of Seat	3	Out of Seat	4
Verbal Disruption	1	Verbal Disruption	0
Physical Disruption	0	Physical Disruption	0
Brian			
Off-task	19	Off-task	4
Out of Seat	3	Out of Seat	2
Verbal Disruption	6	Verbal Disruption	3
Physical Disruption	1	Physical Disruption	0
Tammy			
Off-task	40	Off-task	3
Out of Seat	9	Out of Seat	1
Verbal Disruption	13	Verbal Disruption	1
Physical Disruption	11	Physical Disruption	0

Table 5.

Mean Percentages for Target Students in Ms. C's Classroom

<i>Baseline Condition</i>		<i>Intervention Condition</i>	
<i>Behaviors</i>	<i>Mean %</i>	<i>Behaviors</i>	<i>Mean %</i>
Walter			
Off-task	33	Off-task	9
Out of Seat	20	Out of Seat	1
Verbal Disruption	14	Verbal Disruption	0
Physical Disruption	1	Physical Disruption	0
Michelle			
Off-task	39	Off-task	2
Out of Seat	18	Out of Seat	1
Verbal Disruption	12	Verbal Disruption	1
Physical Disruption	6	Physical Disruption	0
Lauren			
Off-task	16	Off-task	57
Out of Seat	2	Out of Seat	2
Verbal Disruption	16	Verbal Disruption	18
Physical Disruption	1	Physical Disruption	0

Teacher Proficiency Data Analysis

Each teacher was observed during implementation of the behavior game. Data were collected on the teacher's accuracy in implementing each step. Proficiency data were collected on both the implementation of the daily procedures and the weekly reward procedures. Table 6 illustrates the percentage of accuracy during each teacher proficiency observation per day. Ms. H showed accuracy on the daily steps of the behavior game. She implemented the intervention with 100% accuracy for all observations on the daily procedures. On May 19th, Ms. H implemented the first weekly reward and implemented the intervention with 83% accuracy on her implementation. She

was given feedback on this day and scored during the second weekly reward procedure implementation. She implemented the intervention with 100% accuracy during this observation.

The intervention was implemented in Ms C's classroom for only four days. Teacher proficiency scores were collected on all four of those days. On the first day, Ms. C implemented the intervention with 60% accuracy and was given immediate performance feedback. On the same day, another observation was conducted which resulted in Ms. C implementing the intervention with 100% accuracy. On the second day of observations, Ms. C implemented the intervention with 67% accuracy on the daily procedure. She, again, was given feedback and another observation was conducted on the same day. She implemented the intervention with 100% accuracy during the second observation. On the third day, Ms. C implemented the intervention with 100% accuracy on the daily procedures. On the following day, she implemented the intervention with 83% on the daily procedures and was given feedback on those procedures. She was observed again on the daily procedures and implemented the intervention with 100% accuracy. On the same day, the weekly procedures were implemented by Ms. C. She implemented the intervention with 100% accuracy on these procedures.

Table 6.

Percentage of Accuracy During Teacher Proficiency Observations.

<i>Date</i>	<i>Initial Observations for Each Procedure</i>		<i>After Performance Feedback on Each Procedure</i>
	<i>Daily</i>	<i>Weekly</i>	<i>Daily</i>
Ms. H			
5-18-06	100%	----	NA
5-19-06	100%	83%	NA
5-22-06	100%	---	NA
5-23-06	NO	NO	NA
5-24-06	NO	---	NA
5-25-06	100%	100%	NA
Ms. C			
5-18-06	NA	NA	NA
5-19-06	NA	NA	NA
5-22-06	60%	---	100%
5-23-06	67%	---	100%
5-24-06	100%	---	NA
5-25-06	83%	100%	100%

NA indicates that observations were not applicable for that day

NO indicates that no observations were conducted.

--- indicates that that procedure was not implemented on that day.

Social Validity Analysis

The teachers completed a social validity questionnaire to determine the appropriateness, efficiency, and the teacher's interpretation of the effectiveness of the intervention. The teachers' questionnaire asked teachers to rate these aspects of the game using a 5-point Likert scale (i.e. 1= strongly agree, 2=agree, 3=neither agree nor disagree,

4=disagree, and 5= strongly disagree) (Appendix P). The teachers both strongly agreed that the intervention was easy to implement. One teacher strongly agreed that both she and the students enjoyed the intervention and that she would continue to use the intervention. She also strongly agreed that it improved the interactions between the students and taught them alternative responses to the target behaviors. Both teachers agreed that the intervention was effective in reducing the target behaviors. The other teacher agreed that she would continue to utilize the game and that she enjoyed the intervention. She indicated a rating of neither agree nor disagree in response to the students enjoying the intervention. Overall, there was a consensus among the teachers that the game was effective, appropriate, and efficient.

The students' social validity was also assessed at the end of this study. Students were asked to complete a six question social validity questionnaire utilizing a 3-point Likert scale (i.e. ☺ - Yes, ☹ - Not sure, ⊖ - No) (Appendix Q). This questionnaire was designed to evaluate the students' interpretation of both effectiveness and acceptability of the program. The data indicate that 88% of the students (N=33) that completed a social validity questionnaire enjoyed the behavior intervention. The additional 22% indicated that they were not sure if they liked the game. None of the students indicated that they did not think the intervention was fun. Seventy-three percent of the students indicated that the game helped them learn appropriate classroom responses. While the additional 27% indicated that not sure to this question. Sixty-seven percent of the students scored yes to the question that addressed working with other students appropriately. Only 3% stated that the intervention did not teach them how to work appropriately with other students and 30% answered not sure to this question. Students were asked if they thought

that the program helped them to make new friends; 45% stated yes, 27% stated not sure, and 28% stated no. Eighty-five percent of the students agreed that the behavior intervention helped them behave better while in class, while 15% stated that they were not sure. Finally, the students were asked if they would like the game to be in place next year; 97% stated yes, 3% (one student) stated not sure, and 0% of the students stated no.

Chapter Four

Discussion

The purpose of this study was to evaluate a classroom management technique that would be both effective for reducing problematic classroom behaviors while increasing alternative classroom responses and efficient for teacher implementation. The results of this study indicate that the intervention had a positive effect on the classroom behaviors of the participating third grade students.

Summary of Results

The average mean of the target behavior data was expected to decrease from baseline means during the intervention phase. The means for both classrooms show a decrease in mean levels once the intervention was implemented; however, greater effects were observed in Ms. C's classroom. These results may be due to the increased stability with three of the four behaviors; as well as, greater changes in the mean scores. The data for five of the target students indicate that the intervention had an effect on their classroom behaviors. As the data were analyzed, shifts in the level of the data were displayed immediately once the intervention was implemented for both the classrooms and five target students. The greater the shift in levels at the beginning of the intervention phase, the more confidence one has in the functional relation between the independent variable and the dependent variable. Variability was considered in analyzing the data. Stable data yield greater confidence in the results. In addition, stability makes

it easier to determine future patterns in the data. Ms. H's intervention data were fairly stable within the intervention condition; however, Ms. C's data show clear stability once the intervention was implemented.

The baseline data for Ms. C's classroom was variable. One the first day of observations, both classrooms were observing a movie. During this time majority of the students were on task and in their seat. For Ms. C's classroom, during the second and third observations sessions, a substitute was present in the room. During both of these observations, data trends were lower than the remaining three days of baseline observations.

The data for five of the target students were more stable during the intervention condition. Based on the data, it is likely that the students within these classrooms would continue to perform at the levels presented within the intervention condition. However, this result would not be expected for Lauren, because of the lack of data for her and analysis of her data does not indicate a positive effect. By utilizing a multiple baseline design across both classrooms and students, replication of these effects are illustrated. Overall, it appears that the intervention decreased problematic classroom behaviors for participating students.

The average mean of expectation data was expected to increase throughout the study. The mean score for expectations met for Ms. H's class increased from the first week to the second for four of the teams. The fifth team had two students that were not present during the first week which may have had an effect on the data. The intervention was not implemented within Ms. C's classroom until the last week of school; therefore, it is difficult to determine what the effects would have been on the expectations met.

Although it is clear that there was an effect on the target behaviors within both classrooms, it is difficult to determine data patterns for the expectations met.

During the intervention condition, teachers were asked to give verbal narratives to note any collateral behaviors (i.e., threats to other students, hitting, yelling at another student for not meeting an expectation, etc.). The investigator sat down with the teachers on three different occasions to discuss any concerns that they may had regarding the intervention. During this time, Ms. H reported that she enjoyed the game and that she knew that it would help with the behaviors; however, she did not think that it would have an immediate effect on the students. She did not report negative collateral behaviors; however, she mentioned she noticed the students prompted each other to stay on-task and be quiet (i.e., putting their finger over their lips, pointing to the book or worksheet assignment, etc.). These results supported previous research relating to building stronger social interactions between students (Skinner et al., 1999; Gresham & Gresham, 1982). Ms. H also reported that she could leave her classroom unattended if she needed to; whereas, before the intervention she could not. The investigator noted that on May 19th, upon entering the classroom to begin observations, Ms. H was not in the room and all but three students lifted their head to look up at the investigator. On May 23rd, Ms. H was called out of the room and another teacher filled in for her. During the first 16 minutes of the observation on this day, the substitute teacher remained in the room. On both of these days, the data for all behaviors were lower than the baseline data.

It is also important to note that on the first day of baseline observations, percentage scores were low for all behaviors across both classrooms. During this observation, both classrooms were watching a video on a school performance. During

this time, the majority of the students were on-task and in their seat. On May 11th and May 17th, no data were collected due to grade level field trips. Both classes on these days were off campus.

Implications

The results of this study indicated that this intervention offered the teachers a technique to reduce problematic classroom behaviors while incorporating alternative classroom responses within the classrooms. The teachers reported that this intervention was fun and easy to implement. This intervention offered the teachers a fun, positive and structured behavior management procedure. Because the game was easy to implement, the game was implemented appropriately and consistently within both classrooms. In fact, both teachers reported that they would implement this game in their classroom during the upcoming school year.

This study was developed to create a behavior management technique that the both the teachers would find easy to implement. As part of this intervention, the pre-baseline phase was a key component. However, the teachers viewed the pre-baseline assessment phase as time consuming. It is believed that the pre-baseline assessment was instrumental in structuring the teams and class expectations. The data show that the intervention was equally effective with all students within the classroom; therefore, it is beneficial for both the teacher and the students to incorporate this procedure. In fact, results of Barrish et al. (1969) did not incorporate a way of structuring the teams equally and the intervention was not found effective with some of the teams within this study. It was believed that this was due to the teams not being structured equally based on frequency of behaviors.

Although direct observations were not conducted on this outcome measure, narrative reporting from the teachers indicated an increase in social interactions between the groups of students. Both teachers indicated that less teacher redirection was utilized due to the team members prompting each other. Both teachers reported that the students worked better together during both social and academic times.

Results of this study indicate that the behavior intervention had a positive effect on the classroom behaviors overall and five of the six target students within each classroom. This intervention decreased the targeted behaviors across both classrooms and groups of target students. The results also indicated that the alternative classroom responses increased due to the intervention.

Gresham and Gresham (1982), Solomon and Tyne (1979), and Allen et al. (1980) suggest that an interdependent group oriented program is effective in changing students' classroom behaviors. Axelrod (1973) results indicated that an interdependent group-oriented contingency system is as effective as an individual contingency program in reducing problematic behaviors within the classroom setting. Herman and Tramontana (1971) compared an individual contingency program with an interdependent contingency program both paired with a token reinforcement system. These results, like Axelrod (1973), suggest that both are equally effective. Overall, the results of this study are consistent with the results of the previous research.

Limitations

Although this study incorporates several techniques to help minimize previous research limitations, it does not come without its own. One consideration of this research is that it does not examine maintenance and generalization of the effects. The study was

confined to the immediate classrooms. Ongoing research in this area should be considered.

Although the students working in teams has its benefits, there could also be aversive side effects to utilizing this technique. Students may use negative statements toward another student if/when that student engages in target behaviors. This study attempted to counter these effects by incorporating an appropriate talk (e.g., I will use my inside voice.) expectation within the structure of the game.

To show experimental control when utilizing the multiple baseline design, it is necessary to withhold the intervention from one or more baselines for a certain amount of time. Withholding the intervention may lead to prolonging the baseline phases if many settings are utilized within the study. By prolonging the baseline phase, it is possible that the behaviors will decrease during this phase through increased occasions to develop any appropriate, alternative responses to these behaviors (Kazdin, 1982). This study included only two classrooms and each baseline lasted no more than six days. Although prolonging the baseline was not a limitation in this study, attrition could have been. Because this study only consisted of two classrooms, one classroom could have been eliminated which would have eliminated the experimental control of the design. Considering these two issues, further research should include at least one more classroom; however, should not consist of more than three due to the collateral effects of prolonging additional baseline phases.

This study was conducted during the last three weeks of the school year. There are several reasons that the positive results may have been limited. By implementing this procedure closer to the beginning of the year, clearer results could have been established.

This would have eliminated a history of the teacher's inconsistency with implementing classroom management procedures. If the procedure was implemented at the beginning of the school year, the students would have had more opportunities to earn these reinforcers; therefore, possibly providing more buy-in by the students.

A basic characteristic of any science is the belief that the universe is lawful and one event occurs as a result of another event, or determinism (Cooper et al. 1987). In behavior analysis, a functional relationship between behaviors and the events surrounding these behaviors need to be considered when trying to change them. This study did not consider the functions of these behaviors prior to developing the procedures. In order to complete this assessment of the functions, each student would have to have been assessed individually. This task would have demanded a lot of time, preparation, and cost. The purpose of this study was to develop a classroom management system that would have been effective and efficient. If a procedure is too demanding of the teacher, she may not want to utilize it. If a system can be developed to minimize the teacher's time and resources, the possibility of being utilized may increase.

Directions for Future Research

Future research is needed. Follow-up studies should be conducted to include a wider range of grade levels and populations. Students with behavioral or emotional disorders should be considered as a target population. Future research should include more time during the implementation of the intervention to help clearly determine the effects. In addition, follow up should be considered to help review maintenance. The technique involved in this study did not incorporate generalization procedures for target behaviors that occur outside the classroom. Many times, when interviewing a teacher, the

teacher indicated that the majority of the problems occurred during transition time outside the classroom. This issue can be addressed in future research endeavors.

This intervention did not include procedures to program for fading. The intervention includes several visuals and tangibles within its framework. Because the game is paired with a token economy system, the game could be faded first while leaving the tokens in place. This would allow the teachers to continue to reinforce the teams each interval for engaging in alternative classroom behaviors while eliminating the game board. The teachers could then begin to fade out the tangibles by replacing them with classroom or team activities. The teachers could do this by allowing the students to purchase their Fun Friday activity rather than tangibles. Further research needs to be conducted to address fading of this intervention.

The effects of this management system on the social interactions should be examined. These measures should include teacher positive interactions (i.e., praise statements, teacher encouragement, etc.), teacher negative interactions (i.e., threats, down talking, etc.), and teacher redirections. Student interactions should also be considered (i.e., verbal threats toward other students, encouragement, redirections, etc.). Additional research should be considered to examine these outcome measures.

This study contributes to the research by providing a sound classroom behavior management technique to address problematic classroom behaviors. The intervention proves to be a positive and fun procedure for both the teachers and students. Results indicated that the hypothesis was accurate in suggesting that the intervention would have a positive effect on the problematic classroom behaviors the participating students.

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Appendices

Appendix C

Game Space Record

Number of Spaces Earned per Day

Date: _____

Recorder: _____

Group Name	Beginning Space #	Ending Space #

Appendix D

Teacher Training Proficiency Checklist













- Recorded the starting game space number on the recording sheet.
- Tracked groups spaces earned using small data sheet or board.
- Transitioned classroom to the game board when time to move spaces. (after each time interval/subject area).
- Announced how many spaces each group earned while moving their game pieces.
- Provided praise to each group as game pieces were moved.
- Provided tokens when groups either landed on or moved past a designated short-term reinforcement game space.

WEEKLY REWARD PROCEDURES

- Transitioned to the long-term reward time.
- Teacher pulled the weekly reward out of the reinforcement bin.
- Announced the reward to the class.
- Teacher pulled the game space number out of the performance level bin.
- Announced to the game space number and the groups that earned the reward for the week.
- Teacher allowed the students to trade in their tokens for their backup reward.

Appendix E

Sample of the Behavior Game Board

START	1	2	3	4	5		7	8	9	10	11
											
	23	22	21	20	19		17	16	15	14	13
25											
26	27	28	29		31	32	33	34	35		37
											38
50	49		47	46	45	44	43		41	40	39
51											
52	53		55	56	57	58	59		61	62	63
											64
Finish Line	75	74	73		71	70	69	68	67		65

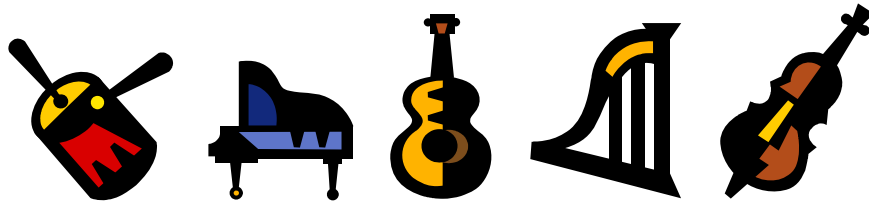
Appendix F

Sample of Game Pieces and Mascots

Ms. H's Teams



Ms. C's Teams



Appendix G

Sample of expectations poster utilized in each classroom

I will stay in my seat.

**I will use my inside voice or
raise my hand to ask a question.**

**I will stay on task (Complete
classwork /
listen while Ms. C's is teaching).**

Appendix H

Sample of Reward Poster



Appendix I

Time Interval Breakdown for Ms. H

<u>Subject Area</u>	<u>Time Interval</u>
Bellwork	1 st Time Interval
Language Arts	2 nd Time Interval
Reading	3 rd Time Interval
Science	4 th Time Interval
Math	5 th Time Interval

Appendix J

Time Interval Breakdown for Ms. C

<u>Subject Area</u>	<u>Time Interval</u>
Bellwork	1 st Time Interval
Math Instruction	2 nd Time Interval
Math Desk Work	3 rd Time Interval
Language Arts	4 th Time Interval
Reading	5 th Time Interval

Appendix K

Expectation Tracking Sheet for Ms. H.






Date: _____

				
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice

Appendix L

Expectation Tracking Sheet for Ms C.

Date: _____

				
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice
Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice	Stay in Seat On-Task Inside Voice

Appendix M

Reinforcer Survey

Class: Ms. H Reward type: Backup Reinforcers/ Short-Term

Reinforcer	0-5 Students	6-10 Students	10 or more Students
Teacher Helper	X		
Pencils		X	
Nail Polish	X		
Candy			X
Jump Ropes		X	
Nails	X		
Pickles			X
Spicy Sausages			X

Appendix N

Reinforcer Survey

Class: Ms. C Reward type: Backup Reinforcers/Short-Term

Reinforcer	0-5 Students	6-10 Students	10 or more Students
Football		X	
Soccer Ball		X	
Basketball		X	
Baseball		X	
Nails		X	
Handheld games		X	
Bubbles	X		
Jump ropes		X	
Candy			X
Pickles			X
Pickled Sausages			X
YoYos		X	
Chips/Hot			X
Peanuts			X
Sunflower seeds			X

Appendix O

Reinforcer Survey

Class: Ms. H

Reward type: Fun Friday /Long-Term

Reinforcer	0-5 Students	6-10 Students	10 or more Students
Science Subject Break	X		
Movie			X
Computer Time			X
Board Game Time		X	
Recess Outside			X

Reinforcer Survey

Class: Ms. C

Reward type: Fun Friday/Long-Term

Reinforcer	0-5 Students	6-10 Students	10 or more Students
Extra computer time (At the end of the day)			X
Game Time		X	
Recess Outside			X
Art Time	X		

Appendix P

Teacher Social Validity Questionnaire

Please rate your answer on a scale from 1 to 5.

- 1= strongly agree
- 2= agree
- 3= neither agree or disagree
- 4= disagree
- 5= strongly disagree

- 1) The students enjoyed the game
1 2 3 4 5
- 2) The game was easy to implement
1 2 3 4 5
- 3) The game helped to teach the students the classroom expectations
1 2 3 4 5
- 4) I liked using the game in my classroom
1 2 3 4 5
- 5) I will continue utilizing the game within my classroom
1 2 3 4 5
- 6) The game improved the interactions between the students
1 2 3 4 5
- 7) The game helped to eliminate problem behaviors within my classroom
1 2 3 4 5

Appendix Q

Student Social Validity Questionnaire

Please circle one of the faces below each question:

😊 - Yes 😐 - Not sure ☹️ - No

1) The game was fun.

😊 😐 ☹️

2) The game helped me learn how to be good in class.

😊 😐 ☹️

3) The game helped me learn to work with other students.

😊 😐 ☹️

4) I made new friends within my group by working together with them.

😊 😐 ☹️

5) I would like the game to remain in my classroom.

😊 😐 ☹️

6) The game helped me to be a better student for my teacher.

😊 😐 ☹️