THE EFFECTS OF THE MYSTERY MOTIVATOR GAME ON THE

ORGANIZATIONAL SKILLS OF 5TH AND 6TH GRADE STUDENTS

by

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CERTIFICATION OF PROJECT WORK

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Department of Curriculum & Instruction

We, the undersigned, certify that this project entitled *The Effects of the Mystery Motivator*

Game on the Organizational Skills of 5th and 6th Grade Students by Bridgett Phillips,

Candidate for the Degree of Master of Science in Education, Department of Curriculum &

Instruction, is acceptable in form and content and demonstrates a satisfactory knowledge of the

field covered by this project.

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Abstract

Many students fail to succeed in school because of poor organizational skills. These particular skill deficits often result in poorer academic performance, inconsistent work efforts, lack of motivation, and sometimes referral to remedial and special education programs. The present study examined the effects of an intervention package called the Mystery Motivator Game on two groups of 5th and 6th graders' daily organizational behaviors. The game which consisted of an interdependent group contingency (i.e., class must demonstrate 90% of selected organizational behaviors to earn rewards) and mystery motivators (i.e., unknown rewarding contained in highly decorated and sealed envelopes displayed prominently in class) was use to improve three target behaviors: (a) in seat before bell, (b) all necessary class materials, and (c) successful completion on bell ringer activities (i.e., content-related tasks to be completed independently prior to formal instruction). Using an A-B-A-B withdrawal of treatment design, no noticeable improvements were associated with the use of the Mystery Motivator Game. These findings were inconsistent with prior research on group contingencies and mystery motivators and the investigator's hypothesis. Possible explanations for a failure to replicate are offered and implications for practice are discussed.

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Introduction

Among teachers' greatest instructional frustrations are students who fail to learn because they are not prepared or do not try (Hughes, Ruhl, Schumaker, & Deshler, 2002). Ellett (1993) conducted a survey, for example, and found that classroom teachers rated coming to class prepared as well as completing and turning in homework as their highest instructional priorities. The researcher also found that these behavioral expectations increased as student moved into secondary schools. That is, secondary students are expected to take greater responsibility for their own learning in school. Personal responsibility and good organizational skills, therefore, are essential for success in contemporary educational settings and in real life. Specific skills such as bringing required materials to class, completing assigned work on time, accurately, and independently, and becoming actively engaged in meaningful learning activities are essential for school success (Hughes et al., 2002). Unfortunately, the professional literature and personal experiences also show that many students do not possess nor use these readiness and organizational skills and as a result experience both short- and long-term difficulties. For instance, Gambill, Moss, and Viscogni (2008) surveyed classroom teachers across three school districts to determine why students received low grades in their classes. The vast majority of teachers reported that most, if not all, significant learning problems emanated from students' lack of organizational skills (e.g., completing and turning in work on time, being prepared for class with necessary materials and assignments completed, and generally lax attitudes). Even though teachers taught grades from 3rd through 12th they consistently found a lack of organization inside students' desks, lockers, binders, book bags, and pencil pouches. In addition to impeding learning, this lack of organizational skills has been linked to poor performance on "high stakes"

tests, less independent academic functioning, poorer decision-making and inefficient work habits (Gambill et al., 2008).

Given the established importance of good organizational skills, the fact that many children struggle without them, and the investigator's personal experiences with two particular classes, the present study was proposed. More specifically, the present study examined the effects of an intervention package known as the *Mystery Motivator Game* on two groups of 5th and 6th graders' organizational skills in literacy classes. Prior to study description, however, an illustrative review is provided across two broad domains (a) the importance of good organizational skills in school and life; and (b) the use of group contingencies to improve struggling student performance in school.

Importance of Organizational Skills in School

Good organizational skills are valuable, learning tools that are essential for success in school and life. The purpose of good organization is to eliminate waste, tardiness, forgetfulness, lack of preparedness and procrastination. Those with good organizational skills are more productive and successful in academic and non-academic pursuits (Hughes et al., 1994). They simply get more done and usually in a more timely and efficient manner. In school, good organizational skills become more important as pupils move through grade levels. Students are expected to be better organized and able to work and solve problems independently. Ellett (1993) conducted a national survey of teachers and found, for example, that behavioral expectations increased as students moved into secondary schools. Secondary students were expected to take greater responsibility for their own learning and there was an inherent assumption that students already possessed good organizational skills. Students with good organizational skills can create and maintain systems to keep track of information or materials.

Unfortunately, the professional literature and personal experiences also indicate that many students do not possess nor use these organizational skills (e.g., Bausch & Becker, 2001; Gambill et al., 2008; Snyder & Bambara, 1997; Williamson, 1997). It is sad to say but most educators agree that many of their students are not organized. They lack various strategies—time management, note-taking and study skills, and independent or collaborative work skills ----and as a result they experience both short- and long-term difficulties. To function well in school, students must manage their time well, study and prepare for assessments, take good notes during lectures, prioritize tasks, and use effective planning and study skills. Students with special needs (e.g., Attention Deficit Hyperactivity Disorder), in particular, are prone to organizational challenges (Bryan & Sullivan-Burstein, 2004; Hughes et al., 2002) and as a result their academic performance in general and special education classrooms is impeded.

One big idea that has emerged from the empirical research on organizational skills is that students must be taught *directly* how and when to use these skills (e.g., Rafoth & Leal, 1993; Shields & Heron, 1989; Storment-Spurgin, 1997). They must also be given sufficient time to practice their newly acquired skills, typically in more to less structured learning activities. They should also receive ample feedback, positive and constructive, regarding their use of their organizational skills. Students are also recommended to independent self-evaluations of their current skill levels to help teacher prioritize their intervention efforts. Slade (1986) highlighted the importance of teacher *modeling* good organizational behaviors when teaching such skills to students. They must lead by example showing good time and work management, effective and efficient planning, and comprehensive evaluation skills when assessing important educational outcomes. Teachers can use lists and cross off activities when they are completed, telling students explicitly what they are doing and why is it important. Teachers can create a calendar to

show how time is spent and managed; they can also use assignment calendars that are publicly displayed and reviewed frequently (Shields & Heron, 1989; Storment-Spurgin, 1997).

According to Hughes et al (2002), numerous interventions have been developed to improve students' organizational skills. These strategies have included: (a) school-based (e.g. after-school programs, during school programs, and parent-teacher communications), and (b) home-based programs (e.g. parental involvement programs, parent training, and family-school improvement programs). Many of these school- and home-based programs have distinct disadvantages, however, because they are expensive, require excessive teacher time or effort, and/or they are difficult to implement in classroom settings (Hill & Tyson 2009; Trautwein & Lüdtke, 2006). Teachers acceptability and student satisfaction are also necessary factors for classroom teachers to consider when selecting interventions (Skinner, Cashwell, & Dunn, 1996).

Bausch and Becker (2001) developed and implemented a 9-week program that used direct instruction, small and large group discussions, and direct practice in organizational and study skills to improve the performance of two different groups: (a) 26, 6th grade students in a social studies inclusion class, and (b) 23, 9th grade students in a world geography class. The teacher-researchers targeted important organizational skills during the first few weeks of the study and then used a variety of activities, checklists and discussions focusing on: following directions, functions of the textbook, note-taking, active listening, effective use of folders and notebooks, and list making. During the sixth week, instructional focus shifted to study techniques. The class held discussions about the importance of preparing and planning for tests and class, along with working in small groups and independently to learn and practice a variety of study strategies. After each activity, discussion/reflection was centered on *how* the skills can be *applied in class*. Although Bausch and Becker reported only minor improvements in students'

organizational skills, they did use the knowledge and skills from time to time in both settings. This particular intervention may have been less effective because it did not contain the instructional "power" required to improve all students' organizational skills simultaneously. One way that teachers may add instructional power to their classroom interventions is through the use of group-contingencies.

Use of Group Contingencies to Improve Pupil Performance

Group contingencies have a rich empirical history in psychology and education. They were used, for example, to improve a wide range of academic, behavioral, and interpersonal outcomes for individuals with special needs and their normally developing peers (e.g., Gresham & Gresham, 1982; Litow & Pomroy, 1975; Skinner, Skinner, & Burton, 2009; Theodore, Bray, Kehle, & DioGaurdi, 2003). Litow and Pomroy (1975) first described three types of group contingencies (a) *independent*; (b) *interdependent*; and (c) *dependent*. Independent group contingencies are used quite frequently in school and traditional grading systems are prime examples. Students are given common or similar assignments and the same evaluation criteria are applied to everyone; those who get 90% correct on assessments earn As, those with 80+% scores are given Bs, and so on. Pupil consequences are based solely on their own *independent* performance. Most traditional classroom and behavior management systems operate in a similar way. The same rules and criteria are established for everyone in class and consequences, positive and corrective, are given based on each pupil's behavior. Those students who follow classroom rules and interact well with others are praised while those who break rules and disrupt the class are redirected or reprimanded. Because consequences are based on student's own performance, independent group contingencies are perceived as *fair* by pupilss, teachers, school leaders, and parents (Skinner, Cashwell, & Dunn, 1999; Skinner et al., 2009).

Interdependent group contingencies, in contrast, provide entire groups with consequences based on some aspect of their *collective* performance. For example, a whole class earns a pizza party when they read a total of 100 books independently; all students get homework passes when the class average on math quizzes is 80% or above; and/or pupils receive free t shirts when the class sells 200 raffle tickets. Under interdependent contingencies, pupil access to positive consequences depends on them *and* their peers. Students must work together if everyone is to benefit. Because all-or-none of the group receives consequences, these contingencies are fairly easy to implement (Skinner et al., 2009). Finally, *dependent* group contingencies are in effect when the entire group's access to consequences depends on the performance of one or a few individuals. The class, for example, may earn 5 minutes of extra free time if table #1 completes their assignments before the bell rings. Similarly, everyone receives homework passes A group's access to consequences depends solely on the performance of only one or a few students. The obvious procedural advantage to dependent contingencies is that teachers can monitor and evaluate fewer students before providing consequences (Skinner et al., 2009).

All three types of group contingencies were shown to be more effective than teacher-led instruction in (a) improving academic achievement (Popkin & Skinner, 2003; Sharp & Skinner, 2004; Skinner, Williams, & Neddenriep, 2004); (b) reducing disruptive behavior (Kelshaw-Levering, Sterling-Turner, Henry & Skinner, 2000; Theodore, Bray, & Kehle, 2004; Theodore, Bray, Kehle, & Jenson, 2001); (c) increasing compliance with requests (Lohrman & Talerico, 2004; Reitman, Murphy, Hupp, & O'Callaghan, 2004); (d) enhancing social skills (Skinner et al.,1999); (e) improving homework completion and accuracy (Lynch Theodore, Bray, & Kehle, 2009; Olympia, Sheriden, Jenson, & Andrews, 1994); and (f) enhancing pupils' organizational skills (McKissick, Hawkins, Lentz, Hailly, & McGuire, 2010). Comparative studies have also

found the three contingency types to be equally effective, for the most part, in improving pupil outcomes (Gresham & Gresham, 1982; Lynch et al., 2009; Theodore et al., 2004).

Over the past two decades, group contingencies were also combined with mystery motivators to create intervention packages that were used to solve a variety of academic and behavioral problems. This intervention package, for example, was used in at least 11 peer-reviewed research studies. In one of the earliest investigations, Moore, Waguespack, Wickstrom, Witt, and Gaydos (1994) examined the effects of mystery motivators on 3rd and 5th grade students' homework completion and accuracy rates. Students were given a weekly mystery motivator chart and told if they completed their homework each day, then they could color in a square. If the letters "MM" appeared, then they were allowed to select a highly decorated envelope that was displayed prominently in class. The researchers found that the mystery motivator intervention produced immediate and noticeable improvements in pupils' completion and accuracy rates across both classrooms.

In a second related study, Musser, Bray, Kehle, and Jenson (2001) included mystery motivators as part of a larger management package in a self-contained class for students with severe emotional disturbance in an alternative school. Two male and one female student were told that they could earn stickers which, in turn, could be exchanged for mystery motivators if they decreased the rates of seven disruptive behaviors (e.g., noncompliance, talk outs, obscene language, and out-of-seat). Once again, the researchers found that the intervention package produced immediate and noticeable decreases in all three students' target behaviors. Moreover, these improvements were maintained at a two- and four-week follow-up.

A third related study (Madaus, Kehle, Madaus, & Bray, 2003) used mystery motivators to improve the math homework completion and accuracy of five, 5th grade students with a history

of academic difficulties. Each target student was given their own mystery motivator (MM) chart and told if they turned in a completed homework assignment (i.e., written attempt made on each item), then they could remove a piece of paper covering the date on their MM chart. If there was a letter "M" under the paper, then the students could select a mystery rewards. Results showed that four out of five target students increased both their homework completion and accuracy rates to almost 100%.

Murphy, Theodore, Aloiso, Alric-Edwards, and Hughes (2007) provided an example of how mystery motivators can be used with young children. They worked with nine pre-school children (5M, 4F) who attended a Head Start program but displayed a number of disruptive behaviors (e.g., inappropriate touching, out-of-area, and off-task). The young children were told that the teacher would monitor their behavior and make checkmarks each time they broke a classroom rule. They were also told, however, that if everyone in class received five or fewer checks during the day, then they could select one of 12 picture cards from the mystery motivator box. Murphy et al reported that there were clear improvements in all nine target students' behavior during both experimental phases.

A bit earlier, Robinson and Sheridan (2000) also examined the effects of mystery motivators on the bedtime compliance behavior of four children between the ages of five and eight. These children were referred to a mental health clinic because of chronic sleep-related difficulties; in particular spending excessive amount of time out-of-bed and noisy after established bedtime. All children were told that if they can decrease their out-of-bed time below 10 minutes, then they could win a mystery surprise in the morning. Robinson and Sheridan reported immediate and dramatic decreases in three out of four children's bedtime behavior. In

fact, out-of-bed behavior was reduced from almost 360 minutes during baseline to just 26 minutes during intervention.

Mottram, Bray, Kehle, Broudy and Jenson (2002) conducted another study that included mystery motivators as part of a multi-component intervention package with three diverse, second graders who were identified as noncompliant, inattentive, and aggressive. In this study, mystery motivators were available for tokens earned as part of the class management system. The researchers found that the multi-component intervention package produced significant decreases in all three target students' observed intervals of disruptive behavior.

In a more recent investigation, Schanding and Sterling-Turner (2010) examined the effects of mystery motivators on the disruptive behavior of three, 9th grade biology students. This particular study was noteworthy in that it looked at the effects of mystery motivators in isolation rather than as part of a larger intervention package. The teacher posted two envelopes on the board. One was labeled *chance envelope* and contained a series of paper slips with either *M* or *X* written on them. If the class met the daily criterion, then a student was chosen to pick a paper slip out of the chance envelope. If it contained an M, then the class opened the second envelope labeled *reward envelope*. If an *X* was drawn, the teacher congratulated the class on their performance and said that they had an opportunity to earn an item or activity the following school day. Schanding and Sterling-Turner found an immediate decrease in problem behaviors for the three identified students, as well as a general decrease in problem behaviors for randomly selected, non-referred students in the class. Finally, Ferneza, Jabot, and Maheady (2012) used both dependent and interdependent group contingencies with mystery motivators to improve the homework completion and accuracy of a high school general science class. Students had a history of inconsistent homework completion and their overall accuracy was below expectations.

The teacher established two criteria for the class to earn mystery motivators. First, everyone had to turn in a completed homework assignment (i.e., 100% completion); if they did so, then the teacher picked a paper slip from a brown paper bag that contained each student's name. The teacher then *privately* graded the selected student's paper and if it met the second criterion (i.e., at least 85% correct), then the entire class earned a chance to win a mystery motivator. The teacher focused a UV lamp onto the class calendar and if an invisible M appeared, then the class could select one of 15 mystery motivator envelopes. The researchers found that the intervention produced immediate and significant improvements in all students' science homework performance.

Collectively, the two illustrative reviews suggest that poor organizational skills among students, if left untreated, can lead to numerous adverse effects, both short- and long-term. Moreover, there appears to be particular student types (e.g., those with special needs, English Language Learners, and pupils from poverty, abuse, or neglect) who experience a greater proportion of these organizational challenges. To ameliorate such learning challenges, researchers and practitioners have developed an array of classroom-based interventions to improve students' organizational skills. Significant among these interventions were two practices, group contingencies and mystery motivators, which had produced consistently positive outcomes for students across age and grade levels as well as differing content areas. Given the solid empirical support for these two interventions and the investigator's need to improve the organizational behavior of her students, the present study was undertaken.

This purpose of this study, therefore, was to examine the effects of an intervention package consisting of interdependent group contingencies and mystery motivators intervention package on 5th and 6th grade students' organizational (i.e., learning readiness) skills (e.g., bring

all required materials to class, in seat by time bell rings, and complete "bell ringer" activities). In addition, the study examined how students felt about using the intervention package. More specifically, they were asked to rate the Mystery Motivator Game in terms of the *importance* of its goals, *acceptability* of procedures, and their *satisfaction* with intervention outcomes.

Method

Participants and Setting

The study was conducted in a small (i.e., 540 pupils), urban middle school (i.e., grades 5-8) in Western New York. The middle school had an 89% stability rating with 74% of the students eligible for free and/or reduced meals (New York State Education Department Report Card, 2012). It took place during normally scheduled, 60-minute, 5th and 6th grade reading intervention classrooms. Both classes are English Language Arts (ELA) *Skim* groups and all instruction was provided by a certified reading teacher. The 6th grade reading class met everyday at 9:05 AM and again every other day (A days) in the afternoon at 2:05 PM. The 5th grade reading class met everyday at 10:05 AM and again every other day (A days) in the afternoon at 1:05 PM. There were eight (6F, 2M) fifth graders, five of whom were Caucasian and three were Hispanic. Two 5th grade students had Individualized Education Plans (IEPs). Nine sixth graders (7M, 2F) also participated; four were Caucasian, four were African-American, and one was Hispanic. Two 6th grade students had IEPs and two others were on 504 plans. These particular students were chosen because they were struggling with their organizational skills and not working up to academic expectations. In particular, the teacher expressed concerns over students' failure to come to class "ready to learn". That is, they often forgot required materials, were not in their seats when the bell rang, and/or they failed to complete assigned "bell ringer" activities. This resulted in loss instructional time, increased noise levels, and occasional

frustration for the teacher and some students. As such, these particular behaviors were targeted for intervention.

The classroom was a small, narrow room that was comfortable and organized. The teacher's deck sat to the left of the door as one enters the room. The students' desks were arranged in a horseshoe, around an overhead cart, facing the whiteboard in the front of the classroom. Most teacher-led instruction incorporated these items. Two computers sat along the front wall alongside the whiteboard. Along the windows, in the back right corner of the room, was a rectangular table with three student chairs and a teacher chair. The students were provided instruction through a scripted reading curriculum, *Language!* which was composed of instructional units that contained 10, six-step lessons (i.e., phonics, spelling, grammar, vocabulary, reading, and writing).

The primary investigator, a Caucasian female with four years of teaching experience, also served as a long-term substitute teacher in the target classrooms. In addition to providing remedial reading instruction, the investigator (a) constructed project-related materials (e.g., data collection forms, mystery motivators, and charts), (b) prepared pupils to use intervention strategies; and (c) collected and analyzed outcome data. Another adult, a Caucasian female teaching assistant with three years of experience, assisted in study implementation by explaining the study to pupils, eliciting their permission to participate and helping with inter-rater reliability and fidelity of implementation assessments. All study procedures were submitted and approved by the Institutional Review Board at the university.

Dependent Variables

There were two primary dependent variables (a) mean number of "ready to learn" behaviors that pupils' exhibited; and (b) student satisfaction ratings of the interdependent group

contingency and mystery motivator intervention. Ready to learn behavior was defined operationally as (a) all required materials (i.e., pencil, notebook, and agenda) with student; (b) in assigned seats *before* bell rings; and (c) "bell ringer" activities were completed. Bell ringer activities were a variety of tasks that were short duration (five minutes), lesson-related, independent practice tasks for pupils to complete at the start of class. These activities were designed to create an "anticipatory set" for subsequent learning tasks. To monitor pupil performance on ready to learn behaviors, check marks were placed next to targeted students' numbers on data collection sheet (see Appendix A). Checkmarks indicated that the students had successfully displayed targeted organizational behaviors. The number of organizational behaviors exhibited by each student could range from 0 (no ready to learn behaviors) to 3 (all ready to learn behaviors). A total was entered next to each student's identification number and then the entire class' mean was calculated by divided the total number of ready to learn behaviors exhibited by the total number of behaviors possible times 100%. Daily means were calculated for 5th and 6th graders separately and displayed using simple line graphs across baseline and intervention conditions.

To ensure that data were collected reliably, a second adult (i.e., teaching assistant) *independently* rated pupil performance during 25% of study sessions! Inter-scorer reliability was then calculated on an *item-by-item* basis. If both scorers agreed, for example, that student 1 brought necessary materials then it was scored as an Agreement (A). If independent scorers marked an item differently (i.e., one marked brought necessary materials but other scored as no materials), then it was scored as a Disagreement (D). Inter-scorer reliability was then calculated as the number of agreements divided by the number of agreements plus disagreements times

100%.   Inter-scorer reliabilities averaged .92 (5th grade) and .88 (6th grade) across the investigation with respective ranges of .84 to 1.00 and .82 to .96.

The second dependent variable was pupils' mean ratings of the mystery motivator game on a 22-item, 5-point Likert-type Consumer Satisfaction Survey (see Appendix B). The consumer satisfaction survey was completed *anonymously* and *independently* immediately after the last study session. Students were asked to rate the mystery motivator game in terms of (a) *importance* of its goals; (b) *acceptability* of game procedures; and (c) *satisfaction* with game outcomes. Students' ratings were aggregated by item and mean ratings were presented in tabular fashion.

Independent Variables

The independent variable was the Mystery Motivator Game, an intervention package that consisted of (a) *interdependent* group contingencies; and (b) unknown rewards in the form of mystery motivators. Interdependent group contingencies were established by giving individual students up to three "ready to learn" tickets each day for being prepared for class (i.e., Blue ticket for having required materials, yellow ticket for being in seat before bells rings, and green ticket for completing bell ringer activities). The class was then told that if 90% of possible ready to learn tickets were given out that day, then the entire class could earn a reward. Individual tickets were placed into a bucket and remained there until the end of class (i.e., last 5 minutes). A classroom clerk (i.e., rotating class role), then counted ready-to learn tickets to determine if the criterion was reached. If 15 pupils were present, for example, then 40 tickets (i.e., 90% of 45) were required to win. If the daily criterion was met, then the *entire class* was told that they were eligible for unknown rewards (i.e., mystery motivator). On days when the criterion was not met, the class was told simply to try harder the next day.

There were two primary components to mystery motivators (Rhode et al., 1996). The first is a series of highly decorated envelopes that contain paper slips with the names of special items or activities written on them. Potential rewards were identified by asking pupils to complete *reinforcement preference surveys* before the intervention began. Student ideas were screened for cost, feasibility, and reasonableness and the names of the highest preference items were written on paper slips and sealed in decorated envelopes and displayed prominently in the classroom. Sample student-generated rewards included (a) no homework coupons; (b) drop assignment tickets; (c) free time; and (d) preferred seating arrangements. The second component of mystery motivator is a class calendar marked with a series of invisible ink stars written on *randomly selected* days. If the daily criterion was met, then the classroom clerk colored in a box on that date using a magic "decoding" pen. If the magic coloring pen revealed a star, then the entire class voted on which mystery motivator envelope to select. If there was no star under the date then students were told that they worked very hard but can't pick a mystery motivator envelope that day. The class was also told that a "bonus day" was also available when *all* students earned *all* three tickets (i.e. 100% of criterion). On bonus days, the classroom clerk colored in any square on a Bonus Chart. The Bonus Chart provided students with the chance to earn larger rewards (e.g., pizza party or class movie).

To ensure that the mystery motivator game was implemented as intended, a 12-step fidelity checklist was developed (see Appendix C). This checklist contained the major procedural steps necessary to implement the intervention accurately and consistently. The fidelity checklist was used initially to train students how to play the mystery motivator game. A teaching assistant who was blind to the study purpose observed 25% of randomly-selected intervention sessions and noted the presence and/or absence of each procedural component. Fidelity of implementation

was then calculated as the number of steps present divided by the number present and absent times 100%. Fidelity of implementation averaged .98 with a range of .96 to 1.00 over the course of the present study.

Experimental Design and Procedures

The effects of the mystery motivator game on students' ready-to-learn behavior were examined using an A-B-A-B withdrawal of treatment design. This particular design is capable of establishing a causal relationship by showing that pupil performance changes *when and only when* the intervention is introduced and withdrawn (Kennedy, 2005). The study began with an initial baseline phase (A) during which the classroom teacher conducted class using normal or typical instructional routines and practices. A typical school day in the reading intervention class consisted of the following (a) students enter the classroom, (b) grabbed their reading binders and *Language* interactive textbooks , and (c) quietly took their assigned seats waiting for the teacher to begin instruction. As the students took their seats, the classroom clerk passed out a ticket to each student who had all required materials (i.e., agenda, pencil, ELA binder, and *Language* interactive textbook). Once the students were all seated, the teacher started instruction. Baseline conditions continued until student performance data stabilized. At that point the mystery motivator game was introduced.

Students were trained initially to play the mystery motivator game following a 30-minute review session. They were told that the purpose of the mystery motivator game was to improve their "ready-to-learn" performance in class. They were told that they would receive different colored tickets dependent on which target behavior they completed successfully (i.e., had necessary materials, in seat before bell, and/or completed bell ringer activities) and that if the entire class reached the daily criterion of 90% then they would have a chance to win a mystery

motivator. Sample tickets were distributed and explained to students and then they practiced putting their tickets in the basket. A classroom clerk was identified to count the tickets and determine if the class had a chance for a mystery motivator. The teacher then went over to the class calendar and used the magic decoding pen to reveal a sample invisible star. Students were told that the star indicated that they could earn a mystery motivator that day. The highly decorated envelopes hanging from the ceiling were then pointed out and the classroom clerk randomly picked one envelope and revealed the mystery motivator for the day. Students were also told what would happen on days that (a) they failed to meet the criterion (i.e., fewer than 90% tickets); and (b) no invisible star appeared. The teacher then answered all student questions and the mystery motivator game started the next day.

A typical intervention session proceeded as follows. At the beginning of class, the teacher checked each pupil's readiness to learn and distributed a requisite number of tickets in response to their performance (i.e., 0 to 3 tickets per pupil). All tickets were then placed into a covered bucket and at the end of class (i.e., last 5 minutes), the classroom clerk counted the total number of tickets to determine if the class met the daily 90% criterion. If the daily criterion was met, then the clerk colored in the appropriate box on the class calendar using the magic "decoding" pen. If an invisible star appeared, then the entire class earned a mystery motivator (i.e., unknown rewards in decorated and sealed envelopes) displayed prominently in the classroom (e.g., they voted on which envelope to select). If the class failed to reach the daily criterion, they were told that they couldn't color in a calendar box that day and that they should try harder the next day. If they met the daily criterion but no star was revealed, then they were congratulated for meeting the criterion and told to try harder the next day. A "bonus" chart was also available on days when all students earned all three tickets (i.e. 100% of criterion). On these days, the classroom clerk

colored in any square on a second bonus chart that contained other more costly, high preference rewards (e.g., pizza party and/or a movie in class).

Results

Data were aggregated at the classroom level in terms of the mean number of target behaviors exhibited during each session. Data relevant to the performance of 5th graders can be seen in Figure 1. During initial baseline sessions, the entire class completed an average of 2.82 (out of 3) targeted organizational behaviors with a range of 2.6 to 3.0. These data represented about 92% of the ready to learn behaviors that the teacher wanted students to display. All pupils received perfect completion averages for target behaviors on four of 11 baseline sessions (i.e., 39%). For the most part, baseline data were relatively stable although there were some cyclical accelerating and decelerating trends. When the mystery motivator game was implemented, there was a slight increase in the class' mean completion rate for targeted organizational behaviors to 2.92 (range = 2.5 to 3.0). This was slightly higher than initial baseline levels and perfect sessions were noted during seven of 15 sessions or 46% of the time. In general, there also appeared to be less variability in pupil performance from day to day during the Mystery Motivator Game. There were, however, numerous overlapping data points across the first two adjacent phases.

When the Mystery Motivator Game was removed, the class' mean completion rates for target organizational behaviors stayed about the same (M = 2.91; range = 2.5 to 3.0). Perfect completion rates were noted during six of eight (i.e., 75%) baseline sessions. Finally, when the intervention was put back into effect, the 6th grade class completed an average of 2.92 of targeted organizational behaviors (range = 2.6 to 3.0). This was the same mean as the adjacent baseline phase and there was a large number of overlapping data points across experimental conditions. As seen, the class earned perfect scores during eight of 12 second intervention sessions (75%)

which were the same as the adjacent baseline II phase mean.

Data were also aggregated at the classroom level for the mean number of organizational behaviors exhibited during each session. Data relevant to 6th graders' performance can be seen in Figure 2. During initial baseline sessions, the entire class completed an average of 2.78 (out of 3.0) targeted organizational behaviors with a range of 2.3 to 3.0. This was about 92% of the targeted behaviors that the teacher wanted students to display. Students received perfect averages for completion of all three target behaviors on four of 11 baseline sessions (i.e., 39%). For the most part, baseline data were relatively stable although there appeared to be cyclical accelerating and decelerating trends. When the mystery motivator game was implemented, there was a slight increase in the class' mean completion rate for targeted organizational behaviors to 2.88 (range = 2.3 to 3.0). This was slightly higher than initial baseline levels and perfect sessions were recorded during eight of 15 sessions or 53% of the time. In general, there also appeared to be less variability in pupil performance from day to day during the Mystery Motivator Game. There were, however, numerous overlapping data points across the first two experimental phases.

When the Mystery Motivator Game was removed, the class' mean rate of completion of target organizational behaviors increased once again to 2.92 with a range from 2.5 to 3.0. Perfect completion rates were noted during six of seven (i.e., 85%) second baseline sessions. Finally, when the intervention was put back into effect, the 6th grade class completed an average of 2.85 of targeted organizational behaviors (range = 2.4 to 3.0). This was a slight decrease from the adjacent baseline phase although there was also a number of overlapping data points. It is also important to note a gradual decline in pupil performance following the first seven intervention sessions. As seen, the class earned perfect scored during these sessions, but then their performance fell off during the final six sessions.

Discussion

The present study found that the Mystery Motivator Game failed to produce noticeable changes in 5th and 6th grade students' organizational skills. In general, both class' performance on three specific "ready to learn" tasks (i.e., in seat before bell rings, possession of all required materials, and completion of bell ringer activities) remained relatively unchanged throughout the course of the investigation. It should be noted, however, that there was a slight initial increase in pupil performance during the first game implementation in the 6th grade class. However, all other phase means quite similar. As such, no functional relationship was found between the use of the Mystery Motivator Game and pupils' completion of selected organizational behaviors. These findings are at odds with extant research on the use of group contingencies and mystery motivators. As noted, previous researchers have shown that both group contingencies and mystery motivators can (a) improve academic performance (Lynch, et al., 2009; Popkin & Skinner, 2003; Sharp & Skinner, 2004; Theodore et al., 2009); (b) reduce disruptive behavior (e.g., Christ, & Christ, 2006; Kelshaw-Levering et al., 2000; McKissick, Hawkins, Lentz, Hailly& McGuire, 2010; Theodore et al., 2004; Theodore, Bray, Kehle, & Jenson, 2001), and (c) facilitate room-to-room transitions (Campbell & Skinner, 2004). There are a number of possible reasons why pupil performance did not improve as significantly as it had in previous research. First, both classes exhibited relatively high rates of organizational behavior before the game was even introduced. Data from both 5th and 6th grade classes indicated that students were already completing over 90% of expected behaviors. This was unexpected given that the teacher/investigator had reported that numerous students, particularly those with special needs, had noticeable organizational challenges. Because expected behaviors were occurring at high positive rates under *normal* teaching conditions, then it is likely that existing contingencies were

already reinforcing for most students.   Second, given the high baseline rates of expected behavior, there was little room for pupil growth on the dependent measure (i.e., ceiling effects). A third possibility is that students weren't challenged or motivated by the 90% completion criteria. Since they were already performing at this level during baseline, there was little need to improve their behavior in order to meet the reward criteria. They may have rewarded for simply doing what they already were able to do. As such, this would be a misapplication of the group contingency.

While the present findings do not contribute substantively to the existing literature on group contingencies and mystery motivators, they may raise some additional questions for practitioners and researchers who want to examine the effects of the Mystery Motivator Game in the future. For example, it would be interesting to conduct a more fine-grained analysis of individual pupil responsiveness to the intervention. Given that aggregated data often masks important "individual" effects (Kennedy, 2005), it is important to analyze intervention effects on each pupil within the group. Were there specific "responders" (i.e., those who made noticeable improvements when the Mystery Motivator Game was in effect) and "non-responders" (i.e., those who failed to improve or did worse when intervention was in effect) and if so, what was the nature of the differences among the two groups? It might also be important to replicate this particular study with students who are actually struggling with targeted organizational behaviors prior to intervention. Are there more important organizational behaviors for students to learn and how are they identified, taught, and maintained?

In general, the Mystery Motivator Game seemed to be feasible to implement and socially acceptable to pupils. This finding *is* consistent with previous research that shows positive consumer satisfaction evaluations for group contingency and mystery motivator studies (Skinner

et al., 2009). The classroom teacher felt that the intervention was fair and that it took little time and effort to use and evaluate. Students appeared to be equally positive about intervention goals, procedures, and outcomes. One surprising outcome, however, was that a few students felt that the Mystery Motivator Game was unfair because they may be well-organized and still not get a reward because someone else messed up. Similar concerns were noted in the group contingency literature (e.g., Litow & Pomroy, 1975; Skinner et al., 2009), but this is the first time it was noted when contingency components were randomized and unknown. More attention should be focused on the perceived fairness of interdependent group contingencies in future research.

Aside from the fact that the Mystery Motivator Game did not noticeably improve 5th and 6th graders' organizational skills, there are some other important study limitations. First, the study was conducted with only two group of students (N =17), from two grade levels, in one geographical location, and in one narrow facet of the curriculum (i.e., organizational skills). Generalizations to other grade levels, geographic settings, and other "ready to learn" behaviors are not warranted at this time. Second, the study was conducted for a relatively short duration (7 weeks) and no generalization and maintenance data were collected. It is not appropriate to conclude, therefore, that the same effects would be obtained over a longer time period and/or that benefits would generalize to other areas of organizational skills (e.g., time management, question-asking, and note-taking) and/or be sustained in the absence of the intervention. As such, future research should include longer intervention durations and more explicit generalization measures for examining potential "spillover effects".

Current findings are also limited because the investigator served as primary data collector and evaluator. Although procedures were used to monitor fidelity of implementation (i.e., fidelity assessments), one cannot rule out potential experimenter bias effects at this time. Future

research should utilize independently-trained data collectors to the maximum extent possible. Finally, present findings are limited by the absence of direct observations of pupils' "ready to learn" behaviors. It is quite likely that one can learn much more about the effects of interventions by observing faces and hearing voices when intervention procedures are implemented and/or taken away. Are they excited, dismayed, or some other affect? Future researchers should consider, therefore, the use of more direct observational measures of the intervention's impact.

In conclusion, the present study examined the effects of the Mystery Motivator Game, which consists of interdependent group contingencies and unknown rewards, on three, organizational behaviors of two groups of 5th and 6th graders in an ELA setting. Data indicated that the intervention had no noticeable effects on pupils' ready to learn behaviors, which remained at relatively high levels across all experimental phases. These findings stand in opposition to the extant literature on interdependent group contingencies and mystery motivators, yet suggest that there may be times when particular interventions will not work. Given the limitations described earlier, any conclusions must be drawn with extreme caution. It is also important to note that it was very difficult to conduct a rigorous, classroom-based research study while teaching full-time. Excessive instructional and non-instructional demands almost preclude doing such rigorous research on a routine basis. Yet, it might be accomplished on a strategic basis. That is, schools might target specific pupil outcomes (e.g., improved reading and math fluency) that are common across teacher groups and they can examine their practice collaboratively. Perhaps other professionals (e.g., teacher educators, educational researchers, and school leaders minimally) might join the effort? Obviously, there is a need for additional replications of the Mystery Motivator Game. To what other organizational behaviors or grade

levels can it be applied effectively? What other academic, behavioral, and/or interpersonal outcomes can the intervention improve? Would teachers continue to use the Mystery Motivator Game after formal contact with researchers was removed? These questions among many others can and should be addressed by future practitioners and researchers.

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Figure 1 shows the mean number of *ready to learn* behaviors displayed by 5th graders across experimental phases.
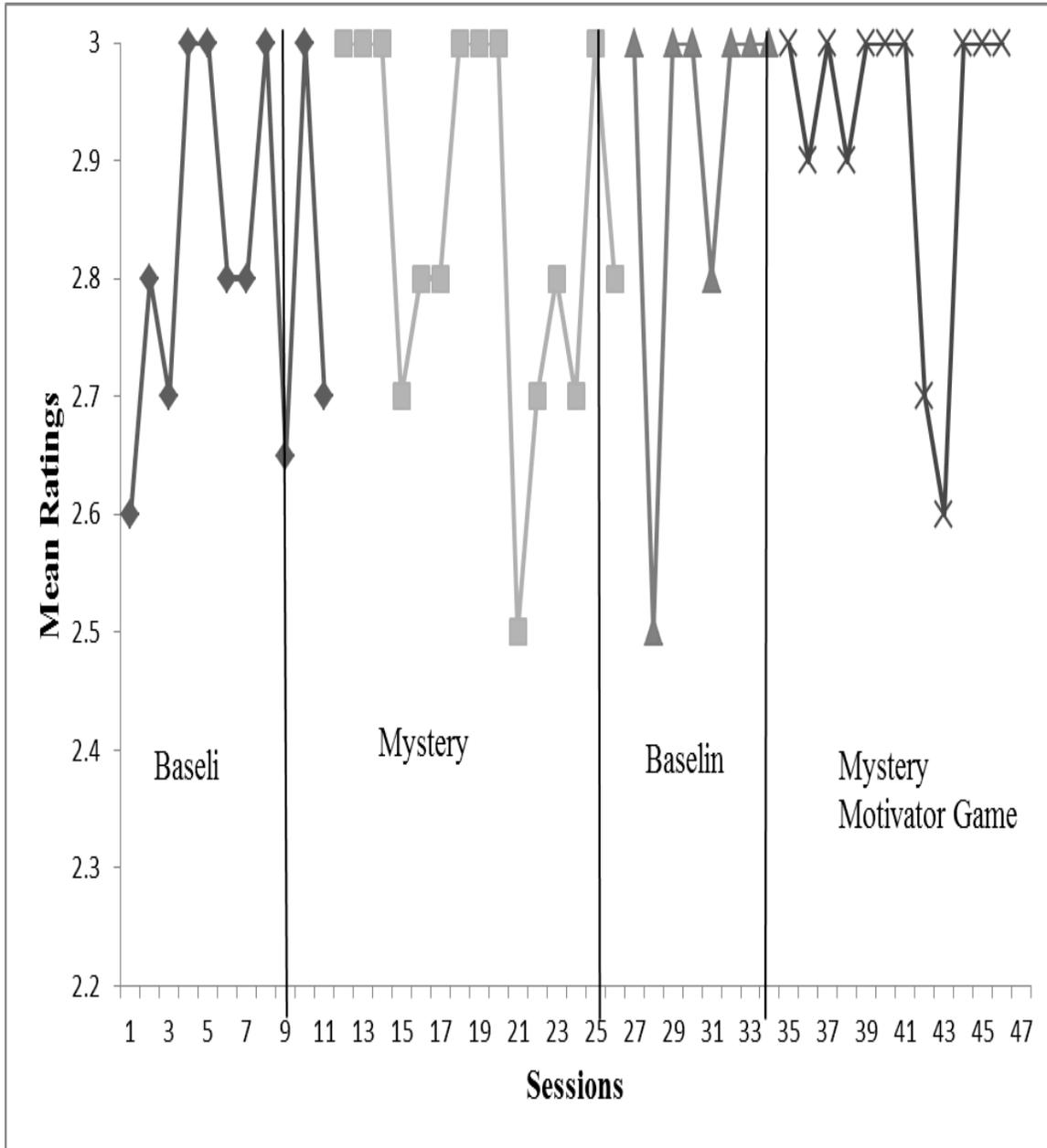
Figure 2 shows the mean number of *ready to learn* behaviors displayed by 6th graders across experimental phases.
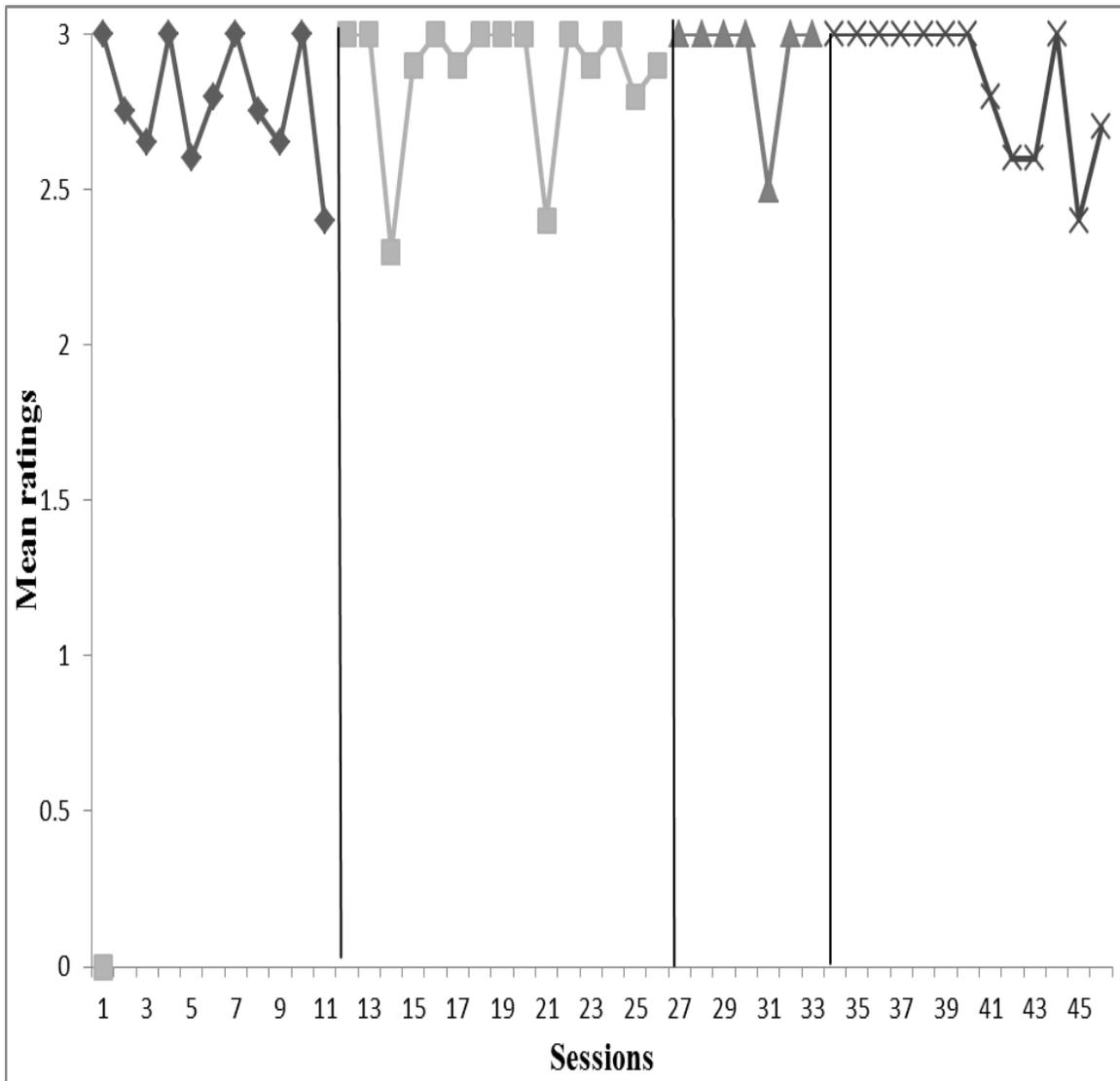
Appendix A

Data Collection Sheet for Target Behaviors and Criteria

Date: A /B Day: Students↓	Class: Reward:			Class: Reward:		
	Prepared for class	In assigned seat at the start of class	Working on *Bell Ringer*	Prepared for class	In assigned seat at the start of class	Working on *Bell Ringer*
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

◉ **How to use this data collection sheet.**

- Fill in the date each day at the left upper corner.

- Circle the A or B, to indicate if it an A day or a B Day.

- Fill in which class is being monitored (i.e. 5th grade reading class)

- Place a √ in the box next to the student's number if they met the criteria.

  ➢ **Prepared for Class**: Student has all their own materials (pencil, notebook, and agenda) required for class.

  ➢ **Quietly in assigned seat at the start of class:** Class begins 5 minutes after the prior class's dismissal bell.

  ➢ **Working on "Bell Ringer" activity: "**Bell Ringer" activity will be posted on the board for students to complete as they enter the classroom.

- Fill in if the students met the criteria for that day and received a reward. Simply write Y or yes, if they did, or N or no if they failed.

Appendix B

Consumer Satisfaction Survey

The Mystery Motivator Game

<u>Directions</u>:

Please read each item aloud to your students and ask them to *circle the number* that best

represents their feelings about that particular item. Emphasize the importance of completing the

rating *individually and privately.*

I.   *Importance of Instructional Goals*

1. How important is it for you to do well in ***ELA/Reading class***?

1	2	3	4	5
Not at all		somewhat important		very important

2. How important is it for <u>other students</u> in your class to do well in ***ELA/Reading class***?

1	2	3	4	5
Not at all		somewhat important		very important

3. How important is it for students to ***be prepared with all their required materials*** *for
    ELA/Reading class*?

1	2	3	4	5
Not at all		somewhat important		very important

4. How important is it for students to be ***in their assigned seats at the start of ELA/Reading
    class***?

1	2	3	4	5
Not at all		somewhat important		very important

5. How important is it for students to ***complete and turn in the "Bell Ringer" activity*** *for*

    ELA/Reading class?

1   2   3   4   5

Not at all   somewhat important   very important

II.   *Acceptability of Instructional Procedures*

6. How much did you like being ***in your assigned seats at the start of ELA/Reading prepared***

    with all their required materials each day?

1   2   3   4   5

Not at all   OK   Liked it a lot

7. How much did you like the requirement that **everyone must be** ***in their assigned seats at***

    the start of ELA/Reading prepared with all their required materials to play the "mystery

    motivator game"?

1   2   3   4   5

Not at all   OK   Liked it a lot

8. How much did you like ***completing and turning in the "Bell Ringer" activity*** each day?

1   2   3   4   5

Not at all   OK   Liked it a lot

9. How much did you like the requirement that **everyone must** ***complete and turn in the "Bell***

    Ringer" activity to play the "mystery motivator game"?

1   2   3   4   5

Not at all   OK   Liked it a lot

10. How much did you enjoy **playing the mystery motivator game**?

1	2	3	4	5
Not at all		somewhat		Liked it a lot

11. How much did you like **coloring in the boxes on the calendar** to see if there were any

invisible stars on the calendar?

1	2	3	4	5
Not at all		somewhat		Liked it a lot

12. How much did you like **picking one of the mystery motivator envelopes**?

1	2	3	4	5
Not at all		some		Liked it a lot

13. How much did you like **coloring in squares on the Bonus Chart** to see if there were any

invisible letters?

1	2	3	4	5
Not at all		some		Liked it a lot

III.   *Satisfaction with Strategy Outcomes*

14. How satisfied are you with **your overall performance** in *ELA/Reading class*?

1	2	3	4	5
Not at all		somewhat satisfied		very satisfied

15. How satisfied are you with *your* performance when using the **Mystery Motivator Game**?

1	2	3	4	5
Not at all		somewhat satisfied		very satisfied

16. How much did the Mystery Motivator Game **help you learn** reading content better?

1	2	3	4	5
Not at all		some		a lot

17. How much did the Mystery Motivator Game **help you to be prepared** for class**?**

1	2	3	4	5
Not at all		some		a lot

18. How much did the Mystery Motivator Game help you to **get along better with others** in

class?

1	2	3	4	5
Not at all		some		a lot

19. Does the Mystery Motivator Game seem like something that **should be done** in other

classes?

1	2	3	4	5
Not at all		maybe		definitely should

20. Could the Mystery Motivator Game **be harmful** to other students?

1	2	3	4	5
Not at all		maybe		definitely could

21. Did other students think that you were smarter after using the Mystery Motivator Game?

1	2	3	4	5
Not at all		some did		everyone did

22. Overall, what did you think of the Mystery Motivator Game?

1	2	3	4	5
Not at all		some		all

Additional Comments/ Suggestions:

_____

_____

Appendix C

Fidelity Checklist – Group Contingencies with Mystery Motivators

Date:_____ Day: A B Class: _____	Present	Absent
1. *Ready to Learn* target behaviors (in seat by bell, have all required materials, and working on "bell ringer" activity) are posted.	_____	_____
2. Students enter classroom with all their required materials for class, sit in their seat, and work on "bell ringer" activity by the start of class.	_____	_____
3. Teacher hands each student a ticket[1] for each target behavior they exhibit.	_____	_____
4. Students write their initials on the tickets they receive and put them in their class' bucket, in the front of the class.	_____	_____
5. At the end of class[2] (last 5 minutes of class), the classroom clerk counts the number of tickets in the class' bucket.	_____	_____
6. If the students meet the criteria[3], the classroom clerk colors in the box on calendar.	_____	_____
7. If star appears, student selects a numbered envelope.	_____	_____
8. Teacher opens envelope and gives reward to entire class.	_____	_____
9. If no star appears, no envelope is selected.	_____	_____
10. Students are praised for good work or encouraged to try harder.	_____	_____
11. If the number of tickets equals to 100% of all three *Ready to*	_____	_____

Learn target behaviors of all the students, the classroom clerk colors in any square on the Bonus Chart.		
12. Teacher records target behaviors on a checklist at the end of the day using tickets for class buckets.	_____	_____

Totals: _____ / 12X 100% = ___%

1. **Tickets** (different color for each target):

   - Yellow - have all required materials.

   - Blue - in seat by bell.

   - Green - working on "Bell Ringer" activity.

2. On alternating days, the 5th grade class and the 6th grade class have two reading classes (morning and afternoon). On the days a class has two reading class the end of class will mean the end of second class.

3. **Criteria:** 90% or more of the total number of tickets that can be earned (3 X number of classes X number of students), i.e. 30 or more tickets of the 33 that can be earned.