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An Evaluation of Group Contingency Interventions: The Role of Teacher Preference

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An Evaluation of Group Contingency Interventions: The Role of Teacher Preference

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master’s of the Arts in Applied Behavior Analysis
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Abstract

Disruptive behavior within classrooms is a major concern for teachers and parents. Positive Behavior Interventions and Supports (PBIS) provides a multi-tiered framework for schools to provide supports to students, which are matched to each student’s needs. Whereas most students are successful with the school-wide supports provided to all students, approximately 20% of students are likely to require additional supports. Group contingencies have an established basis of support as effective Tier 2 interventions; however, these contingencies vary in a variety of dimensions that may influence their efficacy and acceptability. The purpose of this study was to evaluate the relative impact of four different group contingency types (independent, interdependent, dependent, and randomized) on class-wide appropriate and disruptive student behaviors as well as how implementation of a teacher’s preferred contingency may enhance student behavioral outcomes. Three general education teachers and their students participated in the study. All four group contingency types resulted in reduced disruption and increased appropriate behavior across all three classrooms. No patterns of differentiation were observed in any classroom. Teacher preference was assessed with two teachers selecting independent and two teachers selecting dependent contingencies as their preferred reward system. Implementation of the preferred contingency resulted in further improvements in both class-wide behaviors. Some evidence of generalization and maintenance was noted in all three classrooms.
Chapter 1:

Introduction

Schools and classrooms represent complex, dynamic settings with teachers, administrators, and students, each having a variety of strengths and needs that may influence the overall success of the school. While about two-thirds of national survey respondents indicated that schools should be responsible for addressing students’ behavioral, social-emotional, and academic needs, behavioral concerns have been consistently identified as one of the biggest problems schools face (Rose & Gallup, 2007). Similarly, a national survey of teachers (Public Agenda, 2004) indicated that teachers feel they would be more effective in their teaching practices if they did not spend so much time dealing with challenging behavior (77% of respondents), that new teachers are especially unprepared to manage challenging behavior (85%), and that student disciplinary problems have led them to consider leaving the teaching profession (34%). The same report indicated that, while teachers feel that schools deal relatively effectively with major disciplinary issues, such as weapon and drug violations, schools do not effectively address other more pervasive behavioral challenges such as horseplay, talking out, and being disrespectful to teachers. As students spend much of their time in schools, educators have the opportunity and responsibility to intervene such that the impact of factors placing students at risk for developing or worsening problem behavior is reduced or eliminated (Walker et al., 1996). Given the potential for both short and long-term negative consequences, schools
are in need of an efficient, effective system to identify and intervene with students who exhibit behavioral challenges in classrooms (Dunlap et al., 2006).

One such system, Positive Behavior Interventions and Supports (PBIS) uses a tiered service delivery model to provide supports to students in meeting their academic, social, and behavioral goals. Tier I consists of universal supports to help all students by establishing clear rules, expectations, and consequences for appropriate and inappropriate behaviors (Anderson & Kincaid, 2005; Sugai & Horner, 2009). Additional Tier II supports are provided at the small group or classroom level to assist students who are considered at-risk for developing patterns of behavioral challenges with the goal of building the students’ abilities such that they may be more responsive to universal interventions (Gresham, 2004). More intensive Tier III supports are provided to students with significant challenges to meeting academic, social, and behavioral goals, who are not successful with Tier II supports. Tier III supports include functional behavioral assessment and function-based intervention plans developed through a team-based process such as the Prevent-Teach-Reinforce model (Dunlap, Iovannone, Wilson, Kincaid, & Strain, 2010; Iovannone, Greenbaum, Wang, Kincaid, Dunlap, & Strain, 2009).

Whereas some students may need the intensive interventions characteristic of Tier III supports, effective use of Tier II strategies, such as group contingencies, can minimize the need for teachers to implement individual contingency interventions (Hulac & Benson, 2010). Group contingencies are considered to be Tier II interventions that are characterized by applying one or more of the contingency components (criteria, behaviors, or reinforcers) to the performance of more than one individual. These procedures incorporate both teacher-mediated and peer-mediated reinforcement to promote behavior change across all group members (Hulac & Benson, 2010; Skinner, Skinner, & Burton, 2009) and tend to result in more cooperation among diverse
groups of students than individual contingencies (Williamson, Williamson, Watkins, & Hughes, 1992). By reducing the number of contingencies the teacher must track, group contingencies have the potential advantages of requiring less of the teacher's time while promoting the perception of fairness in the classroom. In contrast, implementation of individual (Tier III) contingencies often raises concerns about fairness to students who are not given the opportunity to earn favorable consequences and may result in additional students engaging in problem behavior so that they can participate (Skinner, Skinner, & Sterling-Turner, 2002). This indicates that interventions that lack social validity or contextual fit may not be effective or sustainable classroom interventions (Benazzi, Horner, & Good, 2006; McIntosh, Filter, Bennett, Ryan, & Sugai, 2010).

Group contingencies are generally characterized as independent, dependent, or interdependent (Skinner et al., 2002; Skinner et al., 2009). Independent contingencies are frequently utilized in educational settings by applying the same criteria and consequences to the same target behaviors for all students such that each student’s behavior determines his/her own consequences. This is to be distinguished from individual contingencies by the consistency of the criteria, consequences, and targeted behaviors across all students. Dependent contingencies differ from independent contingencies in that all or none of the students in the group access the reward based on the performance of one student or a small group of students (e.g., the third row). As with dependent contingencies, interdependent contingencies result in all or none of the students accessing a reward but in this arrangement, access is determined by a measure of the whole group’s performance such as the mean, minimum, or maximum score.

Group contingencies have several limitations that can be addressed by randomizing one or more components of the contingency (Skinner et al., 2002). Students may stop altering their
behavior if they have already met or failed to meet the established criteria. However, giving up or underachieving can be minimized if, instead of announcing the specific expectations prior to the start of the intervention period, the implementer announces or selects the general range of requirements and the specific criteria (e.g., Hawkins, Musti-Rao, Hughes, Berry, & McGuire, 2009; McKissick, Hawkins, Lentz, Hailley, & McGuire, 2010), contingency type (e.g., Coogan, Kehle, Bray, & Chafouleas, 2007; Kelshaw-Levering, Sterling-Turner, Henry, & Skinner, 2000), or target behaviors (e.g., Hawkins et al., 2009; Heering & Wilder, 2006; McKissick et al., 2010) are selected at the end of the intervention period. Similarly, with dependent contingencies, randomly selecting the target student or group is advised so that all members must monitor their behavior and the target student is only identified after the intervention period if reinforcement is earned (e.g., Alric, Bray, Kehle, Chafouleas, & Theodore, 2007). In addition, whereas a variety of preference assessment procedures are available when selecting an item or activity for an individual contingency (DeLeon & Iwata, 1996; Fisher et al., 1992; Pace, Ivancic, Edwards, Iwata, & Page, 1985), selecting items or activities that will function as reinforcers for an entire class is more difficult (e.g., Lo & Cartledge, 2004). To maximize the motivation of all students to earn the reinforcer, an unknown consequence, sometimes referred to as a Mystery Motivator, is only selected and revealed after the teacher has determined that the criteria for reinforcement were met (e.g., Alric et al., 2007; Little, Akin-Little, & Newman-Eig, 2010; Murphy, Theodore, Aloiso, Alric-Edwards, & Hughes, 2007). By randomly selecting the criteria, contingency type, target behaviors, target students, and/or reinforcers, many of the limitations of group contingencies can be eliminated or reduced.

Group contingencies are well-established evidence-based interventions (Maggin, Fallon, Hagermoser-Sanetti, & Ruberto, 2012; Stage & Quiroz, 1997) that have proven effective across a
wide range of behaviors. Group contingencies have been successfully applied to acquisition skills including reading (Alric et al., 2007; Chapman & Cope, 2004), math (Hawkins et al., 2009), prosocial reports ("tootling"; Cashwell, Skinner, & Smith, 2001; Skinner, Cashwell, & Skinner, 2000), on-task behavior (Heering & Wilder, 2006), and quiz scores (Sharp & Skinner, 2004). Additionally, these procedures have been used to reduce problem behaviors such as disruption (Brantley & Webster, 1993), inappropriate vocalizations (Davies & Witte, 2000; Kirk et al., 2010), off-task behavior (Kraemer, Davies, Arndt, & Hunley, 2012), and other inappropriate behavior (Reitman, Murphy, Hupp, & O’Callaghan, 2004).

Comparisons between group contingency types have been limited and have yielded mixed results. For example, in their analyses of two-way and three-way comparative studies, Theodore, Bray, Kehle, and DioGuardi (2004) noted that dependent contingencies are generally equivalent or superior to independent or individual contingencies. However, they only evaluated two studies comparing all three group contingency types, one of which found the interventions to be approximately equivalent (Shapiro & Goldberg, 1986) and the other found that interdependent and dependent contingencies were more effective than independent contingencies (Gresham & Gresham, 1982). Results of other studies have also suggested that the types of group contingencies are approximately equivalent in efficacy (e.g., Alric et al., 2007; Speltz, Shimamura, & McReynolds, 1982). However, none of these studies compared all three contingency types within the natural context of elementary general education classrooms. Although many studies suggest that the interventions are approximately equivalent, these mixed findings highlight the need for further evaluation.

The PBIS approach to classroom management emphasizes incorporation of key stakeholders in the process of intervention selection, design, and implementation to increase the
external validity, contextual fit, and social validity of interventions (Carr et al., 2002). Many researchers have demonstrated that group contingencies are rated as highly acceptable by teachers (e.g., Cihak, Kirk, & Boon, 2009; Heering & Wilder, 2006; Wright & McCurdy, 2012) but only a few have evaluated comparative acceptability of the group contingency types (Elliott, Turco, & Gresham, 1987; Tingstrom, 1994), and none has evaluated teachers’ preferences using choice as the indicator of group contingency preference. Choosing to implement an intervention in the classroom may be a more accurate measure of preference, and the implementation of group contingencies preferred by teachers should be facilitated as research has often demonstrated that the reported acceptability of interventions does not necessarily coincide with actual implementation of the interventions (Filcheck, McNeil, Greco, & Bernard, 2004; Reitman et al., 2004).

The contradiction observed between reported preference and treatment implementation also indicates the need for further research to identify factors influencing teacher's decisions when selecting and implementing classroom interventions. Class-wide or Tier II interventions have much appeal over interventions targeting individual students, considering that the class-wide or targeted group interventions support many more students and are, therefore, more cost effective. In selecting interventions, teachers may consider effectiveness and efficiency (Vaughn et al., 2000); however, it is not known what factors or variables the teachers consider when selecting the type of group contingency intervention.

Therefore, the purpose of this study was to evaluate the relative impact of different group contingency types on class-wide student behavior as well as how teacher preference may enhance student behavioral outcomes. This study extends the literature by: a) evaluating the relative impact of four types of group contingency interventions (independent, dependent,
interdependent, and randomized contingency) in the context of naturally occurring activities in general education elementary classrooms; b) evaluating the impact of teacher preference for group contingency types on class-wide student behavioral outcomes; and c) identifying the factors influencing teacher preference. This study addressed the following research questions:

1. To what extent will group contingencies impact class-wide levels of disruptive behavior and appropriate behavior during a targeted instructional period?
2. Which group contingency will result in the best class-wide behavioral outcomes (e.g., reduced disruptive behavior and/or increased appropriate behavior)?
3. To what extent will implementation of the teacher’s preferred group contingency enhance student outcomes?
4. Will teacher implementation of group contingency procedures and student behavior change generalize to a non-targeted instructional period?
5. What factors do teachers consider when selecting the type of group contingency to implement?
Chapter 2:

Method

Setting

This study took place at a local low socioeconomic status (SES) elementary school (Pre-K through 5th grade) in an urban city. This research site was a Professional Development School that emphasized teacher training and staff development, as well as development and implementation of research-based practices for education. The school had a population of approximately 700 students and was a Title 1 school with more than 90% of the students eligible for free or reduced price lunch. During the most recent school year, which was the school’s fourth year of school-wide PBIS implementation, the school scored 72% on their Benchmarks of Quality assessment. This is indicative of slightly below average (79%) implementation of school-wide PBIS (Florida’s Positive Behavior Support Project, 2013).

When implementing the PBIS multi-tiered system of supports, it is suggested that approximately 80% of students will be successful with only Tier 1 supports (students receiving at most 1 ODR), about 15% of students will be successful with additional Tier 2 supports (students receiving 2-5 ODRs), and about 5% of students may require Tier 3 supports (students with 6 or more ODRs; Anderson & Scott, 2009). Data reported from this research site for the 2012-2013 school year indicated that 54% of the students received 0-1 Office Discipline Referrals (ODRs), 36% of the students received 2-5 ODRs, and 10% of the students received six or more ODRs.
The large percentage of students with more than two ODRs during the most recent school year indicated the need for enhancing school-wide implementation as well as implementing evidence-based Tier 2 strategies such as group contingencies.

**Participants**

Participants in this study included students and teachers in three classrooms. Parents of all students in participating classrooms were given detailed information regarding this study and all students in the classroom were asked to verbally assent to participate. All children participating in this research were under 12 years of age. Demographic characteristics for each class are presented in Table 1.

The targeted classes were determined based on results of a brief teacher interview (approximately 10 minutes) and classroom observation which identified teachers interested in using group contingency interventions and classes in need of class-wide Tier 2 supports. Selection criteria for classes included: (a) the teacher consented to participate in training and implementation; (b) the teacher had little or no previous experience implementing group contingency procedures; (c) at least three students in the class engaged in disruptive behaviors; (d) disruptive behavior was reported to occur daily during at least two different instructional periods; and (e) at least 80% of students' parents provided informed consent for their participation. Classes were excluded from the study if the previous criteria were not met or if the disruptive behaviors of concern were dangerous to the student or to others. The teacher interviews were conducted by the researcher using a questionnaire (see Appendix A) that included items designed to identify the problematic instructional periods, potential target behaviors, and the number of students having difficulties with academic engagement and/or engaging in disruptive behavior. Direct observations were also conducted by the researcher in
classrooms meeting these criteria to confirm the presence of disruptive behaviors from three or more students and in at least 30% of observed intervals. The researcher observed each class during at least 15 minutes of each identified problematic instructional period using 15 second partial interval recording to document the overall occurrence of disruptive behavior of all students in the class. The researcher also noted the number of different students engaging in problem behaviors and the specific behaviors observed.

Class 1 was a third grade class with 15 students. Teacher 1 had begun teaching this class late in the first quarter of the school year. She indicated that three students exhibited disruptive behaviors daily or almost daily and reported stomping, moving desks, growling, crying, and leaving the assigned area as behaviors of concern. She reported that these problems occurred throughout the day during varied instructional periods and chose to target reading as the intervention period. This instructional period usually included a combination of large group instruction, with the teacher presenting material to the class and asking for student responses, and independent reading work. Some students received additional support during this time period from a reading coach, who moved from student to student providing brief assistance, and a special education teacher, who assisted two specific students daily. These students were still included in all measures of appropriate and disruptive behaviors as long as they remained in the classroom. The selected generalization period was reading groups, which involved several students working with the teacher, several working with a reading coach, and the remaining students reading independently. During the researcher’s initial observation, which was 15 minutes long, four students engaged in disruption which occurred during 73.3% of intervals.

Class 2 was a second grade class with 15 students. Teacher 2 indicated that three students exhibited disruptive behaviors and reported talking out, being out of seats, rocking chairs off of
the ground, and using materials inappropriately as behaviors of concern. She reported that these
problems occurred daily during various instructional periods and chose to target reading as the
intervention period. Instruction during this time period typically began with the teacher
presenting material in a large group format and then assigning independent work. Students were
also often asked to discuss the material with partners. Reading instruction sometimes included
sitting in the carpet area, but usually required the students to sit at their desks for the majority of
the lesson. The generalization period was math which also included a mixture of large group
instruction and independent work. During the researcher’s initial observation, which lasted 15
minutes, six students engaged in disruption which occurred during 83.3% of intervals.

Class 3 was a kindergarten class with 17 students. Teacher 3 indicated that four students
exhibited frequent disruptive behaviors and reported noncompliance, minor aggression,
wandering around the room, teasing, screaming, and talking out of turn as behaviors of concern.
She reported that two of these students engaged in problem behaviors daily while the other two
were less predictable. The behaviors occurred during all instructional periods but the teacher
chose to target math as the intervention period. Math lessons generally included large group
instruction followed by small group work. Students were sometimes asked to sit on a large carpet
and attend to material projected onto the board or were asked to sit at their desks and complete
worksheets that involved using math manipulatives as well as a variety of materials such as glue,
scissors, pencils, and/or crayons. The generalization period was science, which was presented in
a similar format with a mixture of large and small group instruction and included hands-on
activities. During the researcher’s initial observation, which lasted 21 minutes, eight students
engaged in disruption which occurred during 75% of intervals. Two students were removed from
the classroom and taken to the office due to the severity of their disruptive behaviors.
Data Collection

The dependent variables for this study included class-wide disruptive behavior and appropriate behavior as well as teacher implementation fidelity. These data were collected during direct observations which were conducted during targeted instructional time periods. All data were collected by the researcher and trained research assistants who had completed or were enrolled in an Applied Behavior Analysis undergraduate or graduate level courses. All data collectors were trained on the partial interval, planned activity check (PLACHECK), and treatment fidelity data collection procedures. Data collector training included scoring online video clips portraying classroom activities, using definitions similar to the operational definitions developed for each class. A score of 90% or better on the training session was required for each target behavior prior to serving as a data collector during research sessions.

Observations occurred 3-5 times per week for each class, using an electronic timer to signal the intervals within 30-minute sessions. The observers used the vibration setting to avoid disturbing the class. Data collection during baseline began at the beginning of the targeted instructional period and lasted for 30 minutes or until the end of the targeted period, whichever occurred first. During intervention conditions data collection began after the teacher read the script and ended after 30 minutes or when the instructional period was over, whichever occurred first. Table 2 shows the duration of sessions for each class by condition.

Class-wide disruptive behavior. Trained observers recorded partial interval data on the occurrence or nonoccurrence of disruptive behavior in the classroom (see Appendix B). The observers recorded an occurrence any time any student engaged in a targeted disruptive behavior. The specific behaviors were determined and defined in collaboration with the teacher and were coordinated with the classroom rules and school-wide expectations. Disruptive behaviors that
were targeted for all three classes were talking to peers or making vocalizations without permission, leaving assigned area without permission, and engaging with objects unrelated to the task or using task materials in ways unrelated to the task. In Class 1, disruption also included laying the student’s head on the desk such that he/she was unable to see the task materials or the person speaking. In Class 3, disruption included minor aggression (hitting, pushing, or kicking) since these behaviors were observed during the initial observation and reported by the teacher. The occurrence of these behaviors was recorded during the designated instructional periods. Data collection ended following 30 minutes of observation or when the designated instructional period was over, whichever occurred first. A 15-second partial interval recording procedure was used, and the percentage of intervals during which each behavior occurred was calculated by dividing the number of intervals in which the behavior occurred, by the total number of intervals observed.

**Class-wide appropriate behavior.** Trained observers recorded the number of students who were engaging in the targeted appropriate behavior using a planned activity check (PLACHECK) procedure. This variation of momentary time sampling is used to provide a measure of “group behavior” (Cooper, Heron, & Heward, 2007). During designated intervals, observers counted the number of students who were engaging in the targeted appropriate behavior. The number of students engaging in the appropriate behavior was recorded at the end of each 3-minute interval. The number of students engaged in appropriate behavior was later divided by the number of students present and multiplied by 100 to obtain the percentage of students engaged in appropriate behavior at each planned check. Any changes in the number of students present in the classroom were noted throughout the session to ensure that these percentages were accurate. The average level of appropriate behavior for each session was
determined by adding the percentage of students engaged in the appropriate behavior at each check and dividing by the number of checks.

For all classes, the targeted appropriate behavior was being on task, defined as being in the assigned area with his/her head oriented towards the designated task materials or towards a person who is speaking with teacher permission. For example, the student had to be in his/her assigned spot on the carpet or at his/her desk in order to be counted as engaging in appropriate behavior. In addition to being in the appropriate area, the student had to be looking at the assigned book or worksheet, at the teacher if she was speaking to the class, or at another student who had been given permission to speak. Students were also counted as engaged in appropriate behavior if they were transitioning between areas (e.g. getting a new pencil, getting water, going to the bathroom, etc.) with teacher permission.

**Teacher implementation fidelity.** Trained observers completed a treatment fidelity checklist (see Appendix C) indicating the extent to which the teacher implemented each required intervention component as planned during each observation. This checklist was scored using a yes/no format and addressed both intervention adherence and quality. The adherence component assessed whether the teacher implemented each component and the quality component assessed the accuracy and completeness of implementation. The total number of components varied depending on the type of group contingency implemented during the session. The percentage of implementation fidelity was determined by dividing the total number of points earned by the total number of points possible. If any fidelity check total score was below 80%, additional training and coaching would have been provided to the teacher to improve implementation. However, this never occurred so additional training was not necessary. Treatment implementation was assessed during all sessions in all experimental conditions.
No teachers implemented any of the group contingency steps during baseline. All teachers received scores of 100% for adherence on all group contingency exposure sessions. All three teachers also scored above an average of 90% for quality on all group contingency types. During the preferred group contingency phase, Teacher 1 demonstrated 100% adherence, but the average quality of implementation was 87.5%. Teacher 2 had a slight decrease in adherence (to 96.1%) and in quality (to 88.4%) when implementing the independent contingency in the Preferred GC condition. When implementing the dependent contingency in the Preferred GC condition, she had 89.6% implementation quality. Teacher 3 demonstrated high levels of implementation adherence (100%) and quality (87.5%) during the preferred group contingency phase.

**Social validity.** Teachers were asked to complete an adapted Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985; See Appendix D) for each group contingency type after the Group Contingency Exposure condition. They were given a brief description of the group contingency type they were rating with each form. In addition, they completed the adapted IRP-15 following the last sessions in the Preferred Group Contingency condition. This questionnaire included 15 items and was developed to measure acceptability of school-based interventions. Teachers responded to questions using a Likert–type rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). Items on the scale assessed the extent to which teachers found each type of group contingency intervention acceptable, effective, efficient, and fair. The IRP-15 is reported to have an internal consistency of .98 indicating a high degree of reliability (Carter, 2007; Martens et al., 1985). The modifications made to the original IRP-15 were limited to changing wording to refer to the whole class rather than to an individual child and the addition of instructions describing each type of group contingency to be rated.
Teachers completed an additional Teacher Preference Questionnaire (see Appendix E) at the conclusion of the Group Contingency Exposure condition when they were asked to select the type of contingency they would continue implementing in the Preferred Group Contingency condition. This survey included 11 questions asking the teacher to respond using a rating scale from 1 (strongly disagree) to 6 (strongly agree) as well as 12 open-ended questions. Responses to this questionnaire were used to assess which areas or factors the teacher found most important in making his/her selection.

Qualitative data obtained from open-ended questions on the Teacher Preference Questionnaire were also coded and analyzed. These questions asked teachers to indicate what factors were most important when selecting an intervention as well as what they liked and did not like about each type of group contingency. The researcher read all responses to each open-ended question and developed a coding system which included common themes: fairness, student accountability, ease of implementation, teaching students, efficacy, student preference, student motivation, student support, and other. The inverses of these codes were also included: not fair, no accountability, difficult to implement, did not teach students, ineffective, students disliked, students not motivated, and students pressured/blamed each other. Two research assistants independently read all responses and assigned one or more codes to each written response for each question. In the event of a discrepancy the researcher met with the two assistants to discuss and resolve the discrepancy. If the three could not agree on a code, the code agreed upon by two observers was applied.

Students completed brief questionnaires with four questions about each relevant contingency type at the end of each condition (see Appendix F). Following the Group Contingency Exposure condition, they completed five questionnaires, one for each type of group
contingency intervention as well as one additional questionnaire asking them to select which type of group reward was their favorite. Students were given one form at a time with a verbal description of the contingency procedures. They responded to yes/no questions that were developmentally appropriate to indicate whether they liked the intervention, whether they found it helpful, and whether they had more positive or negative peer interactions as a result of the intervention. They were also asked to respond to a question asking them to select their favorite type of group reward. Students also completed the same surveys for the teacher’s preferred group contingencies following the Preferred GC condition.

**Interobserver agreement (IOA).** To assess interobserver agreement, a second observer simultaneously but independently recorded the occurrence of disruptive behavior, appropriate behavior, and teacher implementation fidelity. Percentage of agreements were calculated for disruptive behavior by dividing the number of intervals in which the observers agree on the occurrence or nonoccurrence of the behavior by the total number of intervals observed (agreements plus disagreements) and multiplying by 100. Percentage of agreements for PLACHECK data were calculated by dividing the smaller number by the bigger number for each recorded check and multiplying by 100, adding these percentages together, and dividing by the total number of checks. Percentage of agreement for treatment fidelity were calculated by dividing the number of points on which observers agreed by the total number of points possible and multiplying by 100. Table 3 provides a summary of interobserver agreement data across all classes and experimental conditions.

**Class 1.** A second observer independently collected data on 20% of baseline sessions, 50% of GC Exposure sessions, 50% of Preferred GC sessions, and 33.3% of generalization probe sessions for Class 1. During baseline, the average IOA scores were 84.3% for disruption,
93.7% for appropriate behavior, and 100% for implementation fidelity. During GC Exposure, the average IOA scores were 84.8% for disruption, 97.0% for appropriate behavior, and 97.3% for implementation fidelity. For the Preferred GC, the average IOA scores were 77.5% for disruption, 96.8% for appropriate behavior, and 86.8% for implementation fidelity.

**Class 2.** A second observer independently collected data on 25% of baseline sessions, 16.7% of GC Exposure sessions, 50% of Preferred GC sessions, and 50% of generalization probe sessions for Class 2. During baseline, the average IOA scores were 80.4% for disruption, 84.3% for appropriate behavior, and 100.0% for implementation fidelity. During GC Exposure, the average IOA scores were 84.4% for disruption, 95.7% for appropriate behavior, and 98.3% for implementation fidelity. For the Preferred GC, the average IOA scores were 79.7% for disruption, 93.9% for appropriate behavior, and 97.8% for implementation fidelity.

**Class 3.** A second observer independently collected data on 20% of baseline sessions, 20% of GC Exposure sessions, 33.3% of Preferred GC sessions, and 50% of generalization probe sessions for Class 3. During baseline, the average IOA scores were 97.1% for disruption, 89.3% for appropriate behavior, and 100% for implementation fidelity. During GC Exposure, the average IOA scores were 86.5% for disruption, 94.9% for appropriate behavior, and 98.8% for implementation fidelity. For the Preferred GC, the average IOA scores were 80.7% for disruption, 91.6% for appropriate behavior, and 94.7% for implementation fidelity.

**Experimental Design and Procedures**

The outcomes of the group contingency interventions were assessed using a multiple baseline design across classes with an embedded alternating treatments design during the Group Contingency Exposure condition. Conditions implemented for each class included, Baseline (BL), Group Contingency Exposure (GC Exposure), and Preferred Group Contingency
(Preferred GC). Additional probes were conducted across experimental phases during a secondary problematic instructional period to assess generalization of teacher and student behavior change.

Prior to baseline data collection, the researcher confirmed that the classes each had positively stated rules that coordinated with the school-wide expectations. The teacher and researcher collaboratively identified and defined behaviors (see “Data Collection”) related to these rules that were targeted for reduction (e.g., disruption) and for increase (e.g., engagement).

The menu of Mystery Motivators for each class was determined during the baseline phase. The selection process began with a list of suggestions (items and activities) provided by the researcher, which was reviewed and modified by each teacher (see Appendix G). Each teacher added and removed any items from the list to develop a range of options that she felt were appropriate for her students. The teachers also differentiated between items she felt were appropriate when the whole class would be rewarded and items he/she she felt were appropriate when only some of the students would be rewarded. This new list was provided to students who were each given the opportunity to anonymously identify the three most preferred and three least preferred reinforcer options. For Class 1 and Class 2, these options were presented as written lists. For Class 3, the options were presented as pictures and described verbally due to the age of the students. Items/activities that are nominated as most preferred by 25% or more students were included as Mystery Motivators and items/activities nominated as least preferred by 25% or more students were to be excluded; however, none of the Mystery Motivator options met criteria for exclusion.

The Mystery Motivator options available included tokens, stickers, school supplies, candy, pretzels, playing educational or movement games, social time, extra time for computers
or recess, listening to music during work, homework passes, watching brief online videos, reading outside, swapping desks for the day, or reading a favorite story to the class. Some options such as listening to music, were only available if everyone earned access to the reward while other options such as reading to the class were only available on independent days when only some students earned the reward. Only options that were free or inexpensive were included since these rewards would be available daily and to all students in participating classes.

**Baseline.** During this condition, the teacher continued to conduct class as usual and students continued to participate in all of the school’s universal supports. None of the group contingency procedures were implemented and none of the group contingency materials were present. Observers recorded disruptive and appropriate behaviors as well as teacher implementation fidelity. These data were used to determine appropriate goals for problem and appropriate behaviors during group contingency implementation. Baseline data were collected 3-5 days a week during the most problematic instructional period, as reported by the teacher and verified through direct observation.

Teacher 1 used a level system in which students moved clips up or down to various colors contingent on each student’s positive or disruptive behavior. The colors were each associated with specific consequences at the end of the day. Additionally, she provided frequent praise and school-wide tokens to all students contingent on positive behaviors. She also referenced the school-wide expectations and classroom rules when responding to inappropriate behavior. Several students in this class received additional individualized supports from academic support personnel daily during the targeted instructional period and throughout all conditions. Six of these students were designated as English Language Learners and one had an Individualized Education Plan. Teacher 1 sometimes implemented a reward procedure in which
the class was divided into teams and one team could earn a point for quick transitions. This was a competitive interdependent reward system which was implemented across the entire school day with points provided for positive behavior and a reinforcer delivered approximately once a week. This procedure differed significantly from those evaluated in this study and was in place throughout baseline as well as occasionally during the intervention conditions.

Teacher 2 also used the same level system, frequent praise, and tokens to support appropriate behavior in her classroom. In addition she utilized a “CHAMPS” structure to set expectations for her students by telling them what conversation level they should use, how to get help, what activity and movement they should engage in, what participation entailed, and what would happen if they were successful. She verbally stated these expectations during transitions between activities. Three students received additional supports, which entailed earning points on index cards, contingent on participation and appropriate behavior, which were traded for candy. These procedures were implemented throughout the day, across all experimental phases including intervention and generalization periods. A mentor or other academic support personnel occasionally observed the teacher throughout all conditions.

Teacher 3 also utilized the level system, tokens, and praise as described above. Three students received additional supports provided by the teacher, which entailed frequent feedback on their behavior, goal setting, and contingent access to preferred activities. All of these procedures were used throughout the day, including during the intervention period and were continued throughout all conditions of the study. There were two adult volunteers who were sometimes present in the classroom to assist the teacher. This also occurred across all conditions.

**Teacher training.** The researcher conducted individual teacher training in their classrooms and at times convenient for each teacher. Training for each teacher included
background information on group contingencies and the specific procedures and materials that were used in this study. Training occurred following the baseline condition and prior to the GC Exposure condition. The researcher provided containers that were labeled “Group Reward Type”, “Criteria (Rules)”, “Mystery Motivator”, and “Student”. Each container was also labeled with color-coded numbers to assist the teacher in selecting elements in the appropriate order when implementing the four types of group contingency interventions. Laminated strips of paper identifying all choices available for selection were in each container so that each element could be randomly determined during the relevant contingency types (e.g., three types of contingencies, five criteria for reinforcement, 10 Mystery Motivators, 20 student names).

Teacher training included instruction using visual and printed materials, modeling each of the procedures, having teachers rehearse all procedures, and providing positive and corrective feedback throughout these rehearsals. Training was considered complete when the teacher demonstrated 100% implementation of all four procedures with only the printed materials and no prompting from the researcher. If a teacher’s implementation fell below 80% during any of the group contingency sessions, a booster training session would have been provided. However, this was never necessary.

Teacher 1 completed training in two sessions which took a total of 60 minutes and implemented all procedures with 100% fidelity on the first trial with the exception of the dependent contingency which she completed with 100% fidelity on the second trial. Teacher 2 completed training in three brief sessions which entailed a total of 75 minutes and implemented all procedures with 100% fidelity on the first trial. Teacher 3 completed training in one 60-minute session and implemented all procedures with 100% fidelity on the first trial.
After baseline, the researcher reviewed the materials and each of the group contingency procedures to be implemented, drawing attention to the similarities and differences between the procedures. The teachers were each instructed to follow the procedures described in the Group Contingencies Guide chart and that she could refer to the chart at any time during training as well as during implementation (see Appendix H). The chart listed all steps for each procedure including determining which procedure to implement, reading a brief script to the students prior to the instructional period, tracking rule violations during the instructional period, notifying students of the end of the instructional period, selecting the contingency type (during the randomized condition only), selecting the criteria for reinforcement, selecting the student (during the dependent condition only), comparing student performance to the selected criteria, selecting a Mystery Motivator (if earned), providing the Mystery Motivator to all students (during the interdependent or dependent conditions) or to only the students meeting criteria (during the independent condition), and withholding the Mystery Motivator from all students (during the interdependent or dependent conditions) or from only the students failing to meet the criteria (during the independent condition) while providing encouragement to try again next time. The final step for all conditions was recording data on a behavior rating scale (BRS) form using a colored marker matching the contingency type (e.g., blue for dependent contingency sessions, red for independent contingency sessions, etc.). Identical information was also provided on color coded half sheets of paper that described all steps for one intervention on each sheet. Teachers were able to access both forms at any time throughout the study. Teachers were also encouraged to ask questions at any time during training, before implementation periods, or any other time except during implementation. An abbreviated version of this training would have been provided
during booster training sessions if a teacher implemented a contingency with 80% or lower fidelity; this was never necessary since fidelity scores never fell below 80%.

Teacher training also included a brief introduction to data collection and analysis. The teachers were trained to publicly mark rule violations throughout the implementation period and to document the total rule violations on a data tracking sheet following the implementation period (see Appendix J). Several examples and practice opportunities were provided. The visual aid used was a Behavior Rating Scale (BRS) form with anchors that aligned with baseline data and the selected goals for behavior reduction and acquisition. The teacher was asked to use different colored markers for each condition during the GC Exposure condition and to connect points that were the same color. Training included a brief review of visual analysis techniques, including analysis of level, immediacy/latency of change, variability, and trend. Teachers used the data they collected throughout the instructional period to mark the number of class-wide disruptive behaviors on the BRS.

During this training the teacher and researcher reviewed data collected during baseline and agreed on goals for problem behavior reduction and appropriate behavior increase. Additionally, a range of criteria for reinforcement was determined and specified for each contingency type. Criteria for independent and dependent contingencies were stated as “student has no more than x rule violations”. Class 1 and Class 2 chose criteria that ranged from 0 to 3 rule violations; Class 3 chose criteria that ranged from 1 to 3 rule violations. Criteria for interdependent contingencies were stated as “class total number of rule violations is less than x”. These criteria were generally slightly higher as they pertained to the class total. Class 1 chose criteria that ranged from 5 to 8 rule violations; Class 2 and Class 3 chose interdependent criteria that ranged from 7 to 9 rule violations and.
**Student training.** Before beginning the first session of the GC Exposure condition, the researcher and teacher introduced the interventions to students using an electronic presentation (see Appendix I for an outline of the presentation). This presentation took about 10-15 minutes and included review of the classroom rules as well as examples of rule-following behaviors and rule-violating behaviors. The different types of contingencies were reviewed in age-appropriate language with visual examples and the available Mystery Motivators were introduced. The presentation emphasized the importance of encouraging peers and included a warning statement that students observed engaging in negative attempts to influence peers (e.g., threatening, restraining, aggressing, taunting, etc.) would not be eligible to receive the Mystery Motivator for the day. Students were encouraged to ask and answer questions throughout the presentation.

**Group contingency exposure.** This condition used an alternating treatments design in which each group contingency was implemented during 3-5 sessions each in a randomly selected order. Teachers were provided with a written description of the procedures for each contingency type in a manner that highlighted the similarities and differences between procedures to facilitate their implementation (see Appendix H). Teachers were able to refer to this document before, during, and after implementation throughout this condition. Teachers were provided with a schedule indicating which contingency type they should implement each day. The order of implementation was determined by random selection such that each intervention was scheduled an equal number of times and all four were selected before replacing the intervention types so that each can be selected again. The contingencies scheduled on non-student attendance days were re-scheduled during the next available implementation period.

**Independent.** During the independent contingency condition the teacher began the targeted instructional period by reading the script (see Appendix H) explaining that each student
had the opportunity to earn the Mystery Motivator based on their own behavior. The teacher told
the students the expected behaviors, the range of criteria for inappropriate behaviors, and the
duration of the implementation period (e.g., for 30 minutes, until the end of math, etc.). After
reading the script, the teacher provided the regularly scheduled instruction. If any student
engaged in a targeted problem behavior during the implementation period, the teacher placed a
check mark next to the student’s name on the chart. The teacher announced the end of the
implementation period and selected (or had a student select) the criterion and Mystery Motivator
from their respective containers. The teacher compared the criterion to the number of checks
next to each student’s name and delivered the selected reinforcer to each student who met the
criterion. The Mystery Motivator was paired with specific praise tied to the school wide
expectations and classroom rules. Students who did not meet the criterion did not access the
reinforcer but the teacher provided encouraging statements such as “You didn’t quite make it this
time but I know you will work hard and do better next time”.

**Interdependent.** During the interdependent contingency condition the teacher began the
targeted instructional period by reading the script (see Appendix H) explaining that the class
would be working together to earn access to the Mystery Motivator for everyone. As with the
independent condition, the teacher told the students the expected behaviors, the range of criteria
for inappropriate behaviors, and the duration of the implementation period (e.g., for 30 minutes,
until the end of math, etc.). After reading the script, the teacher provided the regularly scheduled
instruction. If any student engaged in a targeted problem behavior during the implementation
period, the teacher placed a check mark on the board. The teacher announced the end of the
implementation period and then only selected (or had a student select) the criterion from the
container. The teacher compared the criterion to the number of checks on the board and then
selected (or had a student select) the Mystery Motivator from the container if the class met the criterion for reinforcement. If earned, the Mystery Motivator was provided to all students and paired with specific praise tied to the school wide expectations and classroom rules. If the class did not meet the criterion, no one accessed the reinforcer but the teacher provided encouragement such as “You didn’t quite make it this time but I know you will work hard and do better next time”.

**Dependent.** During the dependent contingency condition the teacher began the targeted instructional period by reading the script (see Appendix H) explaining that at the end of the period one student would be selected to determine if the whole class would get access to the Mystery Motivator. The teacher told the students the expected behaviors, the range of criteria for inappropriate behaviors, and the duration of the implementation period (e.g., for 30 minutes, until the end of math, etc.). After reading the script, the teacher provided the regularly scheduled instruction. If any student engaged in a targeted problem behavior during the implementation period, the teacher placed a check mark next to the student’s name on the chart. The teacher then announced the end of the implementation period and selected the criterion and student from their respective containers. The teacher compared the criterion to the number of checks next to the selected student’s name and announced whether or not the class would access the Mystery Motivator. If the selected student had met the criterion, the student was announced and allowed to select a Mystery Motivator from the container. The whole class accessed the Mystery Motivator which was paired with specific praise tied to the school wide expectations and classroom rules. If the student did not meet the criterion, the selected student was not identified and the class did not access the reinforcer. The teacher provided encouragement such as “You didn’t quite make it this time but I know you will all work hard and do better next time”.
*Randomized.* During the randomized contingency condition the teacher began the targeted instructional period by reading the script (see Appendix H) explaining that all student’s would have the opportunity to earn a Mystery Motivator but that the requirements may be based on each individual, the whole class, or one student. The teacher told the students the expected behaviors, the range of criteria for inappropriate behaviors, and the duration of the implementation period (e.g., for 30 minutes, until the end of math, etc.). After reading the script, the teacher provided the regularly scheduled instruction. If any student engaged in a targeted problem behavior during the implementation period, the teacher placed a check mark next to the student’s name on the chart. The teacher announced the end of the implementation period and selected (or had a student select) the contingency type from the container. The teacher then followed the appropriate procedures (described above) for determining access to reinforcement based on the selected contingency type.

**Preferred group contingency.** Before the first session of this condition the teacher completed a social validity survey comparing the four group contingency interventions previously described as well as the adapted IRP-15 for each contingency type. Based on this survey and the teacher’s preference, the teacher selected which of the four contingency types to continue implementing daily. This condition was implemented during the targeted problematic instructional period with data collected 3-5 days a week for approximately 1-3 weeks depending on stability of data. Teachers continued to use the written description of the procedures for the selected contingency type (see Appendix H). Teachers referred to this document before, during, and after implementation.

At the conclusion of this condition, all teachers were advised that, although the researcher would return to collect additional data in approximately two weeks, she could choose to
continue, modify, or discontinue use of the group contingency procedures at any time. Due to
time constraints, follow-up data are not included at this time.

**Generalization probes.** Generalization probes were also conducted during a secondary
instructional period that was also reported to be problematic. These probes were conducted
approximately one time each week throughout the course of the study. These probes assessed
generalization of teacher and student behavior change as the group contingency conditions were
implemented during the targeted instructional period. The researcher did not provide any training
or feedback regarding the use of group contingency intervention strategies during non-targeted
instructional times. The teacher was not instructed to implement any group contingency
procedure during this time period.

Table 1

Demographic Characteristics of Participating Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Grade</th>
<th>N</th>
<th>Gender</th>
<th>Race</th>
<th>ELL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>1</td>
<td>3rd</td>
<td>15</td>
<td>33%</td>
<td>67%</td>
<td>7%</td>
</tr>
<tr>
<td>2</td>
<td>2nd</td>
<td>15</td>
<td>53%</td>
<td>47%</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>K</td>
<td>17</td>
<td>41%</td>
<td>59%</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>47</td>
<td>43</td>
<td>57</td>
<td>11</td>
</tr>
</tbody>
</table>

Note. Demographic characteristics are based on self-reported information provided by parents
when enrolling their student. ELL = English Language Learners; K = Kindergarten; N = Number
of participants.
# Table 2

## Number and Duration of Observation Sessions in Minutes

<table>
<thead>
<tr>
<th>Condition</th>
<th>Class 1</th>
<th></th>
<th></th>
<th>Class 2</th>
<th></th>
<th></th>
<th>Class 3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of</td>
<td>Mean</td>
<td>Range</td>
<td># of</td>
<td>Mean</td>
<td>Range</td>
<td># of</td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td></td>
<td>sessions</td>
<td></td>
<td></td>
<td>sessions</td>
<td></td>
<td></td>
<td>sessions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>5</td>
<td>25.3</td>
<td>20-29</td>
<td>8</td>
<td>30</td>
<td>30</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>GC Exposure</td>
<td>16</td>
<td>25.4</td>
<td>17-30</td>
<td>18</td>
<td>29.8</td>
<td>26-30</td>
<td>20</td>
<td>26</td>
<td>21-30</td>
</tr>
<tr>
<td>Preferred GC</td>
<td>4</td>
<td>28.8</td>
<td>25-30</td>
<td>10</td>
<td>29.2</td>
<td>22-30</td>
<td>6</td>
<td>28.1</td>
<td>24.5-30</td>
</tr>
<tr>
<td>Generalization</td>
<td>6</td>
<td>27.5</td>
<td>21-30</td>
<td>8</td>
<td>28.3</td>
<td>23-30</td>
<td>8</td>
<td>29.3</td>
<td>24-30</td>
</tr>
<tr>
<td>Probe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. # of sessions = the number of observation sessions for each class and each experimental condition; GC = Group Contingency.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Class 1</th>
<th></th>
<th>Class 2</th>
<th></th>
<th>Class 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Collected</td>
<td>D</td>
<td>A</td>
<td>Imp</td>
<td>% Collected</td>
<td>D</td>
</tr>
<tr>
<td>Baseline</td>
<td>20.0</td>
<td>84.3*</td>
<td>93.7*</td>
<td>100*</td>
<td>25.0</td>
<td>80.4</td>
</tr>
<tr>
<td>GC Exposure</td>
<td>Overall</td>
<td>50.0</td>
<td>84.8</td>
<td>97.0</td>
<td>97.3</td>
<td>16.7</td>
</tr>
<tr>
<td>Independent</td>
<td>50.0</td>
<td>88.3</td>
<td>97.9</td>
<td>94.3</td>
<td>25.0</td>
<td>85.0*</td>
</tr>
<tr>
<td>Interdependent</td>
<td>50.0</td>
<td>87.6</td>
<td>97.7</td>
<td>100.0</td>
<td>25.0</td>
<td>83.3*</td>
</tr>
<tr>
<td>Dependent</td>
<td>75.0</td>
<td>78.7</td>
<td>95.0</td>
<td>98.3</td>
<td>25.0</td>
<td>85.0*</td>
</tr>
<tr>
<td>Random</td>
<td>25.0</td>
<td>90.0</td>
<td>100.0</td>
<td>95.0</td>
<td>0.0</td>
<td>NA</td>
</tr>
<tr>
<td>Preferred GC</td>
<td>50.0</td>
<td>77.5</td>
<td>96.8</td>
<td>86.8</td>
<td>50.0</td>
<td>79.7</td>
</tr>
<tr>
<td>Generalization</td>
<td>33.3</td>
<td>89.6</td>
<td>96.4</td>
<td>100.0</td>
<td>50.0</td>
<td>84.6</td>
</tr>
</tbody>
</table>

Note. The percentage of IOA data collected for each class, experimental condition, group contingency type, and dependent variable is provided. Average IOA scores are also provided. % collected = the percentage of observed sessions for which a secondary observer recorded data; A = Appropriate behavior; D = Disruption; GC = Group contingency; Imp = Implementation fidelity; NA = Not applicable.

* Calculation based on only one data point.
Chapter 3:

Results

Relative Impact of Group Contingencies

Class-wide disruptive behavior. Figure 1 depicts class-wide disruptive behavior data across three classes during the primary instructional period and generalization probes. These data indicate that all group contingency interventions resulted in decreases in class-wide disruptive behavior for all three classes. Data for all three classes indicate that there was no pattern of differentiation between the four contingency types. Mean rates of disruption and standard deviations for each class, experimental condition, and group contingency type are presented in Table 4.

The top panel of figure 1 depicts data on disruptive behaviors for Class 1. During baseline, disruptive behavior occurred during an average of 58.7% of intervals (range = 47.9% - 66.7%) with a standard deviation of 8.7. Teacher 1 set the goal for reduction of class-wide disruption to 45% of intervals. Implementation of group contingencies resulted in a decrease in disruption to an average of 24.8 % (range = 11.0% - 87.5%) with a high degree of variability indicated by a standard deviation of 17.5. There were no patterns of differentiation between the types of group contingencies. The lowest average percentage of intervals with disruption for Class 1 was in the interdependent condition (19.7%), followed by the dependent (19.8%), random (20.9%), and independent conditions (39.0%).
The middle panel of Figure 1 depicts data on disruptive behavior for Class 2. During baseline, disruptive behavior occurred during an average of 77.9% of intervals (range = 71.7% - 90.0%) with a standard deviation of 5.8. Teacher 2 set the goal for reduction of class-wide disruption to 35% of intervals. Implementation of group contingencies resulted in a decrease in disruption to an average of 28.3% of intervals (range = 20.0% - 43.3%) with a standard deviation of 6.9. There was no pattern of differentiation between the types of group contingencies. The lowest average percent of intervals with disruption for Class 2 was in the interdependent condition (23.9%), followed by the random (29.6%), dependent (30.6%), and independent conditions (33.6%).

The bottom panel of Figure 1 depicts data on disruptive behavior for Class 3. During baseline, disruptive behavior occurred during an average of 87.9% of intervals (range = 75.8% - 98.3%) with a standard deviation of 6.3. Teacher 3 set the goal for reduction of class-wide disruption to 50% of intervals. Implementation of group contingencies resulted in a decrease in disruption to an average of 44.4% (range = 31.1% - 95.1%) with a standard deviation of 18.7 indicating a high degree of variability. There was no pattern of differentiation between the types of group contingencies. The lowest average percent of intervals with disruption for Class 3 was in the dependent condition (39.4%), followed by the interdependent (43.5%), random (43.9%), and independent conditions (50.8%).

**Class-wide appropriate behavior.** Figure 2 depicts class-wide appropriate behavior data. All group contingency interventions resulted in increased appropriate behavior for all three targeted classes. During the GC exposure condition there was no differentiation between the four contingency types in any of the three classes. Table 4 presents mean rates of disruption and standard deviations for each class, experimental condition, and group contingency type.
The top panel of Figure 2 depicts data for appropriate behavior for Class 1. During baseline, appropriate behavior occurred during an average of 84.4% of intervals (range = 78.0% - 91.4%) with a standard deviation of 4.5. Teacher 1 set the goal for increasing appropriate behavior at 85%. Implementation of group contingencies resulted in an increase in appropriate behavior to an average of 95.1% across contingency types (range = 89.2% - 98.5%) with a standard deviation of 2.5. There was no pattern of differentiation between the types of group contingencies. The highest average levels of appropriate behavior for Class 1 were observed in the interdependent condition (96.8%), followed by the dependent and random conditions (both 95.0%), and the independent conditions (93.7%).

The middle panel of Figure 2 depicts data on appropriate behavior for Class 2. During baseline, appropriate behavior occurred during an average of 78.9% of intervals (range = 73.8% - 86.4%) with a standard deviation of 4.4. Teacher 2 set the goal for increasing appropriate behavior at 85%. Implementation of group contingencies resulted in an increase in appropriate behavior to an average of 89.3% of intervals (range = 72.9% - 97.3%) with a standard deviation of 6.8. There was no pattern of differentiation between the types of group contingencies. The highest average level of appropriate behavior for Class 2 was in the interdependent condition (94.0%), followed by the independent (90.3%), dependent (88.3%), and random conditions (85.9%).

The bottom panel of Figure 2 depicts data on appropriate behavior for Class 3. During baseline, appropriate behavior occurred during an average of 69.3% of intervals (range = 52.4% - 85.9%) with a standard deviation of 10.0. Teacher 3 set a goal level of appropriate behavior at 90%. Implementation of group contingencies resulted in an increase in appropriate behavior to an average of 88.6% across contingency types (range = 75.0% - 94.7%) with a standard deviation
of 5.3. There was no pattern of differentiation between the types of group contingencies. The highest average percentage of appropriate behavior for Class 3 was in the interdependent condition and the random condition (both 89.6%), followed by the dependent (88.5%) and the independent conditions (86.6%).

**Impact of Preferred Group Contingency Implementation**

For all classes, implementation of the teacher’s preferred group contingency resulted in maintenance of low levels of class-wide disruptive behavior and high levels of appropriate behavior at or near the pre-determined goals. Data collected during the Preferred GC condition are depicted in Figure 1 and Figure 2; Table 4 provides a summary of data collected for each class and experimental condition.

Teacher 1 chose to continue implementing the dependent contingency during the preferred group contingency condition. During this phase, disruption remained low with an average of 22.7% and appropriate behavior remained high and stable with an average of 96.5%.

Teacher 2 chose to continue implementing the dependent and independent contingencies during the preferred group contingency condition. During this phase, she alternated between the two contingencies. The average disruption during independent contingency implementation decreased slightly to 33.4% with a standard deviation of 13.9, indicating high variability. The average disruption during dependent contingency implementation decreased slightly to 26.9% with low variability, as indicated by the standard deviation of 3.7. During independent contingency implementation, appropriate behavior further increased to an average of 94.8%; when the dependent contingency was implemented, appropriate behavior increased to an average of 95%.
Teacher 3 chose to continue implementing the independent contingency during the preferred group contingency condition. During this phase, disruption further decreased to an average of 34.4% and appropriate behavior increased to an average of 93.3%.

**Generalization Probes**

Figures 1 and 2 present data on student behavior collected during generalization probes from non-targeted instructional periods. These data are denoted by open circles. Table 5 also summarizes the means and standard deviations of generalization probes across conditions and classes.

Generalization probes for Class 1 show an overall decrease in disruptive behavior following implementation of group contingencies, though there was some variability (see top panel of Figure 1). Disruptive behavior was observed in an average of 56% of intervals during baseline generalization probes, 35.8% during GC exposure, and 35.8% during the preferred GC implementation period. Generalization data for appropriate behavior in Class 1 show a slight increase following implementation of group contingencies (see top panel of Figure 2). Appropriate behavior was observed in an average of 85.7% of intervals during baseline generalization probes, 94.3% during GC exposure, and 90.0% during the preferred GC implementation period.

Generalization probes for Class 2 show a sharp decrease in disruptive behavior following eight sessions of group contingency implementation followed by an increasing trend (see middle panel of Figure 1). Disruptive behavior was observed in an average of 88.5% of intervals during baseline, 57.6% during GC exposure, and 45.9% during the preferred GC implementation period. Generalization data for appropriate behavior in Class 2 show a gradually increasing trend following implementation of group contingencies (see middle panel of Figure 2). Appropriate
behavior was observed in an average of 68.7% of intervals during baseline generalization probes, 81.2% during GC exposure, and 91.9% during the preferred GC implementation period.

Generalization probes for Class 3 show a gradual decreasing trend for disruptive behavior following implementation of group contingencies (see bottom panel of Figure 1). Disruptive behavior was observed in an average of 98.8% of intervals during baseline, 66.3% of during GC exposure, and 38.8% during the preferred GC implementation period. Generalization data for appropriate behavior in Class 3 show a gradually increasing trend following implementation of group contingencies (see bottom panel of Figure 2). Appropriate behavior was observed in an average of 58.7% of intervals during baseline generalization probes, 84.1% during GC exposure, and 89.4% during the preferred GC implementation period.

Social Validity

*Teachers.* The average IRP-15 scores across all three teachers indicated that all interventions were rated as highly acceptable, with all but the randomized contingency scoring between 70% and 80% of total possible points on this assessment. Individual teacher and overall average scores for each item on the IRP-15 are presented in Table 6. Figure 3 also summarizes each teacher’s IRP-15 scores for each contingency type as well as the average of the teachers’ scores for each contingency type. Independent and dependent contingencies had higher average scores across all IRP-15 questions with the exception of the question regarding negative side effects for students. On this item the average scores indicated that independent contingencies were perceived to be more likely to result in negative side effects than the other three contingencies which were perceived as equally likely to result in these negative side effects.

The average scores for the independent contingency across all teachers indicated that they at least slightly agreed (scored 4 or above) with all items on the IRP-15 except that they slightly
disagreed (scored 3.0) that the independent contingency would not result in negative side effects. The average scores for the interdependent contingency across all teachers indicated that they at least slightly agreed (scored 4 or above) with all items on the IRP-15 except that they slightly disagreed (scored 3.7) that the interdependent contingency would be effective in changing the overall problem behavior in the class, that most teachers would find the interdependent contingency suitable for the behavior problems in their classroom (scored 3.7), and that the independent contingency would not result in negative side effects (scored 3.7). The average scores for the dependent contingency across all teachers indicated that they at least slightly agreed (scored 4 or above) with all items on the IRP-15 except that they slightly disagreed (scored 3.7) that the independent contingency would not result in negative side effects. The average scores for the random contingency across all teachers indicated that they at least slightly agreed (scored 4 or above) with eight of the items on the IRP-15. They slightly disagreed that they would suggest the intervention to others (scored 3.7), that they would be willing to use the intervention in the classroom (scored 3.7), that the intervention would not result in negative side effects (scored 3.7), that the intervention is reasonable for behavior problems in their classrooms (scored 3.7), that they liked the procedures (scored 3.3), that the intervention was a good way to handle problem behaviors in their classrooms (scored 3.3), and that this intervention would be beneficial overall (scored 3.7). No items received average scores below 3.0 indicating that, on average, teachers did not disagree or strongly disagree with any items.

**Students.** Individual class and total student survey data are presented in Table 7. A summary of responses to each question totaled across classes is provided in Figure 4. When all student responses were combined, 59.4% selected independent as their favorite group reward type. Dependent and random contingencies were each selected as the favorite by 15.6% of
students; Interdependent was selected as the favorite group reward type by 9.4% of students. For all contingency types, the majority of students (over 75%) indicated that they liked the reward type, the reward type helped them learn better, and that the reward type resulted in peers helping each other more. The majority of students (over 75%) also indicated that peers were not mean to them during dependent and random group contingencies. Over 50% of students also indicated that peers were not mean to them during independent and interdependent contingencies.

Randomized contingencies had the highest percentage of students indicating that they liked the reward type (90.9%), followed by independent (88.6%), dependent (86.1%), and interdependent (77.8%) reward types. When asked if the reward types helped them learn better, 88.9% indicated “yes” for independent, 77.8% for interdependent, 88.2% for dependent, and 79.4% for random group rewards. The interdependent contingency had the highest percentage of students (88.2%) indicating that they and their classmates helped each other more with this reward system in place. For independent and dependent contingencies, 80% of students indicated that their classmates helped each other more; 78.8% of students said the random contingency resulted in peers helping each other more. When asked if classmates were mean to them during any of the contingency types, 15.6% of students indicated that peers were mean during independent contingencies, 21.9% during dependent, 26.5% during independent, and 33.3% during interdependent contingencies.

Preferences following preferred contingency implementation. Teachers’ ratings on the IRP-15 remained very high and stable from the end of the GC Exposure Condition to the end of the Preferred GC condition. All teacher ratings decreased by 1-2 total points following the Preferred GC condition. A comparison of teacher IRP-15 responses following each condition is provided in Table 8.
Students also showed a decrease in acceptability for the preferred GC from the conclusion of the GC exposure to the conclusion of the Preferred GC condition. All classes had lower percentages of students indicating that they liked the intervention and that their classmates helped each other more following implementation of the preferred contingency. Class 2 and Class 3 also had higher percentages of students indicating that other students had been mean to them because of the preferred group contingency. Class 1 and Class 2 showed an increase in the percentage of students indicating that the preferred group contingency helped them learn better; however, a reduction in the percentage of students responding favorably to this survey item was observed in Class 3. In all cases, the majority of students in all classes responded favorably to all questions; however, Class B responses to the question regarding classmates helping each other was nearly evenly divided between “yes” and “no” responses following the Preferred GC condition. A comparison of student survey responses following each condition is provided in Table 9.

**Group Contingency Selection Factors**

Teacher 2 and Teacher 3 selected the independent contingency as their preferred contingencies; their selections coincided with the students’ preferences. Teacher 1 and Teacher 2 selected the dependent contingency (Teacher 2 chose to alternate between the two contingencies); the dependent contingency was only preferred by 10% of students in Class 1 where the majority of students indicated that they preferred the independent contingency. In Class 2, dependent and random contingencies received 30% of the votes, indicating a tie for second most preferred contingencies.

*Teacher average.* The average scores on additional rating scale items from the Teacher Preference Questionnaire (Appendix E) are presented in Figure 5. Table 10 includes individual
teacher and average scores for each survey item by each contingency type. On average, teachers scored the independent contingency as most fair, most effective in reducing overall and individual student problem behavior, most enjoyed by students and teachers, and as resulting in the least bullying. The interdependent contingency was scored as least intrusive and teachers perceived this contingency as enjoyed the least by students. The dependent contingency was scored as resulting in the most peer support. The random contingency was scored as the most difficult and as resulting in the least improvement in overall problem behavior.

Teacher 1. Teacher 1 rated the interdependent contingency as the most acceptable on the IRP-15 (Appendix D) as well as on the additional survey rating scale items from the Teacher Preference Questionnaire. This is not consistent with her selection of the dependent contingency as her preferred reward system. Her ratings on the IRP-15 indicated that the interdependent contingency was less likely to result in negative side effects, she liked it more, and it was a better way to handle problem behaviors in her class, compared to the dependent contingency as well as the other two reward types. The dependent contingency did not score higher than the interdependent contingency on any of the IRP-15 items. Her responses to the other rating scale items from the Teacher Preference Questionnaire (Appendix E) indicated that she perceived that the interdependent contingency was less intrusive and more effective in increasing individual student engagement than the other contingency types. The dependent contingency did not score higher than the interdependent contingency on any of the items on the Teacher Preference Questionnaire.

Teacher 2. Teacher 2 rated the independent contingency as the most acceptable on the IRP-15 (Appendix D) as well as on the additional survey rating scale items. She also rated the dependent contingency as the second most acceptable on both rating scales. Her ratings on the
IRP-15 indicated that she perceived that most teachers would find this intervention more suitable, she was more willing to use these contingencies, and that she perceived them as fairer than the interdependent and random contingencies. Her responses to the other rating scale items from the Teacher Preference Questionnaire (Appendix E) indicated that she perceived that the independent contingency was more effective in reducing individual student problem behavior and that the students enjoyed the independent contingency more than the other three intervention types. This is also consistent with her decision to alternate between the two contingency types.

**Teacher 3.** Teacher 3 rated the independent contingency as the most acceptable on the IRP-15 (Appendix D) as well as on the additional survey rating scale items. Her IRP-15 ratings indicated that she found the independent contingency more acceptable, more likely to be viewed as appropriate by most teachers, more warranted by the severity of behavior problems in her class, she was more willing to use this intervention, she perceived it as more fair and more reasonable. Her ratings on the additional survey items from the Teacher Preference Questionnaire (Appendix E) indicated that she perceived the independent contingency as more fair and more effective in reducing overall problem behavior than all of the other contingency types. This is consistent with the preferred contingency she selected.

**Qualitative Data.** Qualitative data obtained from open-ended questions on the Teacher Preference Questionnaire were coded and analyzed. These responses are summarized in Table 11. Teacher 1 indicated that she selected her preferred contingency, dependent, based primarily on student motivation, accountability, and fairness. Teacher 2 indicated that accountability was the most influential factor when choosing her preferred contingencies, independent and dependent. Teacher 3 indicated efficacy as the most important factor in selecting independent as her preferred contingency.
Two teachers indicated that they liked that group contingencies helped teach students appropriate behavior. Teacher 3, however, indicated that the procedures used did not teach students appropriate behavior since the focus was on rule-violations. All three teachers indicated that they liked the independent contingency because it promoted student accountability; two of the teachers also referenced fairness in relation to the benefits of independent contingencies. Two teachers indicated that the interdependent contingency promoted peer support of one another but also indicated that the reward system was not fair because of the influence of a few students preventing everyone from getting the reward. Two teachers indicated that the dependent contingency promoted accountability. Two teachers also indicated that the random contingency was not motivating to the students. No other responses were common between two or more teachers.
Table 4
Disruption and Appropriate Behavior by Experimental Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Class 1</th>
<th></th>
<th></th>
<th>Class 2</th>
<th></th>
<th></th>
<th>Class 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disruption</td>
<td>Appropriate</td>
<td>Disruption</td>
<td>Appropriate</td>
<td>Disruption</td>
<td>Appropriate</td>
<td>Disruption</td>
<td>Appropriate</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Baseline</td>
<td>58.7%</td>
<td>8.7</td>
<td>84.4%</td>
<td>4.5</td>
<td>77.9%</td>
<td>5.8</td>
<td>78.9%</td>
<td>4.4</td>
</tr>
<tr>
<td>GC Exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>24.8%</td>
<td>17.5</td>
<td>95.1%</td>
<td>2.5</td>
<td>28.3%</td>
<td>6.9</td>
<td>89.3%</td>
<td>6.8</td>
</tr>
<tr>
<td>Independent</td>
<td>39.0%</td>
<td>28.7</td>
<td>93.7%</td>
<td>3.0</td>
<td>33.6%</td>
<td>8.8</td>
<td>90.3%</td>
<td>4.8</td>
</tr>
<tr>
<td>Interdependent</td>
<td>19.7%</td>
<td>5.6</td>
<td>96.8%</td>
<td>1.5</td>
<td>23.9%</td>
<td>3.0</td>
<td>94.0%</td>
<td>3.5</td>
</tr>
<tr>
<td>Dependent</td>
<td>19.8%</td>
<td>5.2</td>
<td>95.0%</td>
<td>2.0</td>
<td>30.6%</td>
<td>6.7</td>
<td>88.3%</td>
<td>8.6</td>
</tr>
<tr>
<td>Random</td>
<td>20.9%</td>
<td>8.7</td>
<td>95.0%</td>
<td>2.2</td>
<td>29.6%</td>
<td>5.8</td>
<td>85.9%</td>
<td>7.1</td>
</tr>
<tr>
<td>Preferred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GC</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>33.4%</td>
<td>13.9</td>
<td>94.8%</td>
<td>1.1</td>
</tr>
<tr>
<td>Dependent</td>
<td>22.7%</td>
<td>7.4</td>
<td>96.5%</td>
<td>1.5</td>
<td>26.9%</td>
<td>3.7</td>
<td>95.0%</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Note. GC = Group contingency; NA = Not applicable; SD = Standard deviation.
Table 5
Generalization Probes

<table>
<thead>
<tr>
<th>Condition</th>
<th>Class 1</th>
<th></th>
<th>Class 2</th>
<th></th>
<th>Class 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Disruption</td>
<td>Appropriate</td>
<td></td>
<td>Disruption</td>
<td>Appropriate</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Baseline</td>
<td>56*</td>
<td>NA</td>
<td>85.7*</td>
<td>NA</td>
<td>88.5</td>
<td>1.8</td>
</tr>
<tr>
<td>GC Exposure</td>
<td>35.8</td>
<td>18.2</td>
<td>94.3</td>
<td>2.5</td>
<td>57.6</td>
<td>19.0</td>
</tr>
<tr>
<td>Preferred GC</td>
<td>35.8*</td>
<td>NA</td>
<td>90.0*</td>
<td>NA</td>
<td>45.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Note: GC = Group contingency; SD = Standard deviation.
* Calculation based on only one data point.
Table 6

Teacher IRP-15 Ratings

<table>
<thead>
<tr>
<th>IRP Question</th>
<th>Class 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This would be an acceptable intervention for problem behavior in my class.</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>5.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Most teachers would find this intervention appropriate for problems in addition to those described.</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5.0</td>
<td>4.7</td>
</tr>
<tr>
<td>This intervention should prove effective in changing the overall problem behavior in my class.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>4.7</td>
<td>3.7</td>
</tr>
<tr>
<td>I would suggest the use of this intervention to other teachers.</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4.3</td>
<td>4.0</td>
</tr>
<tr>
<td>The problem behavior in my class is severe enough to warrant the use of this intervention.</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>4.3</td>
</tr>
<tr>
<td>Most teachers would find this intervention suitable for the behavior problems in my class.</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>3.7</td>
</tr>
<tr>
<td>I would be willing to use this intervention in the classroom setting.</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5.3</td>
<td>4.3</td>
</tr>
<tr>
<td>This intervention would not result in negative side effects for children in my class.</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3.0</td>
<td>3.7</td>
</tr>
<tr>
<td>This intervention would be appropriate for a variety of children and classrooms.</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5.0</td>
<td>4.7</td>
</tr>
<tr>
<td>This intervention is consistent with those I have used in classroom settings.</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>4.3</td>
</tr>
<tr>
<td>This intervention was a fair way to handle the problem behavior in my classroom.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5.3</td>
<td>4.3</td>
</tr>
<tr>
<td>This intervention is reasonable for behavior problems in my classroom.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5.0</td>
<td>4.3</td>
</tr>
<tr>
<td>I liked the procedures used in this intervention.</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>This intervention was a good way to handle the problem behaviors in my classroom.</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Overall, this intervention would be beneficial for my classroom.</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total score</strong></td>
<td><strong>69</strong></td>
<td><strong>79</strong></td>
<td><strong>75</strong></td>
<td><strong>54</strong></td>
<td><strong>80</strong></td>
<td><strong>68</strong></td>
<td><strong>77</strong></td>
<td><strong>73</strong></td>
<td><strong>65</strong></td>
<td><strong>44</strong></td>
<td><strong>59</strong></td>
<td><strong>71.3</strong></td>
<td><strong>63.7</strong></td>
</tr>
</tbody>
</table>

Note: Ratings were based on a 1-6 scale with 1 indicating “strongly disagree” and 6 indicating “strongly agree”. D = Dependent; Ind = Independent; Int = Interdependent; IRP-15 = Intervention Rating Profile-15; R = Random.
Table 7

Student Survey Responses

<table>
<thead>
<tr>
<th>Class</th>
<th>Question</th>
<th>N</th>
<th>Independent</th>
<th>Interdependent</th>
<th>Dependent</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Did you like this type of group reward?</td>
<td>10</td>
<td>70.0</td>
<td>30.0</td>
<td>70.0</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>10</td>
<td>80.0</td>
<td>20.0</td>
<td>60.0</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>10</td>
<td>70.0</td>
<td>30.0</td>
<td>90.0</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>10</td>
<td>40.0</td>
<td>60.0</td>
<td>40.0</td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td><strong>Favorite type of group reward</strong></td>
<td>10</td>
<td>70.0</td>
<td>0.0</td>
<td>10.0</td>
<td>20.0</td>
</tr>
<tr>
<td>2</td>
<td>Did you like this type of group reward?</td>
<td>11</td>
<td>90.9</td>
<td>9.1</td>
<td>63.6</td>
<td>36.4</td>
</tr>
<tr>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>11</td>
<td>90.9</td>
<td>9.1</td>
<td>81.8</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>11</td>
<td>81.8</td>
<td>18.2</td>
<td>81.8</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>11</td>
<td>18.2</td>
<td>81.8</td>
<td>27.3</td>
<td>72.7</td>
</tr>
<tr>
<td></td>
<td><strong>Favorite type of group reward</strong></td>
<td>10</td>
<td>40.0</td>
<td>0.0</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>3</td>
<td>Did you like this type of group reward?</td>
<td>15</td>
<td>100.0</td>
<td>0.0</td>
<td>93.3</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>15</td>
<td>93.3</td>
<td>6.7</td>
<td>86.7</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>15</td>
<td>85.7</td>
<td>14.3</td>
<td>92.3</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>15</td>
<td>23.1</td>
<td>76.9</td>
<td>33.3</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td><strong>Favorite type of group reward</strong></td>
<td>13</td>
<td>69.2</td>
<td>23.1</td>
<td>7.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>Did you like this type of group reward?</td>
<td>36</td>
<td>88.6</td>
<td>11.4</td>
<td>77.8</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>36</td>
<td>88.9</td>
<td>11.1</td>
<td>77.8</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>36</td>
<td>80.0</td>
<td>20.0</td>
<td>88.2</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>36</td>
<td>26.5</td>
<td>73.5</td>
<td>33.3</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td><strong>Favorite type of group reward</strong></td>
<td>33</td>
<td>59.4</td>
<td>9.4</td>
<td>15.6</td>
<td>15.6</td>
</tr>
</tbody>
</table>

Note. Students responded to survey questions by circling “yes” or “no”. Students circled their favorite reward type as their final response. For all questions, responses with no answer and responses with two or more answers were excluded. N = number of participants responding.
Table 8. Comparison of Teacher IRP-15 Responses Following GC Exposure and Preferred GC Conditions

<table>
<thead>
<tr>
<th>Question</th>
<th>Class 1</th>
<th></th>
<th>Class 2</th>
<th></th>
<th>Class 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Independent</td>
<td></td>
<td>Independent</td>
<td></td>
<td>Dependent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>P</td>
<td>E</td>
<td>P</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>This would be an acceptable intervention for problem behavior in my class.</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Most teachers would find this intervention appropriate for problems in addition to those described.</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>This intervention should prove effective in changing the overall problem behavior in my class.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I would suggest the use of this intervention to other teachers.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>The problem behavior in my class is severe enough to warrant the use of this intervention.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Most teachers would find this intervention suitable for the behavior problems in my class.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I would be willing to use this intervention in the classroom setting.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>This intervention would not result in negative side effects for children in my class.</td>
<td>3</td>
<td>3.5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>This intervention would be appropriate for a variety of children and classrooms.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>This intervention is consistent with those I have used in classroom settings.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>This intervention was a fair way to handle the problem behavior in my classroom.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>This intervention is reasonable for behavior problems in my classroom.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I liked the procedures used in this intervention.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>This intervention was a good way to handle the problem behaviors in my classroom.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Overall, this intervention would be beneficial for my classroom.</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>75</td>
<td>73.5</td>
<td>80</td>
<td>78</td>
<td>77</td>
<td>75</td>
</tr>
</tbody>
</table>

Note. Teacher ratings from the Intervention Rating Profile-15 are compared across experimental conditions. Ratings were based on a 1-6 scale with 1 indicating “strongly disagree” and 6 indicating “strongly agree”. E = Group Contingency Exposure condition; P = Preferred Group Contingency Condition.
Table 9

Comparison of Student Survey Responses Following GC Exposure and Preferred GC Conditions

<table>
<thead>
<tr>
<th>Class</th>
<th>Contingency</th>
<th>Question</th>
<th>GC Exposure</th>
<th>Preferred GC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td>Yes</td>
</tr>
<tr>
<td>1</td>
<td>Dependent</td>
<td>Did you like this type of group reward?</td>
<td>10</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>10</td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>10</td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>2</td>
<td>Dependent</td>
<td>Did you like this type of group reward?</td>
<td>11</td>
<td>90.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>11</td>
<td>90.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>11</td>
<td>72.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>11</td>
<td>27.3</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>Did you like this type of group reward?</td>
<td>11</td>
<td>90.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>11</td>
<td>90.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>11</td>
<td>81.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>11</td>
<td>18.2</td>
</tr>
<tr>
<td>3</td>
<td>Independent</td>
<td>Did you like this type of group reward?</td>
<td>15</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this type of group reward help you learn better?</td>
<td>15</td>
<td>93.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Did this group reward make you and your classmates help each other more?</td>
<td>15</td>
<td>85.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Were your classmates ever mean to you because of this type of group reward?</td>
<td>15</td>
<td>23.1</td>
</tr>
</tbody>
</table>

Note. GC = Group Contingency; N = Number of participants responding.
### Table 10

**Teacher Preference Questionnaire Rating Scale Scores**

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Class 1</th>
<th></th>
<th></th>
<th>Class 2</th>
<th></th>
<th></th>
<th>Class 3</th>
<th></th>
<th>Average</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This intervention was easy to do.</td>
<td>Ind</td>
<td>Int</td>
<td>D</td>
<td>R</td>
<td>Ind</td>
<td>Int</td>
<td>D</td>
<td>R</td>
<td>Ind</td>
<td>Int</td>
<td>D</td>
<td>R</td>
<td>Ind</td>
<td>Int</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5.3</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>This intervention was fair to all students.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5.3</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>This intervention was not intrusive or disruptive.</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>5.0</td>
<td>4.7</td>
</tr>
<tr>
<td>This intervention reduced problem behavior in my class overall.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4.7</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>This intervention reduced one or more individual student's problem behavior.</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4.7</td>
<td>4.3</td>
<td>4.0</td>
</tr>
<tr>
<td>This intervention increased engagement of my class overall.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>This intervention increased engagement of one or more individual students.</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.7</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>My students enjoyed this intervention.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5.0</td>
<td>4.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Students encouraged each other during this intervention.</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3.0</td>
<td>4.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Students did not bully each other during this intervention.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>I enjoyed this intervention.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5.0</td>
<td>4.3</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>50</td>
<td>53</td>
<td>50</td>
<td>45</td>
<td>62</td>
<td>58</td>
<td>60</td>
<td>61</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>40</td>
<td>52.0</td>
<td>49.7</td>
<td>50.3</td>
</tr>
</tbody>
</table>

Note: Ratings were based on a 1-6 scale with 1 indicating “strongly disagree” and 6 indicating “strongly agree”. D = Dependent; Ind = Independent; Int = Interdependent; R = Random.
Table 11

Teacher Responses to Open-Ended Survey Questions

<table>
<thead>
<tr>
<th>Class</th>
<th>GCs</th>
<th>Independent</th>
<th>Interdependent</th>
<th>Dependent</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pro Motivating</td>
<td>Accountability</td>
<td>Peer support Teaching</td>
<td>Motivating Accountability Fair</td>
<td>Motivating Teaching</td>
</tr>
<tr>
<td></td>
<td>Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con Peer pressure</td>
<td>Not fair</td>
<td>Not fair</td>
<td>Peer pressure</td>
<td>Not motivating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students disliked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pro Teaching</td>
<td>Accountability Fairness</td>
<td></td>
<td>Accountability</td>
<td>Fairness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con</td>
<td></td>
<td></td>
<td></td>
<td>Not accountable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pro Students liked</td>
<td>Accountability Effectiveness Fairness</td>
<td>Peer support</td>
<td>Peer support</td>
<td>Students liked</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con Did not teach</td>
<td>Not motivating Did not teach</td>
<td>Not fair</td>
<td>Not fair</td>
<td>Not motivating Not effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Peer pressure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Teachers’ written responses were coded into categories related to common themes. The responses in rows labeled “pro” are responses to questions asking what the teacher liked about each contingency type. Responses in rows labeled “con” are responses to questions asking what the teacher did not like about each contingency type. Teacher 2 provided only “pro” responses for all questions except for the interdependent contingency, for which she only provided a “con” response. GC= Group Contingency.
Figure 1. Disruptive Behavior across Classes. The percentage of intervals of class-wide disruptive behavior across three classes. The red dashed lines denote the goals for problem behavior reduction for each class.
Figure 2. Appropriate Behavior across Classes. The average percentage of students engaged in appropriate behavior during PLACHECKS. The red dashed lines denote the goals for increasing appropriate behavior.
Figure 3. Teacher IRP-15 Scores across Classes. Total Intervention Rating Profile-15 scores are provided for each group contingency type. Scores are shown for each teacher as well as the mean score across all teachers. The highest possible score for each intervention is 90.
Figure 4. Student Preference. Percentage of students indicating a positive response to each survey question by group contingency type. The set of bars to the right depicts the percentage of students selecting each contingency type as their favorite. The labels on the x-axis are summaries of the full questions provided to students. Full questions are provided in Table 8 and Appendix F.
Figure 5. Average Teacher Ratings for Each GC Type. Data depicted are averaged across all three teachers. The highest possible score for each item is 6.0, which would indicate that all three teachers strongly agreed with the item. The labels on the x-axis are summaries of each survey question. The full questions are provided in Table 9 and Appendix E. O = Overall; I = Individual student.
Chapter 4:

Discussion

This study aimed to examine the relative impact of different types of group contingencies on class-wide student behavior as well as how teacher preference may enhance student behavioral outcomes within three classrooms in an elementary school. The results of this study support previous findings that the various group contingency types are approximately equivalent in increasing class-wide appropriate behavior as well as in reducing disruptive behavior (Alric et al., 2007; Shapiro & Goldberg, 1986; Speltz, Shimamura, & McReynolds, 1982). All four types of group contingency procedures evaluated in this study were effective in producing these desired student outcomes.

This study extends previous research in that the group contingency types were compared using a combination of alternating treatments and multiple baseline designs across three classes of differing grade levels; the relative impact of the contingency types implemented by classroom teachers during their regular instructional time was examined. Following a brief training, teachers were able to implement these procedures in an alternating treatments design in order to experience each type of contingency.

This study also extends previous research by evaluating teacher preference following actual implementation of the procedures. The results of the current study demonstrated that regardless of the contingency type, the contingency system selected by each teacher further improved the targeted class-wide appropriate behavior. All three classes had higher average rates
of appropriate behavior during the Preferred GC condition than in other GC conditions. Although Class 2 had slight increases in disruption, Class 3 had lower rates of disruption in the Preferred GC condition than in other GC conditions and disruption occurred at approximately the same average rate across the conditions in Class 1. These results indicate that the use of teacher-preferred instructional strategies may have the potential to improve student behavioral outcomes and classroom ecology.

The results of this study also indicate that the group contingencies promote generalization of improved behaviors to non-targeted instructional periods. All classes showed evidence of generalization of student behavior change to a non-targeted instructional period. The teachers did not independently begin extending the group contingency procedures to this generalization period, with the exception of Teacher 2 marking disruption for a few students during two generalization sessions. This lends support to these procedures in that they appeared to promote acquisition of the rule-following behaviors that generalized to another instructional period. More research is needed in relation to teacher extension of effective behavioral interventions to untrained contexts.

The participating teachers in this research selected the independent, dependent, or both independent and dependent contingencies. Interestingly, no teachers selected the interdependent or randomized group contingency procedure as their preferred reward system. This is in contrast to the findings of an analogue study conducted by Elliott, Turco, & Gresham (1987) which found that teacher rated the dependent contingency as unacceptable after reading a description of the procedures. This distinction highlights the need for more research comparing preferences following exposure to each procedure. Furthermore, for all three classes implementing the preferred contingency type resulted in an initial increase in disruption during the first two
sessions, followed by a decrease to low, stable levels. This appeared to be related to implementation fidelity as the teachers tended to skip over the review of the classroom rules when they began implementing the same contingency daily.

Participating teachers indicated that they selected their preferred contingency type based on factors including accountability, student motivation, fairness, and efficacy. Accountability was the most commonly cited theme that teachers indicated that they liked about the group contingency interventions. The most common criticism of the group contingency procedures was the perceived lack of fairness for components of each contingency type, except the random contingency. Asking teachers what factors are important to them when selecting an intervention may help consultants make intervention recommendations that will have better contextual fit. In this case, since the interventions were approximately equal in efficacy, accountability, motivation, and fairness may be the most influential selection factors.

Limitations and Future Directions

The conclusions that may be drawn from this study are limited by the small sample size; with only three teachers, from three different grades, their survey responses and selection of preferred contingencies may not be representative of the larger population of elementary school general education teachers. The sample size was limited due to the time commitment necessary for an adequate comparison of the four group contingency conditions. Future research should consider including more teachers in order to assess whether the preference for independent and dependent group contingencies would also be found with a larger sample.

Another limitation is noted in relation to the inability to evaluate teachers’ use of data. As the group contingency types were approximately equivalent, teachers could have selected any of the procedures as their preferred contingency type. Although teachers were able to record data it
is unclear how effectively the teachers would be in using data if there was more differentiation between the contingency types. Although Teacher 3 indicated that efficacy was the most important factor in selecting the preferred intervention, the results for all three classes did not allow for the determination of how efficacy compared to other factors when making intervention decisions. Visual analyses using graphical representations of data are important in making instructional decisions; however, teachers are often unable to access data relevant to their classroom decisions or are unable to interpret data effectively (U.S. Department of Education, 2009). Further research is needed to address the ability of teachers to collect and use data for decision making in relation to student behavior.

Future research should further evaluate the usefulness of teacher-collected data, especially in comparing dependent variables from baseline to intervention. Participating teachers recorded data based on the number of rule violations they marked during each session. Teachers used this information to rate the occurrence of disruption on a rating scale from 0 (low rates of disruption) to 10 (high rates of disruption). Teachers also scored their perception of overall appropriate behavior from 0 (worst day) to 10 (best day). Teachers began recording data during the GC exposure condition, therefore it is not possible to compare Behavior Rating Scale (BRS) scores or recorded rule violations from baseline to intervention. However, the frequency of rule violations and the behavior rating scale scores recorded for disruption and appropriate behavior for all classes, show undifferentiated patterns, similar to those evident in data collected by the researchers.

Although previous research (as well as the current study) has supported the use of group contingencies with kindergarten students, the current study is the first study that asked kindergarteners to evaluate different contingency types. Previous research including
kindergarteners evaluated either dependent (Sprague & Perkins, 2009) or interdependent (Wright & McCurdy, 2012; Kamps, et al., 2011) group contingency systems; none of the research evaluated the use of independent or randomized group contingency types. It is notable that two of these studies (Kamps, et al., 2011; Sprague & Perkins, 2009) focused on positive behavior rather than rule violations and combined group contingencies with other intervention components; Wright and McCurdy compared group contingency procedures focusing on positive behavior (the “Caught being Good Game”) to group contingency procedures focusing on negative behavior (the “Good Behavior Game”) and found that they were approximately equally effective in reducing disruption and increasing on-task behavior with kindergarten students.

The students in the participating kindergarten class may not have been able to distinguish between the contingency types during the exposure condition. Anecdotally, the students often made statements indicating that they were confused about why they were or were not earning the reward. Since it is possible that all students had difficulty discriminating between conditions, future research should consider using a reversal design to make discrimination easier when comparing the contingency types. The alternating treatment design was selected for the comparison in this study to control for sequencing effects which would require a much larger sample size with a reversal design.

Although instructions were presented verbally and survey forms were modified with colors matching each contingency type, students’ difficulty in discriminating between the contingencies may also be reflected in their survey responses. Whereas, the first three survey questions require a response of “yes” to indicate a positive opinion of the contingency type, the fourth question is reversed in that a “no” indicates a favorable opinion of the contingency type. Because of this reversal, the percentage of students indicating that others were mean to them
during the implementation of the group contingencies is likely an overestimate. Future research is needed to evaluate student preference as well as their experience of positive and negative side effects as a result of participating in group contingency reward systems.

Another limitation to consider is the differences between the measures for appropriate and disruptive behaviors. Partial interval recording was selected for disruption since these behaviors were discrete instances that were generally brief; the appropriate behavior was an ongoing action that did not have a discrete start and stop so a PLACHECK procedure was selected. The measure for disruption was more influenced by the behavior of individual students and these data, therefore, are much more variable than the data for appropriate student behavior. It should also be noted that the definitions for these behaviors were not mutually exclusive, and there were many instances in which a student was engaging in both disruption and appropriate behavior. All classes had 1-2 students who were responsible for the majority of disruption for some sessions, including the initial independent data point for Class 1.

Although IOA scores for all measures were generally very high, some low scores may be attributed to the difficulty of observing whole-class behavior. Some disruptive behaviors such as talking to peers and engaging with materials unrelated to the task were often very difficult to see and depended on the observer’s position in relation to the student. Appropriate behavior was also sometimes difficult for observers to agree on when students were transitioning between areas or the teacher did not deliver clear instructions for what was acceptable during specific activities. For example, teachers would often indicate that students should independently read when finished with an assignment. Many students would get up and spend several minutes looking for a book on the classroom shelf. Teachers sometimes did not respond to these students but often would indicate that they were not supposed to be out of their seats. These instances resulted in
differences of recording disruption (out of area) and appropriate behavior (requiring students to be in their area).

In order to promote contextual fit, there were slight differences in implementation choices made by each teacher. These choices influenced the duration of sessions which was not consistent across conditions or teachers. During baseline, all sessions for Class 2 and Class 3 were 30 minutes because there were no clear transitions from one instructional period to another that occurred during this time. There was more variability in session duration during GC Exposure and Preferred GC conditions as the teacher clearly identified the start and finish of the implementation period which varied in length depending on the instructional material presented. Teacher 3 chose to use an alarm that always rang at the same time each day to signal the end of implementation. No sessions with fewer than 15 minutes of observation were included. The biases that may have been introduced by the varying duration of sessions was minimized by calculating the percentages based on the number of intervals observed.

Teachers were also asked to establish the goals and criteria to be used in implementation. The goals they set varied with Teacher 1 selecting a goal just below the lowest level of baseline disruption compared to Teacher 2 and Teacher 3 who each selected goals significantly below the baseline rates of disruption. Appropriate behavior was fairly high in all classes during baseline, leaving little room for setting goals. The goals were in place for decision making purposes and were not discussed with students. The selected criteria, however, were more influential in that they were revealed to students daily and determined whether or not the students would earn the reward. The criteria selected for interdependent contingencies were likely too low based on the total class-wide number of rule violations. The selection of criteria would be facilitated by teacher collection of baseline data on rule-violations since the partial interval data did not allow
for the determination of the frequency of class-wide rule violations. It is unclear how different criteria may have influenced the efficacy, teacher preference, or student preference for the interdependent contingency type.

Teachers also varied in their methods when marking rule violations. Teacher 1 and Teacher 2 kept the chart on the board and marked rule violations such that they were always visible to the class. Teacher 3 kept the chart on a clipboard so that she could immediately mark violations, no matter where she happened to be in the room and students could not erase marks. In addition, Teacher 1 quietly marked violations, sometimes privately talking to the student later in the intervention period. Teacher’s 2 and 3 marked rule violations while providing a corrective statement such as “some students need to remember to sit safely” or “Billy, we are not using scissors right now. That is a reminder for you.” These variations, in addition to differing grade levels, make it difficult to compare results across classrooms but promoted contextual fit and acceptability of these interventions.

The possibility of communication between participating teachers should also be considered. However, as these teachers were not in the same grade level and the researcher never revealed the identity of other participants, this possibility is considered to be unlikely. Communication between students within each classroom, however, did occur and may have influenced student survey responses.

Conclusion

Group contingency interventions enable teachers to efficiently manage the behavior of the students in their classes. The methods used in this study can be extended to other general education teachers and possibly other intervention procedures such that teachers can make informed decisions based on factors including efficacy in improving behavior, perceived
fairness, and efficacy in teaching students valued skills. The alternation of the various group contingency procedures may have also helped maintain student motivation by extending the novelty of the procedures over a longer period of time.

Group contingency procedures, as well as other class-wide interventions, may fall within a “grey area” between Tier 1 and Tier 2 PBIS interventions. In all three participating classes, the majority of the students were successful while only accessing the universal Tier 1 supports; several students in each class, however, engaged in persistent disruptive behavior reflecting the need for additional support. As this intervention applied to all students within each class, regardless of the need for additional behavioral supports, it is possible that group contingency interventions are better conceptualized as Tier 1 supports. The group contingency procedures provided a framework for the teachers to address many of the classroom level elements assessed on the Benchmarks of Quality (Kincaid, Childs, & George, 2005); these supports ensured that students contacted reinforcement for meeting the school-wide expectations and the classroom rules. It is likely that most elementary school students would benefit from incorporation of procedures such as these in their classrooms. It is also noted that many teachers within the school, including Teacher 1, were utilizing group contingency procedures, with varying levels of adherence to evidence-based practices. Training all teachers within the school to implement group contingency procedures effectively may be beneficial and would clearly push this intervention more into the Tier 1 realm. Further clarification is needed to determine how these procedures are best conceptualized within the PBIS framework.

The use of group contingency procedures can be effectively incorporated within general education classroom settings. These findings support group contingency interventions as effective and highly acceptable to both students and teachers. These interventions should be
considered when teachers indicate the need for supports for several students but are concerned about factors such as fairness, accountability, and efficacy. The present study indicated that all four group contingency types were effective in promoting increased engagement and reduced disruption; teachers should choose the contingency type that they like the best as this may improve student outcomes, teacher implementation, and maintenance of effective classroom management strategies.
References


Appendices
Appendix A: Teacher/Classroom Selection Interview

The purpose of this study is to find out whether different group contingency interventions result in better outcomes for classrooms. We will be looking at measures of disruptive and appropriate behaviors as well as teacher and student ratings indicating how acceptable each intervention is. We are also interested in looking at how teachers use data to guide their decisions when implementing group contingency procedures. Group contingencies are commonly used in educational settings and have been supported through extensive research as evidence-based practices.

**Are you concerned about disruptive behaviors in your classroom?**

*What behaviors (not dangerous)?*

*When do these behaviors occur (2+ instructional periods)?*

*How often do these behaviors occur (Daily/Almost Daily)?*

*How many students engage in these disruptive behaviors (2+)?*

*Can you provide some information about specific students who often disrupt your classroom?*

<table>
<thead>
<tr>
<th>Student Initials</th>
<th>Disruptive Behavior</th>
<th>Instructional Periods</th>
<th>How often</th>
<th>Engagement</th>
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|                  |                     | Daily                 |           | High       |
|                  |                     | Almost Daily          |           | Average    |
|                  |                     | Weekly                |           | Low        |
|                  |                     | Less than once a week |           |            |
Based on the information you have provided, I think your classroom would be a good fit for my study. Let me tell you a little more about group contingencies. There are several variations but all are based on using rewards to efficiently manage the behavior of a group. Students learn to self-monitor their behavior and to encourage peers to do the same.

To implement these procedures you would make a brief statement to the class before conducting your lesson as usual. As you teach, you would mark any rule-violation with a tally on the board (usually next to a child’s name). At the end of the designated time period you would use this information to determine who gets a reward. The type of contingency will initially change each day but eventually you can choose which contingency you like best. You may be asked to switch to a different type of group contingency or to make changes to your preferred contingency if your class is not adequately progressing toward your goal. I will briefly describe each type of contingency.

During independent group contingencies some students will get a reward while others may not. Access to the reward will be determined by each student’s own behavior. For example, any student with 1 or fewer tallies will get the reward.

During interdependent group contingencies the reward will be given to the whole class or to no one. This reward is determined by the behavior of the class as a group. For example, the class gets the reward if there are no more than 3 total marks on the board.

During dependent group contingencies the reward will also be given to the whole class or to no one. This time the reward would be determined by the behavior of one randomly selected student. Only you would know who this student is unless he/she has earned the reward for everyone. For example, the class gets a reward if the chosen student has 1 or fewer marks on the board.

We will also include another condition which is a combination of the other three. This time no one knows how the reward will be determined until the end of the intervention period. During this condition you provide a statement, conduct class, and track rule violations as usual. At the end of the designated time period you select the type of contingency from a container and then follow procedures for determining access to the reward based on your selection.

The criteria and rewards will vary each day to ensure that students are more likely to be motivated. If you choose to participate, you will receive training on each of these procedures and will have a written guide to refer to throughout participation.

**Do you have any questions?**

**Have you ever used group contingency procedures before?**

**Are you interested in implementing group contingencies in your classroom?**

**Have you ever used data-driven decision making using a visual aid before?**

If so, I will go over the informed consent with you so that you can have all of the information you need before deciding whether or not to participate in this research.
Appendix B: Data Sheet

Date: ___/___/___ Observer: ____________________________
Start time: _______ End time: _______ Primary / Secondary
Class: _____________________ Attendance: _________________

Clearly mark (circle, /, or x) each behavior that occurs within each 15s interval. You may mark more than one or no behaviors within each interval.

D (disruption): ___________________________________________________
A (number of students engaged in appropriate behavior):______________

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Contingency: Independent / Dependent / Interdependent / Random: ______________
Criteria: ____________________________ Met? Yes / No
Total teacher recorded rule violations: ________________
Appendix C: Group Contingency Implementation Checklist

Teacher Code: _______ Date: ______________ Recorder: _______
Contingency Type: Independent / Dependent / Interdependent/ Random: ___________

<table>
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<tr>
<th>Interventions</th>
<th>Was the intervention implemented? (Adherence)</th>
<th>Was the intervention done accurately? (Quality)</th>
<th>Fidelity Score</th>
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<td>NA/NA = NA</td>
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Determines contingency type and reads script to students
1) Reviews rules
2) Explains how reward will be determined (correct contingency and criteria)
3) Identifies start and end of implementation

Tracks rule violations using check marks/tallies throughout entire instructional period
1) Marks by names (independent, dependent, and random)
2) Marks without names (interdependent)

Marks rule violations consistent with defined classroom rules
1) Marks for most rule violations (may miss 1-2)
2) Does not mark for behaviors that are not consistent with defined rules

Signals end of implementation period
1) Appropriate duration (20-60 minutes)

Selects (or allows a student to select) randomized elements in the following order:
1) Contingency type (random only)
2) Criteria (all conditions)
3) Student (dependent only, teacher must select)

Compares recorded rule violations to criteria to determine if a reward is earned
1) Accurately compares number of individual rule violations to individual number on selected criteria (dependent, independent)
2) Accurately compares total number of classroom rule violations to group number on selected criteria (interdependent)

Selects (or allows a student to select) the Mystery Motivator

79
Only after determining that one or more students have earned access to the reward
Announces the selected student when reward is earned (dependent)

Provides access to Mystery Motivator

1) All students if the criteria are met (dependent and interdependent)  
2) Only to students meeting the criteria (independent)  
3) Includes praise related to the school-wide expectations and classroom rules

Withholds access to the Mystery Motivator

1) No one gets access if criteria are not met (dependent and interdependent)  
2) Students who did not meet the criteria do not access the reward (independent)  
3) Includes encouragement to try again next time  
4) No negotiating/bargaining

Records Data

1) Marks total number of rule violations on BRS  
2) Uses correct color (GC exposure condition only)

Implementation Scores (Total Y’s/Total Y’s + N’s in column)

Total Implementation/Fidelity Score (Total Y’s/Total Y’s + N’s across 2 domains)

Implementation scoring key:

1) Determines Contingency type and reads script to students
   Adherence: Reads any part of the script describing the correct contingency (as determined by the schedule)
   Quality: Reads full script, including a review of the rules, an explanation of how the reward will be determined, and identifying when the implementation will start and end. (Mark ‘N’ if any part is missing)

2) Tracks rule violations using check marks/tallies throughout entire instructional period (Mark ‘NA’ for both if no rule violations occur)
   Adherence: Teacher marks occurrences of rule violations at any point during the specified time period
   Quality: Teacher correctly marks either by a student’s name (independent, dependent, or random) or without the student names (interdependent) throughout the entire time period
3) Marks rule violations consistent with defined classroom rules (Mark ‘NA’ for both if no rule violations occur)
   Adherence: Marks are provided for most rule-violations
   Quality: Teacher does not miss many rule violations and does not provide marks on the board for behaviors that are not consistent with the defined rule-violating behaviors (Mark “N” if the teacher makes 2 or more errors- missing 2 occurrences, incorrectly marking 2 occurrences, etc.)

4) Signals end of implementation period
   Adherence: Teacher tells students when the group contingency period is over
   Quality: Teacher implemented group contingency intervention for appropriate duration (20-60 minutes)

5) Selects (or allows student to select) randomized elements
   Adherence: Teacher or student selects the contingency type, criteria, and or student as appropriate for the contingency type implemented.
   Quality: Teacher or student selects components in the recommended order and only selects components appropriate for the current condition. Only the teacher selects a target student for the dependent contingency.

6) Compares recorded rule violations to criteria to determine if a reward is earned
   Adherence: Teacher compares the recorded rule violations to the criteria selected
   Quality: Teacher accurately determines whether the whole class has earned reinforcement by comparing the total number of rule violations to the criteria (interdependent) or comparing the selected student’s problem behavior to the criteria (dependent). The teacher accurately determines which students have earned access to the reward by comparing each student’s rule violations to the criteria (independent). (Mark ‘N’ if the teacher makes an incorrect comparison or adds incorrectly)

7) Selects (or allows a student to select) the Mystery Motivator (Mark ‘NA’ for both if a reward was not earned AND was not selected)
   Adherence: Teacher selects (or asks a student to select) a reward
   Quality: Teacher only selects (or asks a student to select) a reward when one or more students meet criteria for accessing the reward. The teacher announces and recognizes the student who has earned access to the reward for dependent contingencies. (Mark ‘N’ if a reward is selected before determining whether it was earned or following the determination that it was not earned)
8) Provides access to Mystery Motivator (Mark ‘NA’ for both of the Mystery Motivator is not earned AND no one accesses the Mystery Motivators)
   Adherence: Teacher provides access to the selected Mystery Motivator immediately or identifies a time before the next group contingency period during which the reward will be provided. (Mark ‘N’ if the selected item is not provided or scheduled to be provided within 24 hours).
   Quality: Only students meeting criteria access the Mystery Motivator and the teacher provides praise related to expectations and rules. (Mark ‘N’ if either of these statements is not true)

9) Withholds access to the Mystery Motivator (Mark ‘NA’ for both if all students earn AND are given access to the Mystery Motivator)
   Adherence: Teacher does not provide access to the Mystery Motivator for students who did not meet the criteria
   Quality: The teacher includes an encouraging statement but does not negotiate or bargain with students regarding access to the reward. (Mark ‘N’ if the teacher does not encourage or bargains with students)

10) Records Data
    Adherence: Teacher marks the number of rule violations on the Behavior Rating Scale
    Quality: Teacher uses the color matching the contingency implemented and connects points of the same color
Appendix D: Adapted Intervention Rating Profile–15 (IRP-15)

Adapted from the IRP-15 Copyright, 1982. Brian K. Martens & Joseph C. Witt

Independent Group Contingencies

The next page contains questions related to Independent Group Contingencies. You are welcome to look at the data you have collected as well as your Group Contingency Guide while responding to these questions. The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. These interventions will be used by teachers of children with behavior problems.

Remember, during the Independent Group Contingency, each child’s behavior determined whether or not he/she gained access to the Mystery Motivator. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a criteria and looked at the marks next to each student’s name to determine who gained access to the reward and who did not. Some students gained access while others did not.

If you are not sure which type of contingency the following questions refer to, please ask the researcher to clarify before completing the questions on the following page.
Please circle the number that best describes your agreement or disagreement with each statement using the scale below.

1 = Strongly disagree  2 = Disagree  3 = Slightly disagree  4 = Slightly agree  5 = Agree  6 = Strongly agree

1. This would be an acceptable intervention for the problem behavior in my class.
   1 2 3 4 5 6

2. Most teachers would find this intervention appropriate for behavior problems in addition to those described.
   1 2 3 4 5 6

3. This intervention should prove effective in changing the overall problem behavior in my class.
   1 2 3 4 5 6

4. I would suggest the use of this intervention to other teachers.
   1 2 3 4 5 6

5. The problem behavior in my class is severe enough to warrant use of this intervention.
   1 2 3 4 5 6

6. Most teachers would find this intervention suitable for the behavior problems in my class.
   1 2 3 4 5 6

7. I would be willing to use this intervention in the classroom setting.
   1 2 3 4 5 6

8. This intervention would not result in negative side effects for children in my class.
   1 2 3 4 5 6

9. This intervention would be appropriate for a variety of children and classrooms.
   1 2 3 4 5 6

10. This intervention is consistent with those I have used in classroom settings.
    1 2 3 4 5 6

11. This intervention was a fair way to handle the problem behavior in my classroom.
    1 2 3 4 5 6

12. This intervention is reasonable for the behavior problems in my classroom.
    1 2 3 4 5 6

13. I liked the procedures used in this intervention.
    1 2 3 4 5 6

14. This intervention was a good way to handle the problem behaviors in my classroom.
    1 2 3 4 5 6

15. Overall, this intervention would be beneficial for my classroom.
    1 2 3 4 5 6

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Interdependent Group Contingencies

The next page contains questions related to Interdependent Group Contingencies. You are welcome to look at the data you have collected as well as your Group Contingency Guide while responding to these questions. The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. These interventions will be used by teachers of children with behavior problems.

Remember, during the Interdependent Group Contingency, access to the Mystery Motivator was determined by the behavior of the class as a group. During these sessions you marked each rule violation. At the end of the implementation period, you selected a criteria and looked at the total number of rule violations to determine if the class would access the reward. You provided the reward to everyone or to no one, depending on whether the class met the selected criteria.

If you are not sure which type of contingency the following questions refer to, please ask the researcher to clarify before completing the questions on the following page.
Please circle the number that best describes your agreement or disagreement with each statement using the scale below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This would be an acceptable intervention for the problem behavior in my class.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>2. Most teachers would find this intervention appropriate for behavior problems in addition to those described.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>3. This intervention should prove effective in changing the overall problem behavior in my class.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>4. I would suggest the use of this intervention to other teachers.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>5. The problem behavior in my class is severe enough to warrant use of this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>6. Most teachers would find this intervention suitable for the behavior problems in my class.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>7. I would be willing to use this intervention in the classroom setting.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>8. This intervention would not result in negative side effects for children in my class.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>9. This intervention would be appropriate for a variety of children and classrooms.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>10. This intervention is consistent with those I have used in classroom settings.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>11. This intervention was a fair way to handle the problem behavior in my classroom.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>12. This intervention is reasonable for the behavior problems in my classroom.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>13. I liked the procedures used in this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>14. This intervention was a good way to handle the problem behaviors in my classroom.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>15. Overall, this intervention would be beneficial for my classroom.</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>
Dependent Group Contingencies

The next page contains questions related to Dependent Group Contingencies. You are welcome to look at the data you have collected as well as your Group Contingency Guide while responding to these questions. The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. These interventions will be used by teachers of children with behavior problems.

Remember, during the Dependent Group Contingency, one randomly selected child’s behavior determined whether or not the whole class gained access to the Mystery Motivator. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a criteria and a student and looked at the marks next to the selected student’s name to determine whether the whole class gained access to the reward. The student was allowed to select a Mystery Motivator if his/her behavior earned the class a reward but the student was not publicly identified if his/her behavior did not meet the criteria for reinforcement. You provided the reward to everyone or to no one, depending on whether the selected student met the criteria.

If you are not sure which type of contingency the following questions refer to, please ask the researcher to clarify before completing the questions on the following page.
Please circle the number that best describes your agreement or disagreement with each statement using the scale below.

1= Strongly disagree  2= Disagree  3= Slightly disagree  4= Slightly agree  5= Agree  6= Strongly agree

1. This would be an acceptable intervention for the problem behavior in my class.
   1  2  3  4  5  6

2. Most teachers would find this intervention appropriate for behavior problems in addition to those described.
   1  2  3  4  5  6

3. This intervention should prove effective in changing the overall problem behavior in my class.
   1  2  3  4  5  6

4. I would suggest the use of this intervention to other teachers.
   1  2  3  4  5  6

5. The problem behavior in my class is severe enough to warrant use of this intervention.
   1  2  3  4  5  6

6. Most teachers would find this intervention suitable for the behavior problems in my class.
   1  2  3  4  5  6

7. I would be willing to use this intervention in the classroom setting.
   1  2  3  4  5  6

8. This intervention would *not* result in negative side effects for children in my class.
   1  2  3  4  5  6

9. This intervention would be appropriate for a variety of children and classrooms.
   1  2  3  4  5  6

10. This intervention is consistent with those I have used in classroom settings.
    1  2  3  4  5  6

11. This intervention was a fair way to handle the problem behavior in my classroom.
    1  2  3  4  5  6

12. This intervention is reasonable for the behavior problems in my classroom.
    1  2  3  4  5  6

13. I liked the procedures used in this intervention.
    1  2  3  4  5  6

14. This intervention was a good way to handle the problem behaviors in my classroom.
    1  2  3  4  5  6

15. Overall, this intervention would be beneficial for my classroom.
    1  2  3  4  5  6
Randomized Group Contingencies

The next page contains questions related to Randomized Group Contingencies. You are welcome to look at the data you have collected as well as your Group Contingency Guide while responding to these questions. The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. These interventions will be used by teachers of children with behavior problems.

Remember, during the Randomized Group Contingency, neither you nor your students knew whose behavior would determine access to the Mystery Motivator until after the implementation period. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a contingency type and criterion. You then followed the procedures for the selected contingency type to determine who gained access to the Mystery Motivator. Sometimes access was determined by each individual child’s behavior, one classmate’s behavior, or the total behavior of the class as a whole.

If you are not sure which type of contingency the following questions refer to, please ask the researcher to clarify before completing the questions on the following page.
Please circle the number that best describes your agreement or disagreement with each statement using the scale below.

1= Strongly disagree  2= Disagree  3= Slightly disagree  4= Slightly agree  5= Agree  6= Strongly agree

1. This would be an acceptable intervention for the problem behavior in my class.
   1 2 3 4 5 6

2. Most teachers would find this intervention appropriate for behavior problems in addition to those described.
   1 2 3 4 5 6

3. This intervention should prove effective in changing the overall problem behavior in my class.
   1 2 3 4 5 6

4. I would suggest the use of this intervention to other teachers.
   1 2 3 4 5 6

5. The problem behavior in my class is severe enough to warrant use of this intervention.
   1 2 3 4 5 6

6. Most teachers would find this intervention suitable for the behavior problems in my class.
   1 2 3 4 5 6

7. I would be willing to use this intervention in the classroom setting.
   1 2 3 4 5 6

8. This intervention would not result in negative side effects for children in my class.
   1 2 3 4 5 6

9. This intervention would be appropriate for a variety of children and classrooms.
   1 2 3 4 5 6

10. This intervention is consistent with those I have used in classroom settings.
    1 2 3 4 5 6

11. This intervention was a fair way to handle the problem behavior in my classroom.
    1 2 3 4 5 6

12. This intervention is reasonable for the behavior problems in my classroom.
    1 2 3 4 5 6

13. I liked the procedures used in this intervention.
    1 2 3 4 5 6

14. This intervention was a good way to handle the problem behaviors in my classroom.
    1 2 3 4 5 6

15. Overall, this intervention would be beneficial for my classroom.
    1 2 3 4 5 6
Appendix E: Teacher Preference Questionnaire

Now I would like you to think about all of the group contingency interventions you implemented. You are welcome to look at the data you have collected as well as your Group Contingency Guide while responding to these questions. The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. In addition this survey should help you compare the interventions so that you can determine which type of group contingency you prefer to implement. Each intervention is summarized below:

**Independent Group Contingency:** Each child’s behavior determined whether or not he/she gained access to the Mystery Motivator. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a criteria and looked at the marks next to each student’s name to determine who gained access to the reward and who did not. Some students gained access while others did not.

**Interdependent Group Contingency:** Access to the Mystery Motivator was determined by the behavior of the class as a group. During these sessions you marked each rule violation. At the end of the implementation period, you selected a criteria and looked at the total number of rule violations to determine if the class would access the reward. You provided the reward to everyone or to no one, depending on whether the class met the selected criteria.

**Dependent Group Contingency:** One randomly selected child’s behavior determined whether or not the whole class gained access to the Mystery Motivator. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a criteria and a student and looked at the marks next to the selected student’s name to determine whether the whole class gained access to the reward. The student was allowed to select a Mystery Motivator if his/her behavior earned the class a reward but the student was not publicly identified if his/her behavior did not meet the criteria for reinforcement. You provided the reward to everyone or to no one, depending on whether the selected student met the criteria.

**Randomized Group Contingency:** Neither you nor your students knew whose behavior would determine access to the Mystery Motivator until after the implementation period. During these sessions you marked each rule violation next to a specific student’s name. At the end of the implementation period, you selected a contingency type and criterion. You then followed the procedures for the selected contingency type to determine who gained access to the Mystery Motivator. Sometimes access was determined by each individual child’s behavior, one classmate’s behavior, or the total behavior of the class as a whole.
Please circle the number that best describes your agreement or disagreement with each statement using the scale below. Please let the researcher know if you have any questions.

1= Strongly disagree  2= Disagree  3= Slightly disagree  4= Slightly agree  5= Agree  6= Strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Independent</th>
<th>Interdependent</th>
<th>Dependent</th>
<th>Randomized</th>
</tr>
</thead>
<tbody>
<tr>
<td>This intervention was easy to do.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention was fair to all students.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention was not intrusive or disruptive.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention reduced problem behavior in my class overall.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention reduced one of more individual student’s problem behavior.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention increased engagement of my class overall.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention increased engagement of one or more individual students.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>My students enjoyed this intervention.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Students encouraged each other during this intervention</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Students did not bully each other during this intervention.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I enjoyed this intervention.</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>

Now, I would like you to decide which group contingency is your favorite. This will be the intervention you implement each day for the next few weeks.

My favorite group contingency intervention is: _______________________________

What factors were most important to you in making this decision? ________________________
______________________________________________________________________________

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Next please take a few minutes to tell us things you like and things you don’t like about each of the following:

Group contingencies (in general)

I liked….

I didn’t like….

Independent group contingencies

I liked….

I didn’t like….

Interdependent group contingencies

I liked….

I didn’t like….

Dependent group contingencies

I liked….

I didn’t like….

Randomized group contingencies

I liked….

I didn’t like….
Appendix F: Student Group Contingency Preference Survey

Verbal instructions:

Now that you have been working for group rewards for a while, I would like you to think about each of the group reward types we have tried. I want to see which was your favorite and why. This information will help us pick the best way to encourage students in other classrooms to do their best. You may choose not to answer the questions and can return the blank paper when they are collected. Please be honest when you answer. You will not get in trouble for any of your answers or if you do not answer at all. I will remind you what happened with each type of group reward. You will get a different paper for each type. Do you have any questions before we get started?

**Independent Group Contingency:** The first one I want you to think about is the type of group reward where your own behavior determined whether or not you got the Mystery Motivator. If you broke a rule, the teacher put a mark next to your name. At the end the teacher looked at your marks and if you met the criteria for the day, you got the reward. If you had too many marks you did not get the reward. Usually some students got the reward and some didn’t. Please look at your form. The first question says, “Did you like this type of group reward?” Circle “yes” if you liked it or “no” if you did not. The next question asks, “Did this type of group reward help you learn better?” Circle “yes” if it helped you or “no” if it did not. The third question asks “Did this group reward make you and your classmates help each other more?” Circle “yes” if you and your classmates helped each other more when your teacher used this type of group reward or “no” if you and your friends did not help each other more with this group reward. The last question asks “Were your classmates ever mean to you because of this type of group reward?” Circle “yes” if someone was mean to you during this type of group reward or “no” if no one was ever mean to you because of this type of group reward. Does anyone have any questions?

**Interdependent Group Contingency:** The next questions will be about the type of group reward where your reward was determined by the behavior of the class as a group. During this type of group reward the teacher put a mark on the board anytime any student broke a rule. At the end, he/she looked at the total number of rule violations and everyone got a reward if the class did not have too many marks. If there were too many marks on the board, no one got a reward. Please look at the new form. The questions are the same as last time, but your answers might be different. Please circle “yes” or “no” to tell us if you liked THIS type of group reward, if it helped you, if you and your classmates helped each other more, and if anyone was mean to you because of this type of group reward. Raise your hand if you have any questions.

**Dependent Group Contingency:** The next type of group reward I would like you to think about is the type when the whole class’ reward was determined by one student. The student may have been you or may have been a classmate. If you broke a rule, the teacher put a mark next to your name. With this group reward type a student was selected at the end of the subject and if he/she did not have too many marks. The teacher told you who it was and gave everyone a reward. If he/she had too many marks, the teacher did not tell anyone who it was and no one got the reward. Please look at the new form. The questions are the same as last time, but your answers might be different. Please circle “yes” or “no” to tell us if you liked THIS type of group reward,
if it helped you, if you and your classmates helped each other more, and if anyone was mean to you because of this type of group reward. Raise your hand if you have any questions.

**Randomized Group Contingency:** In the last type of group reward we have used, no one knew what would determine if you got a reward until the end. If you broke a rule, the teacher put a mark next to your name. At the end the teacher picked one of the other types of group rewards. Sometimes whether or not you got a reward was determined by your own behavior, one classmate’s behavior, or the total behavior of the class as a whole. This type of group reward mixes together the other three. Please look at the new form. The questions are the same as last time, but your answers might be different. Please circle “yes” or “no” to tell us if you liked THIS type of group reward, if it helped you, if you and your classmates helped each other more, and if anyone was mean to you because of this type of group reward. Raise your hand if you have any questions.

**Favorite Contingency:** The last form is different from the others. I will read each item to you. Please circle the number next to the one that is your favorite and only choose one answer. Number 1 says “My favorite was when my reward was decided by my own behavior”. Circle number 1 if that was your favorite. Number 2 says “My favorite was when my reward was decided by the behavior of the whole class”. Circle number 2 if that was your favorite. Number 3 says “My favorite was when my reward was decided by the behavior of the classmate whose name was chosen”. Circle 3 if that was your favorite. Number 4 says “My favorite was when all of the group rewards were mixed up and I didn’t know how my reward would be decided until the end.” Circle 4 if that was your favorite. Please make sure you only circled one number. Does anyone have any questions?
Student Survey Form

Independent Group Reward

1) Did you like this type of group reward?   Yes  No
2) Did this type of group reward help you learn better?   Yes  No
3) Did this group reward make you and your classmates help each other more? Yes  No
4) Were your classmates ever mean to you because of this type of group reward? Yes  No

Interdependent Group Reward

1) Did you like this type of group reward?   Yes  No
2) Did this type of group reward help you learn better?   Yes  No
3) Did this group reward make you and your classmates help each other more? Yes  No
4) Were your classmates ever mean to you because of this type of group reward? Yes  No

Dependent Group Reward

5) Did you like this type of group reward?   Yes  No
6) Did this type of group reward help you learn better?   Yes  No
7) Did this group reward make you and your classmates help each other more? Yes  No
8) Were your classmates ever mean to you because of this type of group reward? Yes  No

Random Group Reward

1) Did you like this type of group reward?   Yes  No
2) Did this type of group reward help you learn better?   Yes  No
3) Did this group reward make you and your classmates help each other more? Yes  No
4) Were your classmates ever mean to you because of this type of group reward? Yes  No
Favorite Group Reward

1) My favorite was when my reward was decided by my own behavior.

2) My favorite was when my reward was decided by the behavior of the whole class.

3) My favorite was when my reward was decided by the behavior of the classmate whose name was chosen

4) My favorite was when all of the group rewards were mixed up and I didn’t know how my reward would be decided until the end
Appendix G: Mystery Motivator Menu

Please review the suggested items below and cross off any items you do not feel are appropriate for CLASS-WIDE reinforcement. Please also write in any items that are not listed that you would like to include. Keep in mind that these Mystery Motivators would be provided to everyone or to no one depending on whether the criteria were met.

- School-wide token
- Sticker
- Homework pass
- Social time
- Extra time for
  - Recess
  - Computers
  - Other: __________________________
- Eat lunch outside
- Reading outside
- Music/Dance time
- Listen to music during independent work
- Movie/video in class
- Classroom game
  - Jeopardy
  - Educational games: __________________________
  - Heads-up 7-up
  - Board games
  - Other: __________________________
- Talent show (perform a favorite activity for classmates)
- School supplies
  - Pencils, erasers, crayons, markers, scissors, bookmarks, stencils, activity books
  - Other: __________________________
- Small toys
  - Bracelets, marbles, balls, slinky, bubbles, balloons, Silly Putty, Play-Doh, action figures, puzzle, book, stuffed animal
  - Other: __________________________
- Edibles
  - Candy (variety)
  - Popcorn
  - Pretzels
  - Other: __________________________
- Other
  - __________________________
  - __________________________
Please review the suggested items below and cross off any items you do not feel are appropriate for **INDIVIDUAL** reinforcement. Please also write in any items that are not listed that you would like to include. Keep in mind that these Mystery Motivators would be provided to each student that meets the selected criteria. Some students will get access to the item/activity while others will not.

- School-wide token
- Sticker
- Homework pass
- Social time
- Extra time for
  - Recess
  - Computers
  - Other: __________________________
- Eat lunch outside
- Reading outside
- Music/Dance time
- Listen to music during independent work
- Movie/video in class
- Classroom game
  - Jeopardy
  - Educational games: __________________________
  - Heads-up 7-up
  - Board games
  - Other: __________________________
- Talent show (perform a favorite activity for classmates)
- School supplies
  - Pencils, erasers, crayons, markers, scissors, bookmarks, stencils, activity books
  - Other: __________________________
- Small toys
  - Bracelets, marbles, balls, slinky, bubbles, balloons, Silly Putty, Play-Doh, action figures, puzzle, book, stuffed animal
  - Other: __________________________
- Edibles
  - Candy (variety)
  - Popcorn
  - Pretzels
  - Other: __________________________
- Other
  - __________________________________________
  - __________________________________________
Appendix H: Group Contingency Guide

<table>
<thead>
<tr>
<th>Step</th>
<th>Independent</th>
<th>Interdependent</th>
<th>Dependent</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Script (may change wording as long as you identify rules, the time frame, the range of criteria, and how the reward is determined)</td>
<td>“We are going to work for a group reward today that is decided by your own behavior. You may get the reward if you have less than _, _, or _ marks. We will find out which number will be the most at the end of ___. Who can remind us what the classroom rules are? What are some examples of following the rules? What are some examples of not following the rules? We will start now and we will stop to see who gets the reward at the end of ______”</td>
<td>“We are going to work for a group reward today that is decided by the whole class’s behavior. Everyone will get the reward if the class has less than ___, ___, or ___ marks. We will find out which number will be the most at the end of ______. Who can remind us what the classroom rules are? What are some examples of following the rules? What are some examples of not following the rules? We will start now and we will stop to see who gets the reward at the end of ______”</td>
<td>“We are going to work for a group reward today that is decided by one student’s behavior. I will pick a student’s name at the end of ___. Everyone will get the reward if the student have less than ___, ___, or ___ marks. We will find out which number will be the most at the end of ______. Who can remind us what the classroom rules are? What are some examples of following the rules? What are some examples of not following the rules? We will start now and we will stop to see who gets the reward at the end of ______”</td>
<td>“We are going to work for a group reward today but we won’t know how the reward will be decided until the end. You may get a reward if you or a classmate has less than ___, ___, or ___ marks or the class has less than ___, ___, or ___ marks. We will find out which number will be the most at the end of ______. Who can remind us what the classroom rules are? What are some examples of following the rules? What are some examples of not following the rules? We will start now and we will stop to see who gets the reward at the end of ______”</td>
</tr>
<tr>
<td>Mark Rule Violations</td>
<td>Place a mark on the board next to the student’s name each time a student breaks a rule (according to the definitions)</td>
<td>Place a mark on the board each time a student breaks a rule (according to the definitions)</td>
<td>Place a mark on the board next to the student’s name each time a student breaks a rule (according to the definitions)</td>
<td>Place a mark on the board next to the student’s name each time a student breaks a rule (according to the definitions)</td>
</tr>
</tbody>
</table>

Tell students when the group reward period is over (after the subject or 20-60 min.)
<table>
<thead>
<tr>
<th>Step</th>
<th>Independent</th>
<th>Interdependent</th>
<th>Dependent</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select Randomized Elements</td>
<td>Teacher/Student picks criteria.</td>
<td>Teacher/Student picks criteria.</td>
<td>Teacher/student picks criteria.</td>
<td>Teacher/Student picks contingency type.</td>
</tr>
<tr>
<td>Compare rule violations to criteria</td>
<td>Compare each student’s marks to the individual criterion. Decide who (if anyone) gets the reward.</td>
<td>Add up all of the marks and compare to the group criterion. Decide if the criterion is met.</td>
<td>Compare the selected student’s marks to the individual criterion. Decide if the criterion is met.</td>
<td></td>
</tr>
<tr>
<td>Select Mystery Motivator (if earned)</td>
<td>If anyone has met the criterion, Teacher/student selects a MM</td>
<td>If the class has met the criterion, Teacher/student selects a MM</td>
<td>If the student has met the criterion, he/she selects a MM</td>
<td></td>
</tr>
<tr>
<td>Provide Mystery Motivator (if earned)</td>
<td>Only students who met criterion access the reward Praise and refer to rules and expectations</td>
<td>All students access reward if criterion is met Praise and refer to rules and expectations</td>
<td>All students access reward if criterion is met Praise and refer to rules and expectations</td>
<td></td>
</tr>
<tr>
<td>Do not provide Mystery Motivator (if not earned)</td>
<td>Withhold reward from any students who did not meet criterion Encourage to try again next time but do not bargain</td>
<td>Withhold reward from whole class if did not meet criterion Encourage to try again next time but do not bargain</td>
<td>Do not identify selected student. Withhold reward from whole class if did not meet criterion Encourage to try again next time but do not bargain</td>
<td></td>
</tr>
</tbody>
</table>

Mark data on Behavior Rating Scale (use correct color and connect same-colored points)

Independent = Red; Interdependent = Green; Dependent = Blue; Random = Purple
Appendix I: Student Introduction Outline

- Group Rewards
  - Introduce researchers

- Doing our best
  - Expectations and Rules

- Independent Group Reward
  - Information
    - Your **own** behavior will decide if **you** get a reward
    - You will participate in ____ and follow all of the rules
    - If you break a rule you get a mark next to your name
    - At the end, the teacher picks a number that will be the rule for seeing who gets the reward
    - Some people will get it and some people will not.
  - Demonstration
    - Mark violations
    - Introduce “Criteria (rules)”
    - Who gets a reward?
    - Introduce “Mystery Motivators”

- Interdependent Group Reward
  - Information
    - **Everyone’s** behavior will decide if **everyone** gets a reward
    - You will participate in ____ and follow all of the rules
    - If anyone breaks a rule the teacher puts a mark on the board
    - At the end, the teacher picks a number that will be the rule for seeing who gets the reward
    - Everyone will get it OR no one will get it
  - Demonstration
    - Mark violations
    - Review “Criteria (rules)”
    - Who gets a reward?
    - Review “Mystery Motivators”

- Dependent Group Reward
  - Information
    - **One person’s** behavior will decide if **everyone** gets a reward
    - You will participate in ____ and follow all of the rules
    - If you break a rule you get a mark next to your name
    - At the end, the teacher picks a number that will be the rule for seeing who gets the reward
    - Then the teacher will pick a student’s name to see who’s behavior will decide
    - Everyone will get it OR no one will get it
• Demonstration
  ▪ Mark violations
  ▪ Introduce “Student” selection
  ▪ Review “Criteria (rules)”
  ▪ Who gets a reward?
  ▪ Review “Mystery Motivators”

• Random Group Reward
  o Information
    ▪ This type combines all three of the other types
    ▪ **No one knows** how the reward will be decided until the end
    ▪ You will participate in ____ and follow all of the rules
    ▪ If you break a rule you get a mark next to your name
    ▪ At the end, the teacher picks one of the three group reward types:
      Independent, interdependent, or dependent
    ▪ Then the teacher will follow the same steps as before
  o Demonstration
    ▪ Introduce “Group Reward Type” selection
    ▪ Review Independent, Dependent, and Interdependent contingencies

• What should you do?
  o Always do your best!
    ▪ Sometimes your class will be working together- your behavior counts towards everyone’s reward!
    ▪ Sometimes it will be up to you to earn your own reward
    ▪ Sometimes it will be up to you to earn everyone’s reward
  o Help each other
    ▪ Sometimes the behavior of your classmates will decide if you get a reward!
  o No blaming others
    ▪ You may lose the chance to get the reward if you threaten, hurt, or say mean things to your classmates
  o No complaining or asking for rewards
    ▪ The teacher’s marks and decisions are final
    ▪ You can always try again next time!

• Any Questions?
Appendix J: Behavior Rating Scale

Classroom: ____________________

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<th>Target Behavior</th>
<th>Date</th>
<th>18+</th>
<th>16-17</th>
<th>14-15</th>
<th>12-13</th>
<th>10-11</th>
<th>8-9</th>
<th>6-7</th>
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KEY: Black = No contingency  Red = Independent  Blue = Dependent  Green = Interdependent  Purple = Randomized
Appendix K: Permission for use of IRP-15

Brian Martens, the primary author of the IRP-15 survey instrument was contacted via e-mail. The adapted version of this instrument used in this study is provided in Appendix D. The following response, indicating permission to use the instrument, was provided and included an attached file of the IRP-15 survey instrument.

Hi Christina – the IRP-15 is attached. Please be sure to reference the scale using:


Good luck with your project! Brian
Appendix L: USF IRB Approval

10/1/2013

Mrs. Christina Ennis
University of South Florida
Department of ABA-Applied Behavior Analysis
4242 E. Fowler Avenue
Tampa, FL 33624

RE: Expedited Approval for Initial Review
IRB#: Pro00013928
Title: An Evaluation of Group Contingency Interventions: The Role of Teacher Preference and Data-Driven Decision Making
Study Approval Period: 9/30/2013 to 9/30/2014

Dear Mrs. Ennis:

On 9/30/2013, the Institutional Review Board (IRB) reviewed and APPROVED the above application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
Introduction of Group Rewards to Students
Protocol V1

Consent/Assent Document(s)*:
ICF_Parent_V2
ICF_Teacher_V2

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).
56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

[Signature]

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board