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Effective Data Collection Modalities Utilized in Monitoring the Effects of the Good Behavior Game: Technology-Based Data Collection Versus Hand Collected Data

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EFFECTIVE DATA COLLECTION MODALITIES UTILIZED IN
MONITORING THE EFFECTS OF THE GOOD BEHAVIOR GAME:
TECHNOLOGY-BASED DATA COLLECTION VERSUS HAND COLLECTED
DATA

by

Susan Elizabeth Elswick

A Dissertation

Submitted in Partial Fulfillment of the

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DEDICATION

This dissertation is dedicated to my loving and supportive husband Jamie, and my three beautiful children Charlotte, Liam, and Abigail. Thank you all for your patience and support while I fulfilled my purpose in life.

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ABSTRACT

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The Good Behavior Game (GBG) has been identified as an effective evidence-based class-wide management intervention to decrease maladaptive classroom behaviors. This study was a systematic replication and extension of previous research on GBG. This study looks at the continued effectiveness of the GBG on increasing appropriate student classroom behaviors and on increasing teacher behavior-specific praise statements to students. This research is also attempting to investigate teacher perception of the use of evidence-based interventions and data collection in the classroom, and the differences in accuracy in data collection and the GBG intervention while monitoring teacher's usage of both hand calculated and computer-based data collection modalities.

Keywords: behavior, classroom management, positive behavior interventions and supports, data collection, accuracy.

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CHAPTER 1

Introduction

Positive educational outcomes often include success in reading, math, and writing, which leads to the student becoming a productive citizen after graduation. These are noted beneficial skills that will assist the student in academics and beyond; however, in education it is important to remember that the learning process and academic achievement must focus not only on subject and content specific learning, but the learning process must also include behavioral objectives for students. Students are not able to obtain the needed educational goals set forth by the federal and state education departments or the local school district when there are evident behavioral excesses present within the classroom. Classroom management was defined by Brophy (1986) as the teacher's efforts and ability to create an environment that is effective for teaching and learning. Appropriate classroom management has also been noted as a prerequisite skill for successful pedagogical and academic outcomes (Carpenter & McKee-Higgins, 1996) and must be evident in order to enrich the classroom setting which will increase the possibilities of successful learning being achieved.

Teachers often struggle with behavioral challenges exhibited by students and many times these behaviors are defined as behavioral excesses. A behavior excess is defined by Walker and Severson (1994) as socially maladjusted behavior that happens at a high rate, frequency, with great intensity, and which happens in a setting where it is not appropriate or accepted. In a time when educational outcomes and teacher effectiveness are dependent on high stake tests scores, student performance on standardized tests, and systematic progress monitoring of students academic growth, ensuring that appropriate

classroom management techniques are employed to decrease maladaptive classroom behaviors is essential to school success (No Child Left Behind, 2002). Addressing behavioral concerns in the education setting is so important that it is federally mandated that schools address problematic and maladaptive behaviors.

In 1997, federal legislation was adopted that required school districts to assist students that displayed problematic behaviors that could potentially negatively impact the learning of the targeted student as well as other learners within the class (IDEA, 1997). The Individuals with Disabilities and Education Act (1997) notes that school districts should have "interventions, strategies, and supports" that are "positive" in nature to address the problematic behaviors often seen within class rooms across the nation.

This federal legislation is backed by many studies (Bradshaw, Mitchell, & Leaf, 2010; Rutter & Maughan, 2002; Wentzel, 1993) that show the potential and evident negative impact of student learning when behavioral excesses are present within the classroom. Behavioral challenges in the classroom are not only time consuming and draining to the teacher, but as evidenced in a study by Wentzel (1993), disruptive and maladaptive behaviors have been associated with lower student scores on standardized tests and poorer overall academic performance. Wentzel's study explored the idea that maladaptive behaviors must be assessed and corrected as quickly as possible to decrease the loss of academic skills and future need for academic remediation.

When looking at the potential negative effects of problem behavior on student academics, it is apparent that the longer the student exhibits the behavioral excesses that are distracting educational progress, the further behind the student will fall. While looking at problematic classroom behaviors, in an academic setting where little

appropriate classroom management is displayed, there is also usually a high frequency of office referrals and school suspensions. A high frequency of office referrals and school suspensions decreases the amount of time the student has within an environment conducive to learning (Bradshaw, Mitchell, & Leaf, 2010).   Rutter and Maughan (2002) discussed the importance of appropriate classroom management in their research and is evident in the following quote from their work:

> Pupil achievements and behavior can be influenced (for the better or worse) by the overall characteristics of the school….this means a focus on the features promoting good functioning at the classroom, departmental or whole school level. (pp. 470-471)

To further illustrate the importance of good classroom management skills on the successful outcomes of academics, a study conducted by Bradshaw, Mitchell, and Leaf (2010) was conducted. The results of the study noted that the academic performance of fifth-grade classrooms improved after an appropriate school wide positive behavior intervention and support program was initiated. The study also found that not only did academic performance improve, but there was an obvious reduction in office referrals and suspensions. The reduction in office referrals and suspensions allowed the students more time in an educationally conducive classroom environment which increased academic outcomes.

Behavioral excesses are concerning and potentially detrimental to the educational success of the student exhibiting the behaviors, but these evident behavioral challenges also negatively impact other learners within the classroom. The by-stander effect is defined as an event in which people/persons that are exposed to a certain event are in turn

affected by the event which has an impact on their behavior (Master Teacher Inc, 2009). Students as by-standers exposed to peer problematic classroom behavior can be detrimentally effected in one of two ways: 1) student by-standers begin to mimic the inappropriate behavioral excesses exhibited by other students and/or 2) student by-standers can potentially become fearful of classroom setting, have negative feelings about school setting, and become emotionally effected by the evident behavioral excesses presented by other students (The Master Teacher Inc, 2009). Both of these before mentioned effects are notable negative effects that should be avoided in the classroom. These potential negative effects will impact the other learners by decreasing the amount of appropriate academic instruction obtained, thus decreasing the likelihood of successful outcomes in education.

Student academic progress is not the only concern as it relates to the effects of maladaptive behaviors on class performance and educational success. School districts must also take into account the obvious mental health concerns and outcomes for students that exhibit behavioral excesses, as well as life outcomes for those students. It has been reported in several studies that students who are constantly redirected for inappropriate behaviors tend to have higher rates of depression and lower overall academic achievement (Kellum & Anthony, 1998; Kellum, Rebok, Ialonga, & Kalodner, 1994). Not only do these studies show the negative impact that socially inappropriate classroom behaviors have on academic progress, it also opens the minds of practitioners that one's words and actions have consequences, and these consequences have a lasting effect on the students in which we serve. The lack of providing appropriate interventions in regards to behavior that produce long-term and lasting effects to students, and the long-

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term negative effects of behavioral excesses on students is a concern for the families, teachers, schools, and communities involved.

Concerns about problematic childhood behaviors and aggression, as well as the longitudinal outcomes for these behavioral excesses, have been on the forefront of research for some time. These concerns are such that the Office of the Surgeon General began gathering data about problematic behaviors in children across the nation. The Surgeon General's 2001 Report indicated that behavior problems, as it relates to youth violence, were on the rise. Even though many programs aimed at reducing and preventing youth violence have been implemented (since the 1993 report and results) and some improvements have been noted, solutions for the problems of youth violence remain a challenge for all (Lipton, Martinson, & Wilks, 1975; Sechrest, White, & Brown, 1979). The Surgeon General's report stated that youth violence is a high-visibility, high-priority concern in every aspect of the U.S. Sector. The report indicated that exhibiting uncontrollable behavior or having a diagnosis of a conduct disorder in early childhood does not alone predetermine later youth violence in adolescence; however, the report does mention that there is still a great need for early intervention programs for children considered at-risk for future violent acts. Many of these proposed "intervention programs" are targeted within the schools across the country. A few of the potential risk factors for future violence mentioned in the Surgeon General's Report included the following: childhood physical aggression, exposure to violence in the home/ community, lack of positive interventions in early childhood, and poor academic performance.

As a response to the Surgeon General's Report on youth violence, The National Youth Risk Behavior Survey (NYRBS) was created to monitor youth risk behaviors and

to see if improvements were noted. The NYRBS of 2005, conducted by the Center for Disease Control (CDC), also looked at the behavioral risk factors that contribute to violence. The results of the national survey were as follows: 18.5% of students carried a weapon to school 30 days preceding the survey, 5.4% of students disclosed carrying a gun to school 30 days preceding the survey, 35.9% students reported being in a physical fight one or more times during the 12 months preceding the survey, 6.0% of students reported not attending school due to fear of safety, 28.5% of students nationwide reported feeling sad or hopeless for more than two weeks, and 16.9% of students reported seriously considering suicide within the 12 months preceding the survey. All of the above subtopics were researched due to the behavioral connection to violence within the child/ adolescent populations. With so much evidence about violence and behavior problems within the schools, and the extensive research on the need for appropriate interventions for problematic behaviors, one would think that effective, evidence-based professional development and intervention training is provided to all school personnel.

In a study by Walter, Gouze, and Lim (2006), elementary teachers reported that disruptive classroom behaviors were the largest problem within the school and classroom, and their lack of knowledge and training on how to decrease these disruptive classroom behaviors were preventing academic achievement for all learners. Also within the Walter et al. (2006) study, teachers also mentioned that a lack of time to implement classroom interventions has potentially added to the increase in maladaptive classroom behaviors exhibited by students.

Based on previous research findings, teachers are requesting more effective classroom interventions to decrease these behavioral excesses (Walter et al, 2006). The

high standards set forth by the education department and federal legislation mandate that behavior management and assistance for challenging behaviors be addressed by the school system, but teachers cannot be productive practitioners without appropriate training and guidance. Previous research has shown that inappropriate teacher responses to student maladaptive behavior can actually be counterproductive and detrimental to the outcomes desired (Kodak, Miltenberger, & Romaniuk, 2003).

One study by Kodak et al. (2003) determined that reprimanding unwanted behaviors of students actually produced the most problematic behavior. This study creates a puzzling contradiction about intervening on behavior within the classroom. The history of research and literature shows us that intervention is needed, but what is the most effective and appropriate way to intervene on problematic behavior?

A noted effective classroom management technique that will be investigated further in this replication study is identified as the Good Behavior Game (GBG). The GBG is a classroom management technique that actually teaches students to monitor their own behaviors and adapt through self-regulation by way of a group process known as interdependent team behavior-contingent reinforcement (Tingstrom, Sterling-Turner, & Wilczynski, 2006). The GBG works well because it uses a reward that is always available within the classroom setting, easy to obtain, and easy to implement- teacher attention (Becker, Madsen, Arnold, & Thomas, 1967; Hall & Broden, 1967; Hall, Lund, & Jackson, 1968; Madsen, Becker, & Thomas, 1968; Zimmerman & Zimmerman, 1962). Another noted built-in reward of the GBG is the peer/social approval obtained for assisting the team in earning the wanted reward. There has been much research on the positive effects of using the GBG to curb unwanted behavior as it relates to aggression

(Dolan et al., 1993) as well as anti-social behaviors (Kellum & Anthony, 1998; Kellum et al., 1994).

In previous research it has been shown that early signs of aggressive and disruptive classroom behaviors are an early antecedent for later problems which can include drug use, conduct disorder diagnosis, school failure and drop out, as well as antisocial behaviors and criminal activity (Andrews, & Patterson, 1996; Block, Block, & Keyes, 1988; Dishion, Spracklen, Andrews, & Patterson, 1996). Assisting students with these behavioral concerns/needs, will not only benefit them in the school and academic arena, but can potentially help to curb anti-social behaviors that could lead to life threatening, adult behaviors, thus increasing successful outcomes across multiple life areas.

Hypotheses

The purpose of this study was to conduct a replication and extension of the GBG that displays the continued effectiveness of the classroom intervention on both student maladaptive behaviors and the reciprocal effects of increasing teachers behavior-specific praise statements, while also monitoring the effects of two different data collection modalities. Data collection in research is extremely important and now that educational programs have adopted Response to Intervention (RtI) standards into public school academia, teachers will need to become much more familiarized with data collection methods and procedures and also embrace the concept of utilizing evidence-based interventions in the classroom setting. This replication and extension study will utilize the GBG to monitor the differences of accuracy in data collection when using two separate data collection modalities (hand calculated data versus computer-based data

collection), to monitor increases in teacher behavior specific praise statements to students, to look at a potential increases in teacher's positive perceptions of data collection within the classroom, and to monitor increases in appropriate student behavior.

The research questions under investigation are whether or not different data collection modalities (hand calculated data procedures versus computer-based data collection procedures) used in conjunction with an evidence-based intervention (The Good Behavior Game) will have an effect on the following:

1) Improvements in accuracy in data collection by the teachers

2) Improvements in teacher target behaviors

3) Improvements in teachers perception and willingness to participate in data collection when utilizing effective evidence-based interventions in the classroom

4) Improvements in student target behavior

Based on this researcher questions above, the hypotheses for this replication and extension study were as follows:

1) Computer-based data collection tools will increase teacher accuracy in data collection while implementing an effective evidence-based classroom management techniques (The Good Behavior Game)

2) Computer-based data collection methods will have a significant positive impact on teacher target behaviors

3) Computer-based data collection systems will increase teachers willingness to utilize data collection procedures within the classroom

4) Computer-based data collection methods will have a significant positive impact on student target behaviors

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CHAPTER 2

Literature Review

Previous Research on GBG

The GBG was originally created by Barrish, Saunders, and Wolf (1969) as a response to reported problematic behaviors exhibited in a fourth grade classroom that had identified several "problem children." This study was the first of its kind that used the theory of group contingent reinforcement within the classroom setting to attempt to decrease unwanted classroom behaviors. This study initiated the GBG game during reading time and later during a math class. This research did utilize the group contingency and the rewards that were offered were things that were considered readily available within the school setting such as extra recess, first in line for lunch, time for special projects, teacher attention, and just winning the game. The targeted behaviors were "talk out" and "out of seat" behaviors that were noted by the teacher and observable within the class. The experimental design used was a reversal and a multiple baseline phase design. The results of this study indicated that the GBG was an effective intervention that dramatically modified disruptive classroom behaviors (talk out and out of seat). The limitations to this original study included the amount of time required of the teacher to monitor/track behavior, time needed to prepare the class for GBG implementation/training, the consistency and reliability of teacher account of target behaviors, and a phenomenon where the "problem students" ended up on the same team that decreased one of the two teams from obtaining winning results due to the distribution of the problem students.

A GBG replication was conducted by Medland and Stachnik (1972). This study employed the use of the GBG previously studied by Barrish et al. (1969) with a few noted changes. Medland and Stechnik (1972) used rules, a light (response feedback), and group consequences (extra recess and extra free time) to decrease three targeted behaviors (out of seat, talk out, and disruptive behaviors). The light used for the response feedback was a red and green light attached to a box that was controlled by the observer. The light response feedback was used to increase student awareness of current unwanted behavior as a visual reminder to self-regulate and monitor their behavior. The results indicated that the GBG with the visual light response feedback was effective.

Harris and Sherman (1973) conducted a GBG replication and extension study that looked at the effects of the GBG across classrooms and grades (looked at a 5th and 6th grade classroom), and the study attempted to determine what portion of the GBG actually produced the behavior changes, and whether or not the GBG assisted in increasing academic performance within the classrooms. The results did show that the GBG did decrease maladaptive classroom behaviors, and it appeared that the impact of the reinforcer for winning the game really impacted the results of the intervention. The students who won were offered to leave school early in one session, but when that reinforcer was removed during a later session the GBG was still effective but not as effective as previously noted. This replication used a rule, feedback session, and consequence system as part of the GBG to decrease unwanted behaviors. The feedback session was conducted where the teacher discussed the unwanted behaviors that were observed and talked to the students about the unwanted behaviors. This study showed that the rules and feedback sessions utilized in this replication and extension showed

improvement in behaviors even when not coupled with a consequence, but when looking

at the feedback session alone as an important part of the GBG it was noted as the least

effective portion of the GBG system employed. In regards to the study question about

academic improvement by using the GBG, the study did not note any relationship

between academic improvement and the implementation of the GBG. One study

limitation noted was that there was a very evident peer to peer harassment for losing

points for the team and instigation between teams about who the "winner" was.

Due to the noted and researched effectiveness of the GBG many practitioners

continue to find ways to make the game appealing to current classroom conditions and

teachers. A longitudinal study was conducted by Kellam et al. (2008), that looked at the

longitudinal effects of a universal classroom management program with first and second

grade classrooms on young adult, psychiatric, and social outcomes. The study was

conducted in a public school district in the Baltimore area. There were three conditions

used for this study 1) GBG, 2) a curriculum and instruction aimed at increasing reading

achievement, and 3) the standard program that was already in place in the area schools.

The study randomly assigned one of the three conditions to 19 schools. The results

indicated that the GBG had a dramatic impact on decreasing aggression, disruptive

behavior, and noted a reduction in drug/alcohol dependency and anti-social behaviors in

young adult males who had been previously identified as more problematic while in the

first grade. There were similar results for the female participants, but not as significant as

the male population. The study showed that the GBG was the most effective in

decreasing unwanted behaviors when compared to two other conditions which were the

standard academic program used in that district, and a condition utilizing a curriculum aimed at increasing reading achievement.

The Good Behavior Game has been utilized across many classroom settings, with numerous age groups, and with differing student strengths and needs. For example the GBG has been replicated in a preschool setting (Sweizy, Matson, & Box, 1992), in upper elementary classes (Barrish et al., 1969; Johnson, Turner, & Konarski, 1978; Maloney & Hopkins, 1973; Warner, Miller, & Cohen, 1977), first and second grade classrooms (Bostow & Geiger, 1976; Lannie & McCurdy, 2007), with adolescents diagnosed with emotional and behavioral disorders (Salend et al., 1989), and with students identified as having developmental and intellectual disabilities (Phillips & Christie, 1986). All of the before mentioned replication studies of the GBG indicate that it is an effective classroom management technique for decreasing unwanted classroom behaviors.

The earlier GBG studies only monitored effects of the GBG within one setting-the classroom. In order for an intervention to truly be considered effective, it must translate into other settings. The GBG was used to assist in improving effective outcomes for productivity of adults in the workplace (Lutzker & White-Blackburn, 1979), and later it was used to increase oral hygiene for a group of participants which was also noted as effective (Swain, Allard, & Holborn, 1982). These studies opened the door for the use of the GBG in multiple settings. The researchers Fishbein and Wasik (1981), also wanted to see if the GBG was an appropriate intervention for other settings outside of the classroom. This study used the GBG within a public school library. This replication displayed that the GBG was effective outside of the classroom, and while being implemented by school staff other than the direct classroom teacher.

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Not only is it important for an intervention to work across settings, it is also important for the intervention to work across and within diverse populations. The GBG has also been proven to be effective across demographic areas as well as across diverse populations. Many researchers in many areas, both in and out of the United States, have utilized the GBG in replication studies. The GBG was replicated in Germany (Huber, 1979), the Sudan (Saigh & Umar, 1983), and within both rural and urban settings across the United States (Darveaux, 1984; Salend et al. 1989). All of these studies replicated the positive effects of the GBG, which increases the likelihood that the GBG will work in almost any setting, with any age group, and with any population.

Lannie and McCurdy (2007), looked at the effects of implementing the GBG on student and teacher behaviors within an urban school district. This study replicated again the positive effects of the GBG on increasing student on-task behavior, while decreasing the maladaptive behaviors previously noted by the faculty. The study also showed that there was very little impact on improving teacher praise statements to students with the implementation of the GBG. Even though student behaviors improved, the teacher's recognition of their positive changes in behavior was not evident.

After reviewing the research conducted by Lannie and McCurdy, this researcher conducted a replication and extension of the GBG following closely the findings of Lannie and McCurdy (2007). This study investigated the continued effectiveness of the GBG on curbing student maladaptive behavior while monitoring the reciprocal effects of the GBG on increasing teacher behavior-specific praise statements, and in addition monitoring teacher's perceptions about the use research in the applied setting through the use of training procedure and access to a Teacher Guide. The results of the 2009 study

noted that the GBG continued to effective on decreasing students maladaptive behaviors (talk out, out of seat, and disrespectful behavior) while also having a positive reciprocal effect on improving teacher behavior-specific praise statements towards students. The study also revealed that teachers are interested in professional development and interventions regarding evidence-based classroom management techniques, they are interested in utilizing research in the classroom, and appreciated the Teacher Guide as a treatment manual for the classroom based intervention. The concerns noted by the teachers during this study included the following: 1) the ability to monitor all behaviors while tallying previously seen behaviors on the board, and 2) the data collection procedures (tally marks posted on the board in front of the class) kept the teacher from feeling as if they could roam freely in the classroom during the intervention. Positive results indicating that the teachers appreciated and wanted future use of Teacher Guides in relation to intervention use in the classroom was taken into consideration when preparing for future research. This previously used systematic Teacher Guide will be utilized in this researcher's current research study with some modifications and additions to meet the needs of the participants.

Previous Research on Data Collection Modalities

Increasing fidelity, reliability, and accuracy of intervention implementation and data collection has long been a concern of many researchers and practitioners (Belack & Hersen, 1998; Kahng & Iwata, 1998; Sulzer-Azaroff & Mayer, 1991). Data collection has been noted as a needed and critical component for ensuring the development of effective treatment interventions and demonstrating experimental control within research (Sulzer-Azaroff & Mayer, 1991). Data collection that lacks fidelity, reliability, and

accuracy is useless and futile in assisting practitioners with determining most effective treatment interventions. There are multiple reasons why practitioners are looking towards computer-based and more technologically advanced methods of data collection over the previously and historically used pencil paper data collection procedures. First, hand calculated data is time consuming. This method of data collection requires the collector/ staff to observe and write out data descriptions at the same time or to recall specific moments in time and contingency based information about the target behavior. This type of data collection procedure has been noted as extremely difficult and usually has a high response cost (Emerson, Reeves, & Felce, 2000). Secondly, hand calculated data collection systems are often noted as unreliable, often incomplete, and full of inaccuracies (Belack & Hersen, 1998). Many researchers that favor computerized data collection systems believe that if the data collection process is streamlined, easy to access, and easier to manage, that staff will participate in appropriate data collection at a higher rate than previously seen with hand calculated data collection systems.

There have been many attempts to improve data collection procedures and practices throughout the years and through research. These attempts were employed in hopes to reduce time and effort required in the collection procedures. Methods previously researched as potential ways to improve the efficiency and accuracy of real-time data recording include the use of timers and alarms to prompt recorders to record data (Sulzer-Azaroff & Mayer, 1991), computerized systems for automated recordings to be reviewed at a later time (Bellack & Hersen, 1998), and manually videotaping sessions to be reviewed in future for data collection purposes (Miltenberger, Rapp, & Long, 1999).

As computers became more accessible to practitioners in practice the question was raised as to whether the use of computer-based data collection procedures would be beneficial for the sciences and for use in the applied setting. There have been many research studies that investigated how computerized data systems may benefit the field of applied sciences. Computer-based data collection systems were noted as less cumbersome than traditionally used hand calculated data procedures which often positively impacted the efficacy of the data collection and graphing procedures used in research (Donat, 1991; Eiler, Nelson, Jenson, & Johnson, 1989). This research indicated that the use of such systems would be beneficial not only in the research world but in the applied and clinical settings as well.

Due to the overwhelming interest in computer-based systems that could potentially make data collection more efficient and more accurate, Kahng and Iwata (1998) wrote an article about the advances in technology. The authors discussed that computer-based systems were opening doors for practitioners to utilize computer-based data collection systems to increase accuracy in real-time data collection procedures. The study consisted of 15 surveys of computer system developers of software for data collection purposes and provided summaries related to each of the 15 systems. The results of the survey and systems synopsis indicated that many of the programs were incorporating laptops and handheld devices as well as barcode systems for data collection purposes. Kahng and Iwata (1998) noted that these computerized systems have the potential to facilitate the observation and data collection procedures used in social sciences that can lead to improved accuracy and reliability of the data collected in applied settings. It was also noted that advantages of the data collection systems also have the

ability to improve the usage of visual data analysis because of the ease of computer systems to input raw data to generate visual displays of data.

Due to the expensive nature of the many available computerized data collection systems, Miltenberger, Rapp, and Long (1999), investigated the effects of utilizing a low-tech method for conducting real time data recording. The procedures used in the study included video-taping sessions where data was to be calculated in order to obtain more accurate data for purposes of determining appropriate interventions. The results of the study indicated that the use of a video-recorder assisted the data collectors with appropriate data collection which increased accuracy, and allowed the primary and reliability recorders to review previously recorded data continuously and at different times. This assisted in increasing the ease of conducting interobserver agreement methods which assist in ensuring appropriate data collection during research. However, one downside to videotaping procedures used in data collection were noted as more time consuming than the computerized real-time data collection methods being researched.

In a study conducted by Najdowski et al. (2009) investigated the differences in two data collection procedures when monitoring the effectiveness of a behavioral intervention program for children identified with pervasive developmental disorder. The research monitored the differences in results based on the data collection modality used within the study. The study looked at the differences between collecting data across all trials versus just collecting data on the first trial of a session. A previous article by Cummings and Carr (2009) also investigated this data collection question and found that basing a child's progress on first-trial data resulted in the child earning mastery-level responding quicker, and that data collected across all trials noted a higher level of skill

maintenance for the student; However, the findings of Najdowski et al. (2009) noted that no differences were noted in maintenance levels and levels of mastery when looking at two different data collection procedures.

Through research and publication, computerized data collection systems were increasing in use and usefulness. Research conducted by Dixon (2003) described an application for creating a portable hand-held data collection system with the Microsoft pocket PC. This article went into detail about how effective and easy the pocket PC was for purposes of data collection. The portability factor and the ease of system use increases the probability that collected data will be accurate.

In an article by Jackson and Dixon (2007), the researchers discussed the increased use of Functional Analysis (FA) in the past decade, and how appropriate computerized-data collection would be for practitioners running FA conditions in sessions. Since the increase use in computerized data collection and the need to conduct FA's to determine the true function of a target behavior, many behavior analysts and practitioners were utilizing laptop computers during FA sessions in order to collect the most accurate data possible (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994). However, employing the use of laptop data collection where the data collector may also be the one required to deliver the FA program consequences, the laptops appeared to be too cumbersome. Due to the cumbersome nature of laptop computer equipment, impractical usage of laptops due to the practitioner has to collect data in multiple sites, with multiple clients, and clients that are often aggressive in nature and may potentially destroy the laptop computer system used (Jackson & Dixon, 2007). Jackson and Dixon (2007) decided that the use of small hand held devices that had the abilities of a laptop to collect and save

data related to client behavior, but that was also convenient and portable would increase the usage of computer-based data collection systems that would potentially increase the accuracy and efficiency of data collection methods for many practitioners and researchers.

With the history of research regarding the GBG as an effective evidence-based intervention, and the obvious need for appropriate and efficient data collection procedures for the applied educational setting, it is only appropriate to research these topics in the applied academic setting.

Need for GBG Replication and Extension

Although there is much research on the effects of GBG, across multiple settings, across diverse populations, on decreasing unwanted behavioral excesses by students, and across many age groups, there is little knowledge that evidence-based behavioral interventions are being employed by school districts locally or across the country. Due to the lack of research that looks at the continued effectiveness of the GBG on increasing appropriate student behaviors and increasing teacher behavior specific praise statements while also monitoring and improving the accuracy of teacher data collection when utilizing two different data collection modalities (hand collected data condition versus computer-based data collection condition) this research is timely and needed.

Previous GBG research has looked at numerous target behaviors such as out of seat and talking out (Barrish et al., 1969), verbal disruptions (Bostow & Geiger, 1976; Harris & Sherman, 1973; Huber, 1979; Medland & Stachnik, 1972; Salend et al., 1989), aggressive behaviors (Saigh & Umar, 1983), compliance with instruction (Sweizy et al., 1992), on-task academic behaviors (Darch & Thorpe, 1977; Robertshaw & Heibert,

1973), task completion (Darveaux, 1984; Webster, 1989), academic improvement (Darveaux, 1984; Harris & Sherman, 1973; Medland & Stachnik, 1972), and teacher statements to students (Lannie & McCurdy, 2007). This GBG replication will monitor just two student behaviors: out of seat and talk out behaviors of students and two teacher behaviors: the teacher's behavior specific praise statements and disapproval statements to students. This systematic replication aspires to show that the GBG continues to be an effective intervention for increasing appropriate student behavior, showing reciprocal effects of increasing teacher's behavior specific praise statements to students, and also improving accuracy in data collection while implementing the intervention.

The teacher's statements to students were an important target behavior of this researcher's previous GBG replication study. In a study conducted by White (1975), it was identified that while observing approval and disapproval statements of teachers in grades 1 to 12, that the rate of teacher praise dropped with each grade level and in every grade following second grade, the rate of teacher disapproval statements far exceeded that of teacher approval. With results of this nature evident in the 1970s in conjunction with the current increase in behavioral concerns within the classroom setting and across the nation, it is evident how this study and its findings are still pertinent today. Conducting research on effective interventions that have proven to increase teacher behavior specific praise statements within the classroom setting while also supplying teachers with effective behavioral strategies is one of the focuses of this current GBG replication study. This replication encourages teachers to utilize behavior specific praise statements after a student exhibits any unprompted appropriate behavior. The hypothesis is that when the teacher specifies aloud the behavior that they wish to see and the group is

rewarded for the good behavior, other students will attempt to obtain points by displaying similar positive behaviors thus decreasing maladaptive classroom behaviors. There is evidence on the effects of personal motivation to complete requested tasks when anticipating the attainment of a wanted reward (Schunk, 1984).

The school district participating in this current research study is interested in teacher's accuracy in data collection utilizing two data collections systems with an evidence-based intervention. This research study is extremely important in assisting the school district with understanding the needs of teachers regarding training on data collection, their perceptions of data collection in the classroom, as well as the differences in teacher accuracy in data collection when using computer-based data collection procedures versus hand calculated data. The hypothesis of this portion of the research study is that once the research is completed the results will indicate that the data collected by teachers with a computer-based procedure will be more efficient and accurate than in commonly used hand calculated data collection modalities and that computer-based data collection tools will be more accepted by teachers. The results of this research study will be shared with the participating school district in order to assist in steering the professional development and training that will be required to ensure successful outcomes as teachers become expected to use evidence-based practices and monitor the implementation of the interventions via data collection especially utilizing technology to assist with the collection of data.

This study also utilized a previously determined evidence-based systematic application guide (GBG Teacher Guide) to increase teacher use of the GBG within all classrooms across school districts in conjunction with two separate data collection

modalities. With the many demands placed on teachers by the school district, teachers will need interventions that are appropriate, practical, evidence-based, and easy to implement; the teacher will also need to be equipped with easy to use data collection methods and modalities to increase the accuracy and efficiency of such data collection within the classroom. This teacher guide included the following: purpose of GBG, previous GBG research, sample permission slips, sample data collection sheets, information regarding computer-based data collection system http://www.educatorshandbook.com/, teacher scripts, pre/post test surveys, and step by step guide on how to implement the GBG intervention within the classroom. This replication hypothesizes that by ensuring that all needed intervention materials are readily available to the teacher, ensuring that the interventions being proposed have been previously determined as effective practices and researched, and assisting the teacher with implementation of the GBG an data collection through the use of a teacher guide, teacher training, and computer-based data collection procedures, that this may increase the teacher's use of a noted evidence-based intervention and appropriate data collection methods within the classroom-such as the GBG and computerized data collection methods.

Today, the number one concern noted by teachers within the classroom is behavioral excesses by students (Walter, Gouze, & Lim, 2006). The education departments within most universities offer only a few classes targeted at preparing new teachers for the problematic behaviors that they may encounter in the school setting. Most universities require that their education students take a class in behavior management/classroom management, but one class alone does not allow the teachers the

opportunity to utilize their obtained knowledge from the coursework within the class setting before the course is completed. Behavioral and classroom management is a conceptual teaching strategy that must be reinforced continuously (through continuous education and practice) in order to obtain successful outcomes within the applied setting.

Due to an increase need for classroom management techniques to curb the current epidemic of behavioral problems across the nation, due to the minimal teacher training on how to handle the behavioral excesses evident in the classroom, and due to the noted divide between practices in literature and classroom practices researched as effective, this GBG replication and extension is needed and warranted.

CHAPTER 3

Method

Participants and Setting

Participants in this study included 1 first grade teacher (age 27) and 1 third grade teacher (age 28), twenty 1st grade elementary aged students (ages 7-8), and twenty 3rd grade students (ages 9-10), within general education/inclusion classrooms within an urban, public school district. The school is located in a large urban metropolitan city in the Mid-South. The two targeted teachers had previously made referrals to the school social worker to assist in creating Behavior Intervention Plans for at least one identified student within each of the two classrooms that were described as exhibiting behavioral excesses that were decreasing the effective educational outcomes for the individual student and other learners within the classroom. In addition, the two targeted teachers were previously identified as in need of additional professional development in the area of classroom management by their evaluating principal.

Teachers. The two teachers ages ranged from 27-28, and their pedagogical experience ranged from one to two years of teaching. The teachers were all very enthusiastic about implementing a classroom management technique that could potentially improve academic success for the students while also decreasing the all consuming behavioral excesses that were described in earlier interviews. With such great enthusiasm and buy in from the teachers, successful behavior change results were anticipated/ hypothesized by the researcher. The two teachers did mention many maladaptive behaviors noticed within the classrooms, but the most occurring behaviors across the two classrooms included talking out and out of seat behaviors among students.

The teachers continued their regular academic day, while data was collected for baseline. After baseline data was gathered the teachers were instructed to only implement the GBG for 1 hour and 15 minutes in two sessions, after they had finished the teacher training for the GBG.

Students. The students continued their regular classroom curriculum throughout the data collection and intervention phases. The only change in the classroom environment was the implementation of the GBG for 1 hour and 15 minutes during two class sessions in the afternoon (1:00 pm) after baseline data was gathered. In order to ensure that the students were aware of the condition changes during the alternating treatment design, a timer was used to indicate the switch from one condition to another. When the timer went off every 15 minutes, the teacher also announced to the students that the condition was changing and it was visible to the students which scoreboard system was being used (computer-based versus hand scoreboard). The intervention time was determined by the teachers, due to their reports of increased problematic behaviors during the afternoon class session directly following the lunch period.

Permission and Consent

Parental permission was obtained from each student across the two classrooms, by obtaining a returned parent letter of intent and permission slip for each student participating in the study. A sample parent permission letter and the form used to collect names of participants to ensure that all permission slips were returned is available for review (see the GBG Teacher Guide, Appendix A). Each student returned parental permission slips to participate prior to data collection.

Permission from the public school's Research Department, principal, teachers and personnel, as well as the director of the Mental Health Center for the school district was obtained prior to the implementation of the research study. The Institutional Review Board (IRB) on-line modules regarding ethical requirements for working with living subjects was also completed prior to beginning the study (see Appendix D). The Institutional Review Board (IRB) for the University of Memphis reviewed this research proposal prior to beginning the research, and the IRB approval for the GBG replication and extension study was obtained. A copy of the IRB approval letter is available in the appendix (see Appendix E). The Memphis City Schools Institutional Review Board (IRB) also approved this research prior to starting. A copy of Memphis City Schools IRB approval letter is available in appendix (see Appendix F).

Materials

Materials needed to conduct this GBG replication and extension included the GBG Teacher Guide (see Appendix A). The guide provided general information about the GBG, its purpose, and previous research, a prepared parent permission letter, a log sheet for returned parent permission letters, a systematic, specific procedures/rules needed to implement the GBG within the classroom, definitions of target behavior, a step by step guide of how to implement the GBG, a teacher script, data collection sheets (for hand calculated data), information about the computer-based data collection tool http://www.educatorshandbook.com/ , a daily point chart, a list of potential reinforcers/rewards to be used as a preference assessment, a student survey about the GBG and the different data collection modalities, a teacher survey about the GBG and different data collection methods, a treatment completion protocol, and a parent follow-

up letter. The GBG Teacher Guide components are discussed in further detail in the following paragraphs:

GBG Purpose and Research. The GBG Teacher Guide provides the teacher with a small section that discusses the purpose of using the GBG within the classroom setting, and a section that discusses previous research and replication studies that attest to the effectiveness of the GBG in many settings. These sections of the GBG Teacher Guide are available for review in the appendix (see Appendix A).

Parental Permission. A preformatted parent permission letter was drafted and included in the GBG Teacher Guide. This study attempted to provide the teacher with all necessary materials to conduct and implement the GBG effectively, without requiring the teacher to work outside of the classroom on preparation for the GBG. A copy of the parental permission can be found in Appendix A.

Teacher script. The teacher script was initially used to introduce the GBG to the students and to ensure that the students understood the game rules and were knowledgeable of the expectations of the GBG. A copy of the teacher script can be found in Appendix A. If at any point the students questioned any portion of the GBG intervention, the teachers were trained to refer back to the teacher script to keep with the treatment integrity of the study.

Log sheet/ data collection sheet. During the hand collected treatment condition, the teacher utilized the data collection sheets provided in the GBG Teacher Guide. The observation data collection sheet was used by the observer to determine the frequency of the student target behaviors identified as talk out behaviors, out of seat behaviors, and disrespectful behaviors; to determine the frequency of the teacher target behavior

identified as praise specific statements and disapproval statements. The observation data collection/ recording sheet was divided into fifteen minute intervals with a space to make frequency counts for each individual targeted behavior for students and teacher. The data collection sheet intervals covered an hour and fifteen minute observation period A copy of the data sheet used can be found in Appendix C.

During the computer-based treatment condition, the teacher utilized the technology-based data collection program known as *The Great Behavior Game*, available to the teacher free of charge at http://www.educatorshandbook.com/. This computer-based data collection program utilizes a frequency/ rate recording system that collects data of the student target behaviors identified as talk out behaviors and out of seat behaviors. The computer-based program is easy to use and a small tutorial was provided to the staff during training session and information regarding the technology-based system was provided to the teachers within the context of the GBG Teacher Guide.

A blank graphing sheet to maintain daily results was also provided (see Appendix A). The blank sheet and conducting daily data/ graphing were strongly encouraged during the teacher training session. A simple step-by-step tutorial on using Microsoft Excel to graph data is also within the GBG Teacher Guide to increase teacher's use of graphing program.

List of rewards. A sample list of possible classroom rewards and reinforcers was included in the GBG Teacher Guide (see Appendix A). A rank ordered preference assessment procedure was conducted in the classroom with the students utilizing the list of rewards. It was noted in the guide that the list was merely a sample and that alternative rewards could be used and discussed with the class. Teachers often times have a difficult

time coming up with rewards that are available, affordable, and appropriate for the classroom setting; however, many teachers are very creative and have many wonderful ideas that could be used as classroom reinforcers.

Teacher's Treatment Integrity Checklist. The teachers were supplied with a treatment integrity checklist that was similar to the observer's treatment integrity checklist. This checklist was used each time the GBG was implemented to insure that the teachers were following the GBG protocol. Requiring that the teachers use the checklist assists in increasing the treatment integrity of this study. A copy of the treatment integrity list can be found in Appendix B.

Teacher Survey. The teacher survey is a feedback survey that allows practitioners to understand the feelings and opinions of the teachers regarding the GBG intervention and data collection modalities within their classroom. The information obtained from the teacher's survey is valuable for future research in relation to teacher's interest in data collection within the school and class setting. The survey utilized to gather this information was an adapted version of the Intervention Rating Profile (IRP; Martens, Witt, Elliott & Darveaux, 1985). A copy of the adapted IRP used as a teacher survey can be found in Appendix A.

Treatment Closure and Parent follow-up letter. The treatment closure section of the GBG Teacher Guide, encourages the teacher to take the opportunity to discuss the GBG results with the class and obtain verbal and written feedback of the students on their ideas on improving classroom behaviors-via a suggestion box. The treatment closure procedure also includes a parent follow up/closure letter. This letter was also

preformatted for ease of use, and allows the teacher to write information regarding GBG results within the classroom specifically to the parents of the students that participated.

In this study the following materials were also needed in order to facilitate the GBG appropriately and in order to ensure treatment fidelity: daily and weekly point sheets for teacher completion, posted game rules/expectations on poster board, a timer, computer, smartboard system, observer point sheets, whiteboard, a treatment integrity checklist, and the reinforcers identified by the students weekly listed on an approved reward list provided to each teacher. A timer was used due to the time limited nature of the GBG. The GBG was scheduled for a one hour and fifteen minutes time frame in the afternoon conducted across two sessions. A sample treatment closure and parent follow-up letter can be found in Appendix A.

Dependent Variable

There were multiple dependent variables being explored in this research study including teacher accuracy in data collection, teacher behavior-specific praise statements, teacher perception of data collection procedures within the classroom, and student talk out ad out of sear behaviors. The primary dependent variable is noted as the data gathered related to teacher accuracy in data collection and the secondary variables are noted as the data gathered related to teachers target behaviors, teacher's perceptions of data collection, and students target behavior.

Teacher Dependent Variable. There are multiple dependent variables for the teachers being explored in this research study. The primary focus for this research study was the accuracy in data collection when utilizing two different data collection modalities. Another teacher dependent variable studied was teacher's behavior-specific

praise statements to students, and finally, the change in teacher perception of data collection procedures within the classroom.

The differences in accuracy of data collection and treatment implementation when utilizing two different data collection modalities was the first dependent variable assessed. Information regarding the differences in data collection accuracy was obtained through the use of Interobserver Agreement (IOA) during data collection conditions on both the target behaviors of teacher and student during an alternating treatment design procedure. IOA was obtained for this study by utilizing the frequency within interval IOA formula (# of intervals with 100%/ total # of intervals) x 100%). This formula is also known as an exact count IOA. IOA was gathered across the three classrooms on three separate occasions. Findings of IOA data will be discussed later in the results section.

The second teacher dependent variable targeted for change in this GBG replication and extension was identified as behavior specific praise statements (PS) to students for appropriate behaviors and disapproval statements (DS). Focusing on the students appropriate behaviors by verbalizing appreciation for the unprompted socially appropriate behavior, encourages all students to monitor their own behavior to increase the probability of earning a point for their team, and ultimately earning the reward. The behavior specific praise statement was counted as occurring only if it included the three following components 1) teacher gained student attention, 2) teacher identified the unprompted appropriate student behavior displayed, and 3) teacher used a praise statement. Teacher disapproval statements were defined as any verbal statement to the student that hosted negative statements to the student or a verbal warning about possible redirection.

The third and final teacher dependent variable observed in this study, was the change in teacher perception about the usefulness and need to implement data collection procedures within the classroom setting. This information was gathered through a pre and post-test survey adapted from the Intervention Rating Profile (IRP; Martens et al., 1985).

Student Dependent Variable. There are identified dependent variables for the students participating in the study. The student's data is noted as the secondary dependent variable, as compared to the teacher variables, in this research study. The targeted variable for the students in this GBG replication and extension are identified as talk out behaviors (TO) and out of seat (OS) behaviors. Talk out behavior was defined as talking without prior teacher permission. Out of seat behavior is defined as leaving seat without teacher permission, and talk out behavior is defined as talking without teacher permission. This data will be collected through event recording/ frequency counts both during baseline and treatment conditions.

Independent Variable

The independent variable (IV) for all research questions proposed is the implementation of the GBG during two different data collection procedures. The different versions of data collection for the GBG were used to monitor teacher's accuracy in data collection, to monitor increases in teacher behavior specific praise statements, used to monitor the changes in teacher perceptions of data collection within the classroom setting, and to monitor increases in appropriate student classroom behavior. The two different GBG modalities included hand collected data procedures and computer-based data collection procedures.

Research Design

      This study used sequential alternating treatment design that incorporates both multiple baseline and alternating treatment designs. A sequential alternating treatment design allows the researcher to improve the control of an alternating treatment design by extending the alternating treatment conditions across subjects and settings in a staggered fashion to simulate a multiple baseline design (Wacker et al., 1990). A multiple baseline design is useful in research because it assists in investigating the effects of the IV on multiple target behaviors, in multiple settings, and with multiple participants. The main strength of utilizing the multiple baseline design, is that this research design is well suited for the "applied setting" which in this case is the classroom (Cooper, Heron, & Heward, 2007). The alternating treatment design in conjunction with the multiple baseline design, allows the observer to see differences in conditions (hand collected data condition and computer-based data collection condition) during the alternating treatment across the two classrooms. Alternating treatment design is often used in research where the researcher is attempting to compare the effects of two or more treatments on the behavior of one individual or one group of persons (Barlow & Herson, 1984). To conduct this comparison of treatments alternating treatment design uses an alternation of treatment conditions in close temporal proximity (McGonigle, Rojahn, Dixon, & Strain, 1987). The sequence of treatment conditions are separated by short breaks known as intercomponent intervals (ICI). ICI are used to decrease the occurrence of treatment interference (similar to carry over effects in research) across treatment conditions (McGonigle et al., 1987). One important way to decrease the possibility of carryover effects in an alternating treatment design, the researcher must ensure that some type of discriminating stimuli is used to

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signal the onset of a new treatment condition (Barlow & Herson, 1984; Barrett, Matson, Shapiro, & Ollendick, 1981; Barrios, 1984). To identify which condition the participants would be exposed to during each session a random assignment procedure must be used. Edgington (1967) noted that when utilizing alternating treatments that the researcher must use a randomized approach to treatment condition exposure in order to lessen the effects of carry-over. Each condition is monitored on several occasions in alteration of the other conditions. The appropriate number of alterations in conditions is based on the clarity of results and the stability of the data in each condition. However, most often the conditions are altered at least five times after clear differences in conditions are noticed (White, 2010). The randomization of the alternating conditions for the purposes of this research study was based on White (2010). The randomization was performed by flipping a coin to see which condition was to be in effect for the start of each session. The research study conducted two 1 hour and 15 minute sessions within each classroom. The treatment condition was alternated every 15-minutes throughout each session. Upon beginning the second session the coin flip procedure was performed again to determine which condition would start the session, and then the procedures were rapidly altered every 15-minutes until the end of the one hour and 15-minute session.

Procedures

   Data Collection. The classrooms were identified as at need for a classroom management intervention due to the principal's request to assist the teachers with classroom management practices. The classrooms chosen for this research study were also chosen due to the increased number of behavioral referrals to the office and school social worker for noticeable unwanted classrooms behaviors that distracted the learning

of the individual students and other learners within the classroom. The classroom

teachers also identified that the classroom compliance to rules and teacher direction

decreased after lunch, and that 1:00 pm in the afternoon proved to be one of the most

difficult times, as it relates to classroom behaviors, within the entire school day.

This study utilized a frequency count/ rate recording approach to gathering data.

This type of data collection allows for the observer to count the frequency of the behavior

as an event every time it occurs in the predetermined time. The observation data

collection sheet (see Appendix C) was used by the observer to determine the accuracy of

teacher data collection within each condition, to determine the frequency of the teacher

target behavior identified as praise specific statements and disapproval statements, and to

determine the frequency of the student target behaviors identified as talk out behaviors

and out of seat behaviors. The observation data collection/ recording sheet was divided

into 1 hour and 15 minute, 15-minute intervals with a space to make frequency counts

(hash marks) for each individual targeted behavior for students and teacher. The observer

continued this data collection through baseline and beyond to monitor possible

improvements in the identified target behaviors. The two classrooms stayed in baseline

for differing amounts of time due to the sequential alternating treatment design

implemented in this study.

Ms. M's classroom stayed in baseline for 3 sessions prior to starting the GBG and

the alternating treatment procedures for the two data collection modalities. Ms. M's

classroom received the GBG intervention for 10 sessions, 5 of the sessions the teacher

utilized the hand data collection procedure and 5 of the sessions the teacher utilized the

computer-based data collection procedure.

Ms. D's classroom stayed in baseline for 6 sessions and received the GBG intervention for 10 sessions. Ms. D's classroom received the GBG intervention for 10 sessions, 5 of the sessions the teacher utilized the hand data collection procedure and 5 of the sessions the teacher utilized the computer-based data collection procedure.

A pre and post-test survey procedure was also conducted in this study to see if the implementation of the GBG changed the views of the teacher's on the importance utilizing computer-based data collection and hand collected data procedures within the classroom. To view a sample of the pre-test see Appendix A. After completion of the pre-test, the teachers were trained during a 35-minute planning sessions over a one-week period prior to the implementation of the GBG. The teacher training sessions were done one teacher at a time, to decrease the chances of the teacher intervening prematurely with the GBG before stable data was obtained.

Teacher Training

The teacher training was competency based didactic training that included role-play and questions and answer session. The training session included background about the GBG, purpose, previous research, and a discussion about the GBG implementation and protocol. During the training session the teachers were provided all needed materials to make the GBG a success and to ensure that a systematic replication was obtained. The materials were provided to all participating teachers in a GBG Teacher's Guide which included the following: purpose of the GBG, previous research about GBG, sample parent permission slip, sample data collection sheets, information on the computer-based data collection system, pre-created graphing sheets, training on defining a target behavior, step by step guide on how to implement the GBG, a teacher script, treatment

integrity checklist, pre and post test surveys, a sample list of possible rewards, a sample closure process, and parent letter (see Appendix A).

The teachers continued their regular academic day, while data was collected for baseline. After baseline data was gathered the teachers were instructed to only implement the GBG for one 30 minute session daily, after they had finished the teacher training for the GBG. The teachers completed a pre-test regarding their perceptions of reviewing research and utilizing/employing replication studies within their classrooms. After completion of the pre-test, the teachers were trained during a 35-minute planning sessions over a 1 week period prior to the implementation of the GBG. The teacher training sessions were done one teacher at a time, to decrease the chances of the teacher intervening prematurely with the GBG before stable data was obtained. The teacher training was competency based, and in order for the teacher to continue with the intervention within the classroom they had to pass with 100% accuracy during the training. Both teachers read the teacher script with 100% accuracy and completed the training with 100% accuracy.

The training session included background about the GBG, purpose, previous research, and a discussion about the GBG implementation and protocol. During the training session the teachers were provided all needed materials to make the GBG a success and to ensure that a systematic replication was obtained. The materials were provided to all participating teachers in a GBG Teacher's Guide which included the following: purpose of the GBG, previous research about GBG, sample parent permission slip, sample data collection sheets, pre created graphing sheets, training on defining a target behavior, step by step guide on how to implement the GBG, a teacher script, pre

and post test measures, a sample list of possible rewards, a sample closure process and parent letter, and a student survey. The GBG Teachers Guide can be viewed in the appendices (see Appendix A).

The teachers were also requested to collect data after the initiation of the GBG within the classroom. The teachers collected data in two sessions that lasted 1 hour and 15 minutes for each session that the GBG was implemented. The data was collected in regards to rule violations (the two identified targeted student behaviors) and unprompted appropriate displays of behavior of the students. There were two treatment conditions: hand-collected data and computer-based data collection.

Hand Collected Data Condition. At the beginning of each daily GBG session, the teacher would follow the teacher treatment integrity checklist to insure that treatment integrity of the GBG was maintained for each condition. During the hand collected data procedure the whiteboard had two columns: Team A column and a Team B column. The teacher collected the data by making tally marks on the whiteboard (under the appropriate column) when a rule violation and/or appropriate behavior was displayed. The students earned points for unprompted appropriate behaviors, but lost points, in which the other Team earned, when a rule violation was noted.

Computer-based Data Collection Condition. The beginning of each daily GBG Session, the teacher would follow the teacher treatment integrity checklist to insure that treatment integrity of the GBG was maintained for each condition. During the computer-based data collection procedure, the teacher would project the Team A and Team B scoreboard found at http://www.educatorshandbook.com/ onto the whiteboard visible to the students. The teacher collected the data by using a remote control clicker that

responded to the scoreboard/computer system in the classroom. When the teacher utilized the clicker it would post a point onto the scoreboard (under the appropriate column) when a rule violation and/ or appropriate behavior was displayed. The students earned points for unprompted appropriate behaviors, but lost points, in which the other Team earned, when a rule violation was noted.

Randomization of Conditions for Alternating Treatment

To identify which condition (the GBG with use of hand calculated data collection system or the GBG with the use of computerized data collection procedures) the participants would be exposed to during each session a random assignment procedure was used. Edgington (1967) noted that when utilizing alternating treatments that the researcher must used a randomized approach to treatment condition exposure in order to lessen the effects of carry-over. Each condition is monitored on several occasions in alternation of the other conditions. The appropriate number of alternations in conditions is based on the clarity of results and the stability of the data in each condition. However, most often the conditions are altered at least five times after clear differences in conditions are noticed (White, 2010). The randomization of the alternating conditions for the purposes of this research study was conducted by flipping a coin to see which condition is in effect for the session, and the coin is then flipped again to determine the condition in the future session (White, 2010).

The teachers were only made aware of the randomization of each treatment prior to beginning each session. The researcher randomized the conditions by flipping a coin to determine which procedure would be used at the beginning of the condition, and then the conditions were alternated every 15 minutes lasting the entire 1 hour and 15-minute

session. The teacher utilized a timer to indicate when to switch from one data collection procedure to another. When the timer went off, the teacher would inform the students that the GBG was continuing using the hand collection system or the computer-based collection system. This announcement and timer procedure ensured that the teacher and students were aware of what treatment condition they were in every 15 minutes.

At the end of the week, whichever team had the most points would win the predetermined reward. Samples of teacher data sheets can be seen in within the GBG Teacher Guide (see Appendix C).

Treatment closure/ parent follow up letters were sent to the families of the participants. To ensure that a true ecological perspective to addressing school concerns is present within the classroom and school district, parent involvement and acceptance of practices used by the teachers and school system is imperative.

After the completion of the study, a post-test was delivered to the teachers. The post-test attempted to obtain the teacher's current perception of data collection procedures and the GBG intervention within their classrooms. Increasing teacher desire to implement evidence-based interventions and to collect data related to interventions will assist in increasing effective outcomes and increase the much needed research component currently missing from the profession of education. Even though encouraging teachers to employ and implement research that is evidence-based and has been proven to be useful within the classroom is not a new concept, there is a noted divide between practices in the literature and practices used within the school setting (Walker, 2004).

CHAPTER 4

Data Analysis

Teacher Data

The differences in accuracy in data collection when utilizing two different data collection modalities is the first dependent variable assessed. Information regarding the differences in accuracy of data collection and treatment procedures were obtained through the use of Interobserver Agreement (IOA) during data collection conditions on both the target behaviors of teacher and student during an alternating treatment design procedure. IOA was obtained for this study by utilizing the event recording IOA formula (small count/ larger count x 100%). This formula is also known as a total count IOA. IOA was gathered across the two classrooms during each session. Findings of IOA data will be discussed later in the results section.

Ms. M's Accuracy in Data Collection. When reviewing the data in the alternating treatment procedures it is evident that there was a difference in teacher accuracy in data collection (student target behavior-within each condition). Seen in Figure 1, during the hand collected data procedure, there were a total of 24 student talk out behaviors and 6 out of seat behaviors; however, Ms. M counted only 8 occurrences of student talk out behavior and only counted 3 occurrences of student out of seat behavior. The total count IOA (researcher and teacher) calculated for the hand collection procedure was 33.33% for student TO and 50% for student OS behaviors.

During the computer-based data procedure there were a total of 14 talk out behaviors and 2 out of seat student behaviors; however, during this condition Ms. M counted only 8 of student talk out behavior and only counted 1 occurrences of student out

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of seat behavior. The total count IOA (researcher and teacher) calculated for the computer-based collection procedure was 57.14% student TO and 50% student OS behavior.

The results of the data analysis indicate that the teacher's accuracy in data collection was more accurate at a higher percentage during the computer-based data collection condition especially for TO behaviors, but teacher data collection accuracy was equivalent in both procedures at the same percentage. This does indicate that the teacher's accuracy in computer-based data collection procedure was more accurate than during the hand collected data procedure.

Figure 1. Ms. M's Accuracy in Data Collection Procedures.

Ms. D's Accuracy in Data Collection. When reviewing the data in the alternating treatment procedures it is evident that there was a difference in teacher accuracy in data collection (student target behavior-within each condition). Seen in Figure 2, during the hand collected data procedure there were a total of 53 student talk out behaviors and 7 out of seat behaviors; however, Ms. D counted only 25 occurrences of student talk out behavior and only counted 2 occurrences of student out of seat behavior. The total count IOA (researcher and teacher) calculated for the hand collection procedure was 47.16% for student TO and 28.57% for student OS behavior.

During the computer-based data procedure there were a total of 39 talk out behaviors and 6 out of seat student behaviors; however, during this condition Ms. D counted only 28 occurrences of student talk out behavior and only counted 4 occurrences of student out of seat behavior. The total count IOA (researcher and teacher) calculated for the computer-based data collection procedure was 71.79% for student TO and 66.66% for student OS behavior.

The results of the data analysis indicate that the teacher's accuracy in data collection was more accurate at a higher percentage during the computer-based data collection condition for both identified student target behaviors. This does indicate that the teacher's accuracy in computer-based data collection procedure was more accurate than during the hand collected data procedure.
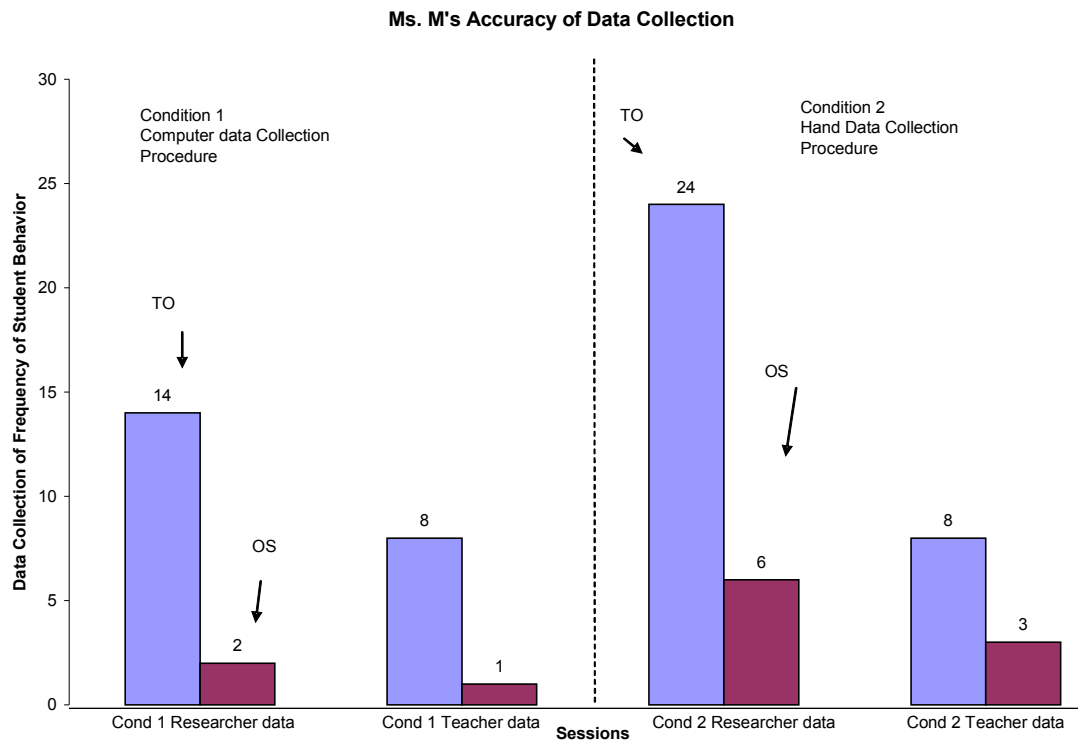
Ms. D's Accuracy in Data Collection
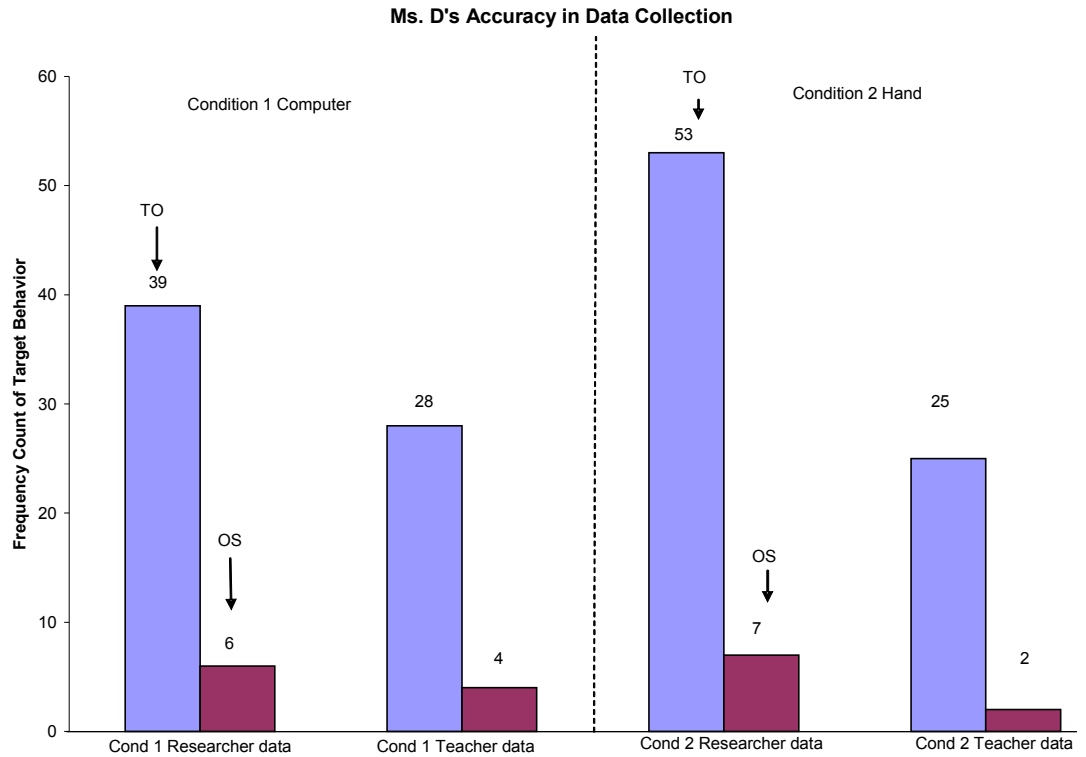
Figure 2. Ms. D's Accuracy in Data Collection Procedures.

Ms. M's Statements to Students. The frequency data obtained during baseline,

seen in Figure 3, ranged from 6 to 13 for praise statements to students and from 3 to 8 for

disapproval statements. The trend for praise statements during baseline was variable but

moving in a descending manner and data for disapproval statements was ascending. The

data gathered during baseline was noted at a mid to high level with variable data. The

overall data gathered in Ms. M's room after the initiation of the GBG noted a range of 4

to 17 for praise statements, and a range from 2 to 9 for disapproval statements. The data

was variable across alternating conditions (when looking at both hand conditions) with

data falling in the low to high level; however, when looking at the conditions separately,

the computer-based data collection condition had a decreasing trend for all target behaviors and a low to mid level with stable data.

These data indicate that the GBG slightly improved teacher behavior specific praise statements, but did not show much improvement in decreasing disapproval statements.

When reviewing the data in the alternating treatment procedures it is evident that there was a difference in teacher behavior specific praise and disapproval statements to students within each condition. During the hand collected data procedure Ms. M's praise statements to students ranged from 4 to 17 with a mean of 10.4, and her disapproval statements ranged from 3 to 9 with a mean of 6.4. During the computer-based data collection procedure Ms. M's behavior specific praise statements to students ranged from 9 to 13 with a mean of 11, and her disapproval statements ranged from 2 to 5 with a mean of 3. During the computer-based data collection procedure Ms. M's behavior specific praise statements were only slightly improved, but her disapproval statement usage was noticeably decreased during the computer-based data collection procedure indicating that computer-based data collection procedures may assist in improving teacher statements to students.

The IOA data gathered on teacher behavior was calculated through a total count IOA of the data collected by the researcher and a trained graduate assistant. The IOA data collected regarding Ms. M's behaviors were as follows: PS = 96.66% and DS = 96.66%. This indicates that the collection of teacher data had a high level of agreement between the two observers.

Ms. M's Statements to Students
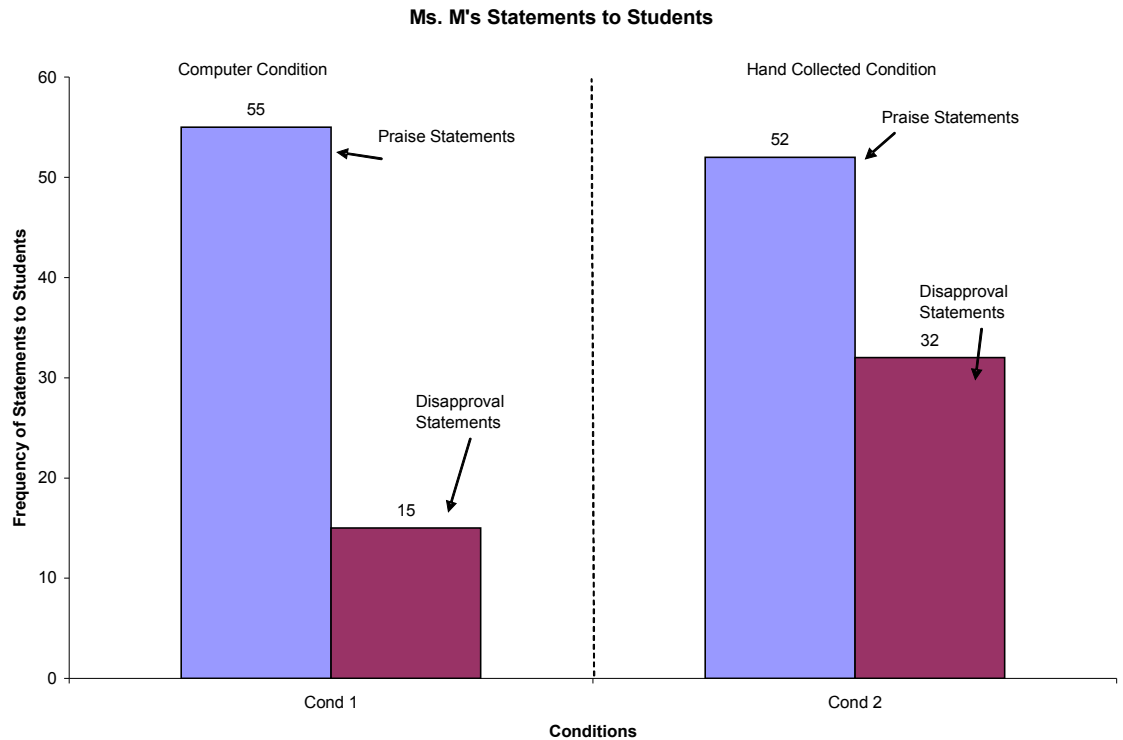
Figure 3. Ms. M's Statements to Students.

Ms. D's Statements to Students. The data gathered in Ms. D's classroom, seen in

Figure 4, during baseline noted a frequency range of 4 to 35 for behavior specific praise

statements with descending trend, and a range of 1 to 15 for disapproval statements with

noticeably stable data. The data had a stable trend and was noticeably at a mid to high

level during baseline. The data gathered after the GBG initiation noted a range of 4 to 11

for the behavior specific praise statements to students, and a range of 2 to 11 for

disapproval statements noted. The data was variable across alternating conditions (when

looking at both hand conditions) DS with data falling in low to mid level with and at a

higher rate for PS with data falling in the mid to high level with an ascending trend;

47

however, when looking at the conditions separately, the computer-based data collection

condition had a decreasing trend for all DS with a low to mid level and an increasing

trend for all PS with a mid to high level.

When reviewing the data in the alternating treatment procedures, seen in Figure 5,

it is evident that there was a difference in teacher behavior specific praise and disapproval

statements to students within each condition. During the hand collected data procedure

Ms. D's behavior specific praise statements to students ranged from 4 to 7 with a mean of

5.2, and her disapproval statements ranged from 7 to 11 with a mean of 9. During the

computer-based data collection procedure Ms. D's behavior specific praise statements to

students ranged from 8 to 11 with a mean of 9.2, and her disapproval statements ranged

from 2 to 6 with a mean of 4.4. During the computer-based data collection procedure

Ms. D's behavior specific praise statements were only noticeably improved, and her

disapproval statement usage was also noticeably improved during the computer-based

data collection procedure indicating that computer-based data collection procedures assist

in improving teacher statements to students.

The IOA data gathered on teacher behavior was calculated through a total count

IOA of the data collected by the researcher and a trained graduate assistant. The IOA data

collected regarding Ms. D's behaviors were as follows: PS = 100% and DS = 96.66%.

This indicates that the collection of teacher data had a high level of agreement between
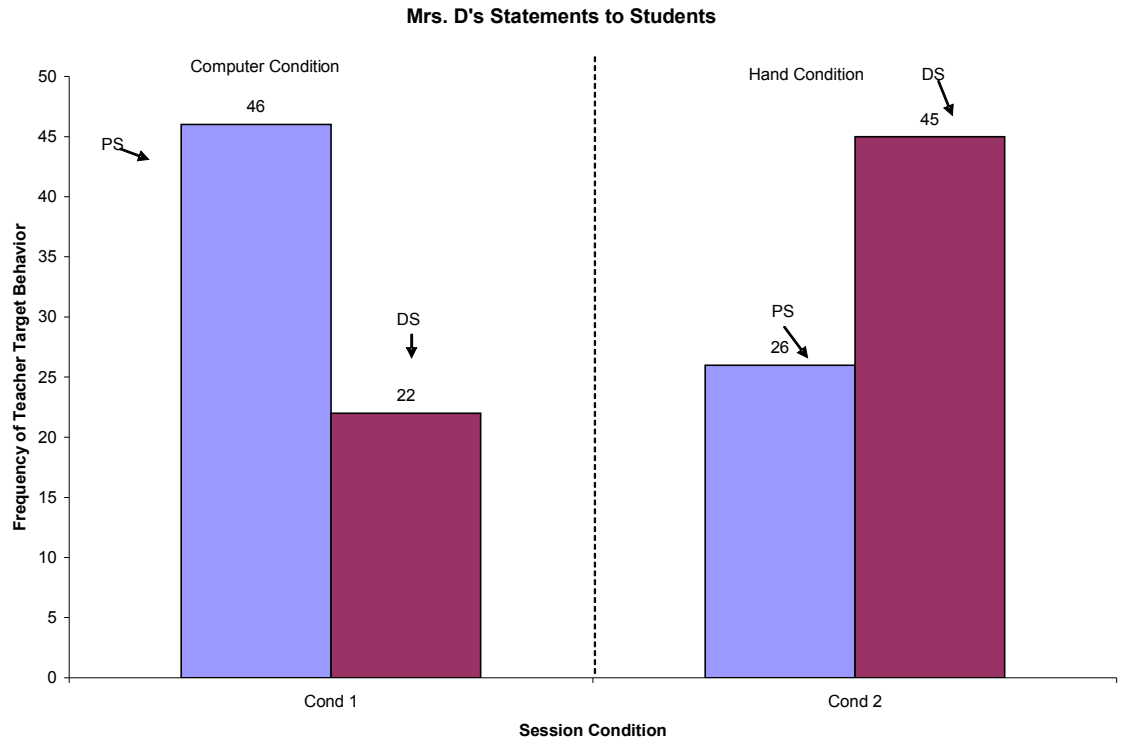
the two observers.

Mrs. D's Statements to Students

Figure 4. Ms. D's Statements to Students.

Ms. M's Statements to Students
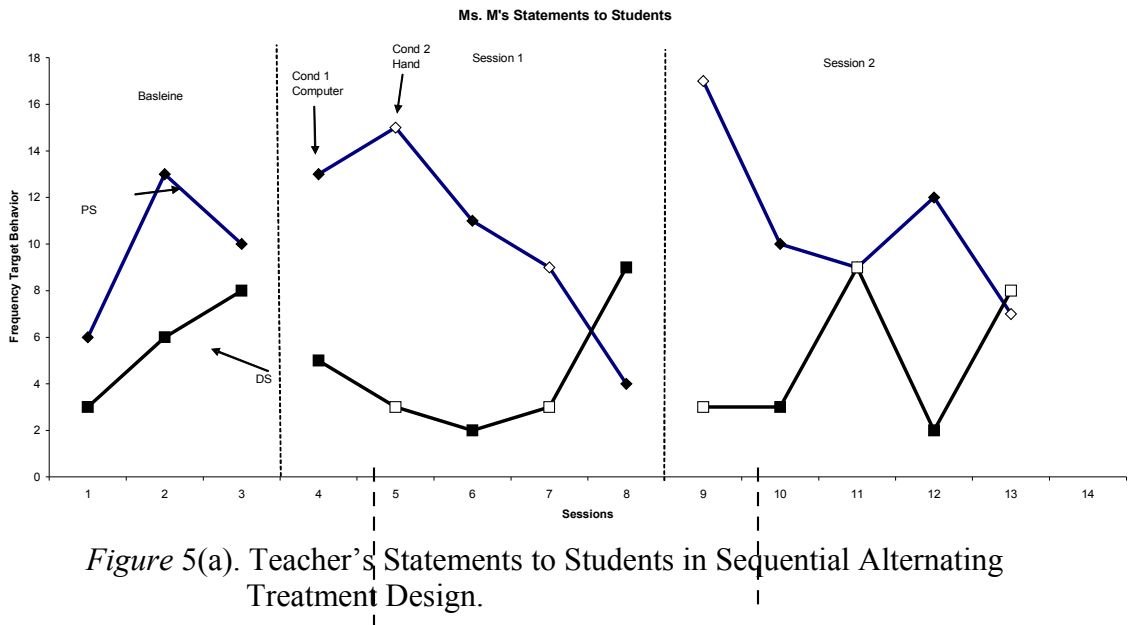
Figure 5(a). Teacher's Statements to Students in Sequential Alternating Treatment Design.
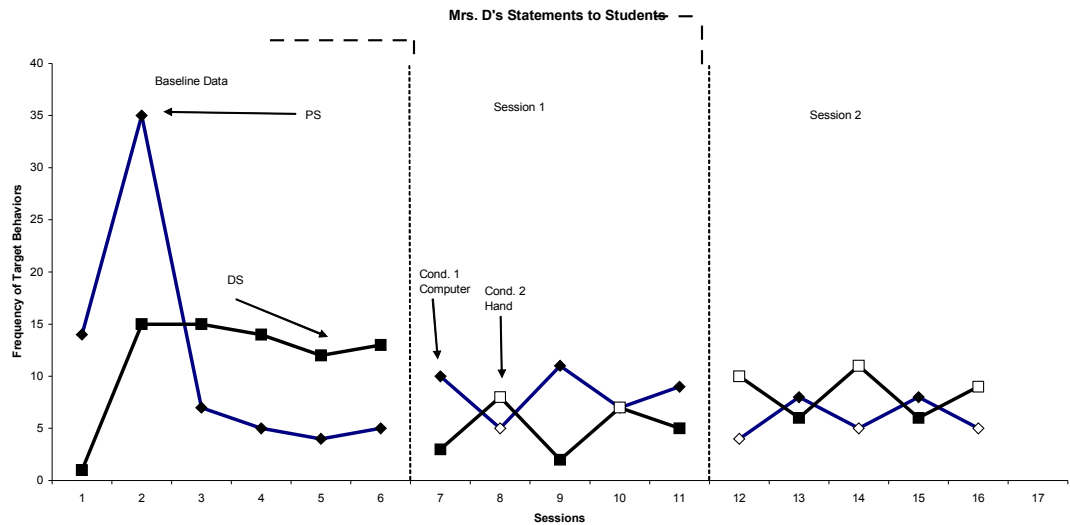
Figure 5(b). Teacher's Statements to Students in Sequential Alternating
Treatment Design.

Pre-test and post-test results. The pre- and post-test created for this replication

study asked questions related to the teacher's opinion of data collection modalities

(computer-based data collection procedures and hand collected data procedures) within

the classroom setting. The survey had 10 items that used a Likert scale system (Strongly

Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5). The higher

the score on the survey indicated the teacher's positive perception of utilizing that data

collection method procedure within the classroom with an overall possible score of 50.

The scores gathered for the teacher pre and post-test were as follows:

Ms. M's pre-test survey, seen below in Figure 6, indicated that she believed that

teacher's use of hand collected data procedures within the classroom is important, with an

overall pre-test score of 40, and a post-test total score of 39. These data indicate that her

thoughts of hand collected data procedures decreased after the intervention was

concluded. Ms. M's survey related to teacher's use of computer-based data collection

procedures within the classroom indicated that the she believes that computer data collection is useful, with a pre-test total score of 44, and a post-test score of 46. These pre and post-test data indicate that the teacher's perception of utilizing computer-based data collection systems in the classroom improved after the conclusion of the interventions and were noticeably higher than the pre and post-test results of the hand collected data procedures.

Ms. M's Pre and Post Test Results

Figure 6. Ms. M's Pre and Post Test Results.

Ms. D pre-test survey, seen below in Figure 7, indicated that she believed that teacher's use of hand collected data procedures within the classroom is important, with an overall pre-test score of 39, and a post-test total score of 40. These data indicate that her

thoughts of hand collected data procedures slightly increased after the intervention was concluded. Ms. D's survey related to teacher's use of computer-based data collection procedures within the classroom indicated that the she believes that computer data collection is useful, with a pre-test total score of 43, and a post-test score of 45. These pre and post-test data indicate that the teacher's perception of utilizing computer-based data collection systems in the classroom improved after the conclusion of the interventions and although were noticeably higher than the pre and post-test results of th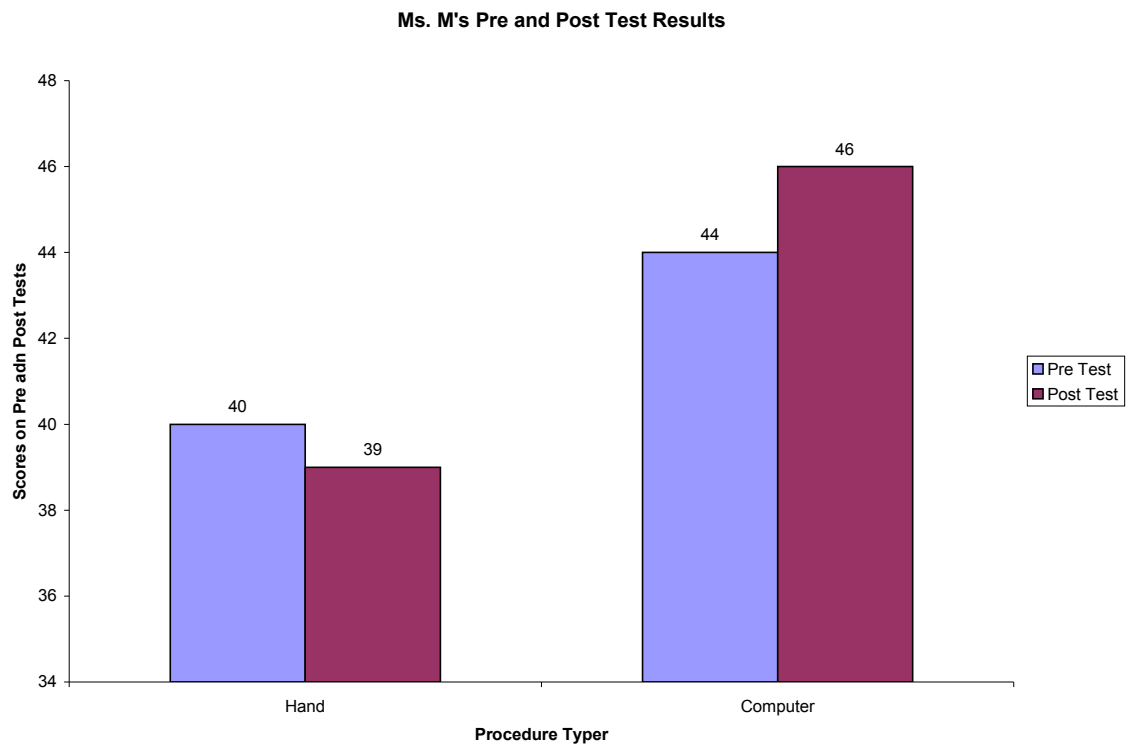e hand collected data procedures, the teacher's overall perceptions of data collection within the classroom improved after the conclusion of the intervention.
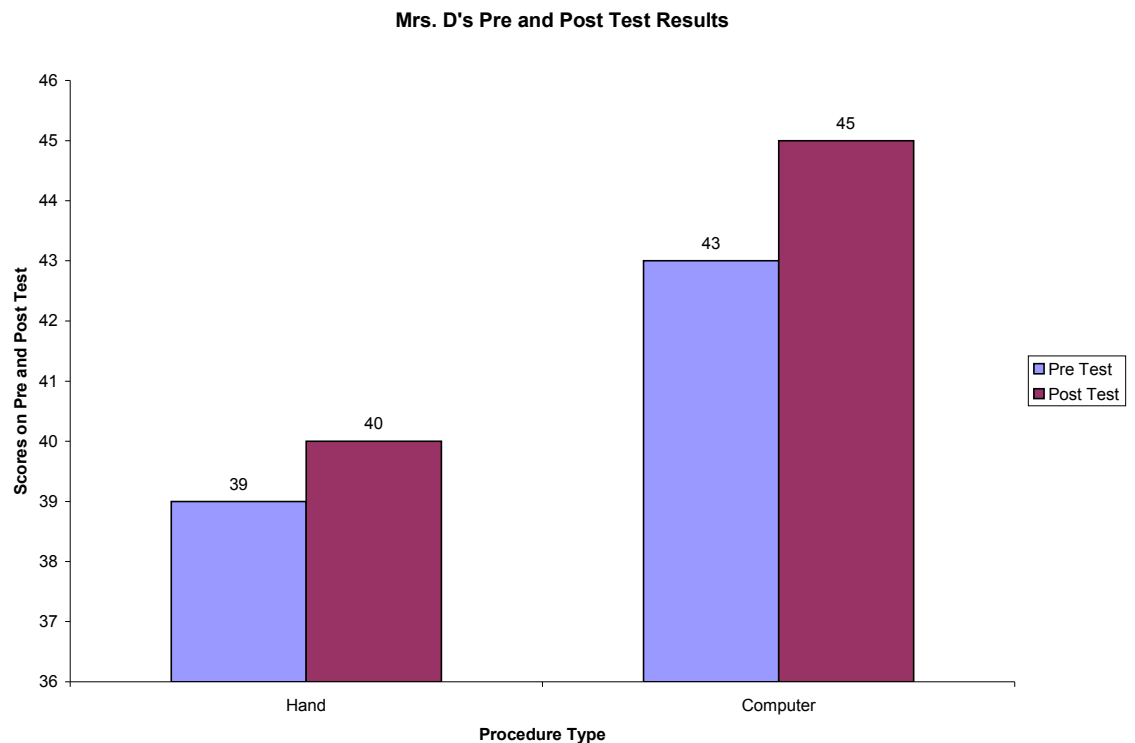
Mrs. D's Pre and Post Test Results

Figure 7. Ms. D's Pre and Post Test Results.

The overall opinion of all teachers surveyed in this study was positive, and the results indicated that they believe that data collection procedures, especially computer-based data collection procedures, are appropriate and helpful within the classroom setting.

Student Data

    Ms. M's class-wide behavior. The data gathered in Ms. M's, seen in Figure 8, classroom prior to initiating the GBG had a range of 7 to 21 for TO with a mean of 13.33, and a range of 15 to 39 for OS with a mean of 24.33. The trends for the data were noted as ascending for TO and variable for OS behaviors with a mid to high level.

When reviewing the data in the alternating treatment procedures it is evident that there was a difference in student target behaviors within each collection condition. During the hand collected data procedure Ms. M's class wide behaviors were as follows: student TO data ranged from 2 to 6 with a mean of 4.8; student OS data ranged from zero to 2 with a mean of 1.2. During the computer-based-data collection procedures Ms. M's class wide behaviors were as follows: student TO data ranged from 1 to 5 with a mean of 2.8; student OS data ranged from zero to 2 with a mean of 0.4. The data were noticeably at a lower level than what was seen during baseline. Low level and stable data at a decrease level seen once intervention was implemented. These results indicate that the GBG is an effective intervention for curbing student maladaptive classroom behaviors; furthermore, computer-based data collection/ implementation procedures also appear to have an impact on student classroom behaviors. It is evident upon reviewing the data within each data collection condition that the student's classroom behaviors were more appropriate within the computer-based data collection procedure.

Ms. M's Student Behavior
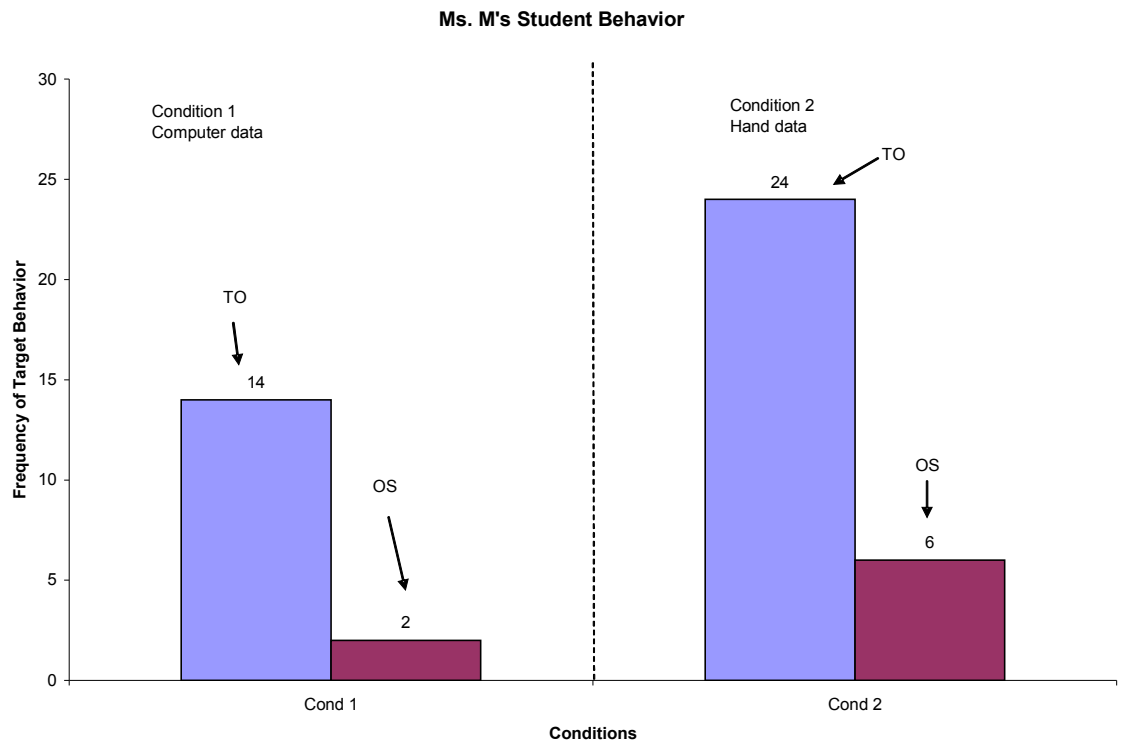
Figure 8. Ms. M's Class-wide Student Behavior.

Ms. D's class-wide behavior. The data gathered in Ms. D's classroom, seen in

Figure 9, prior to initiating the GBG had a range of 20 to 53 for TO with a mean of 23.5,

and a range of 16 to 25 for OS with a mean of 21.5. The trends for the data were noted as

stable at a high frequency for both TO and OS behaviors with a mid to high level.

When reviewing the data in the alternating treatment procedures it is evident that

there was a difference in student target behaviors within each collection condition.

During the hand collected data procedure Ms. D's class wide behaviors were as follows:

student TO data ranged from 8 to 15 with a mean of 10.6; student OS data ranged from

zero to 3 with a mean of 1.4. The data during the intervention noted a decrease in target

behaviors, with a low level and stable trend. During the computer-based-data collection

procedures Ms. D's class wide behaviors were as follows: student TO data ranged from 6

to 11 with a mean of 7.8; student OS data ranged from zero to 2 with a mean of 1.2.
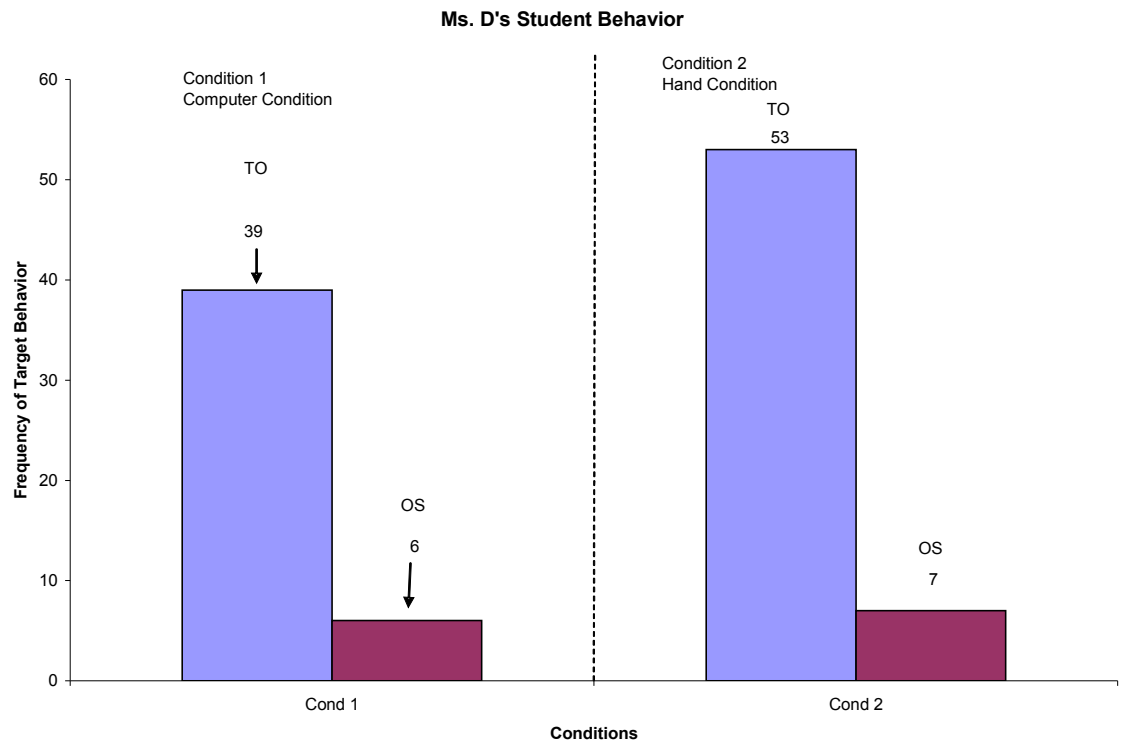
Figure 9. Ms. D's Class-wide Student Behavior.

As seen in Figure 10, these results indicate that the GBG is an effective

intervention for curbing student maladaptive classroom behaviors; furthermore,

computer-based data collection/ implementation procedures also appear to have a positive

impact on student classroom behaviors. It is evident upon reviewing the data within each

data collection condition that the student's classroom behaviors were more appropriate

within the computer-based data collection procedure when compared to the hand

collection data procedure.
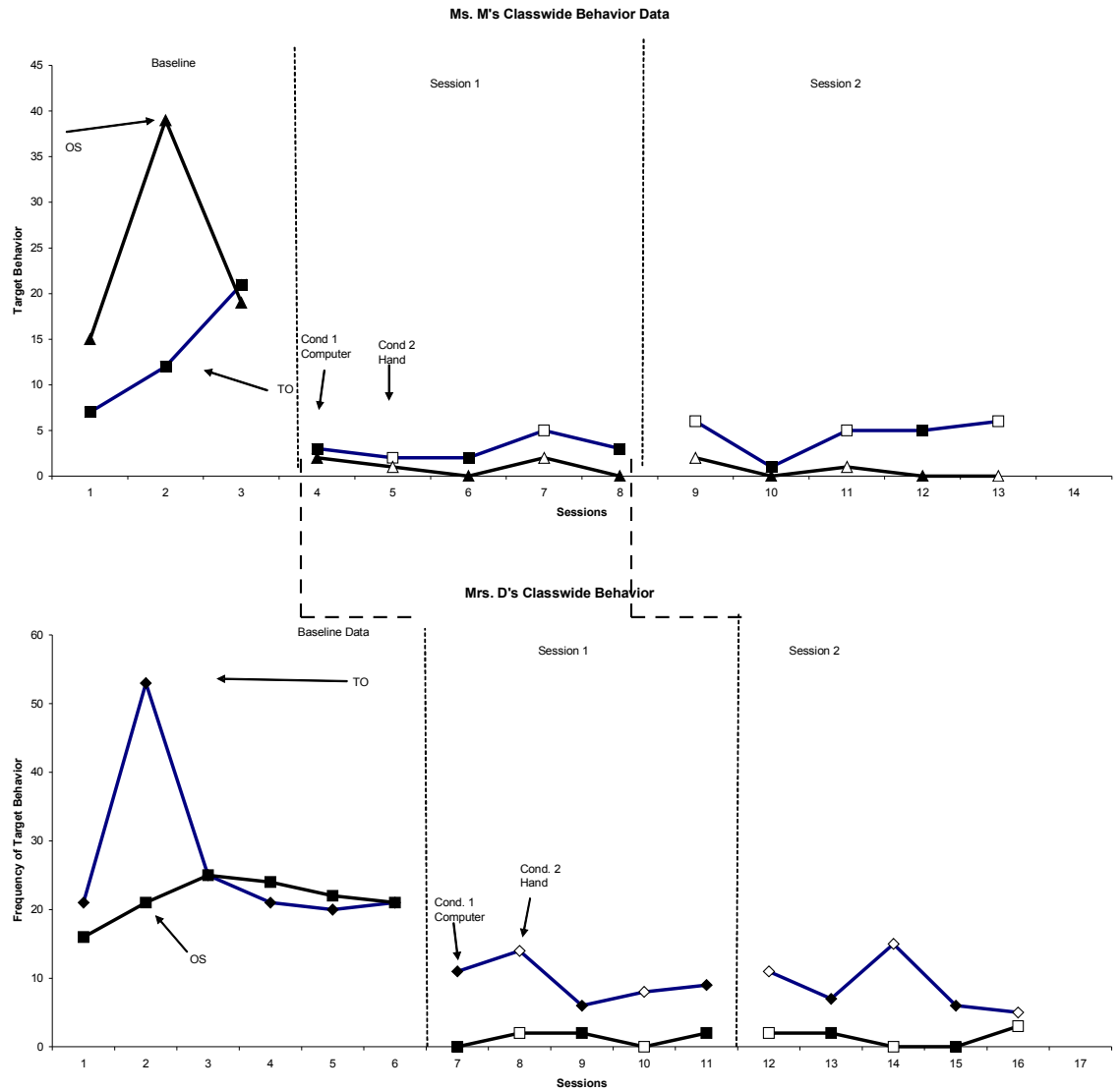
Figure 10. Class-wide Student's Behavior in Sequential Alternating Treatment
        Design.

Treatment Integrity

Due to the fact that a treatment integrity checklist was provided to the teachers and during the teacher training it was noted as imperative to use the checklist every time the intervention was conducted, the procedural and treatment integrity of the intervention in both sessions was noted as 100%. This researcher collected information related to treatment integrity and follow through with the use of a researcher treatment integrity checklist.

Moncher and Prinz (1991) discussed that the failure to ensure that treatment integrity (treatments being implemented as planned) is obtained poses a great threat to the internal and external validity of the experiment/ study, and for this very reason treatment integrity was obtained for this study through a written protocol, identified as a treatment integrity checklist, developed by this practitioner. The treatment integrity checklist was used during each data collection session during the intervention phase by this practitioner and each individual teacher. A copy of the teacher treatment integrity checklist and the practitioner treatment integrity checklist is in the appendix (see Appendix B). The treatment integrity checklist included the following steps: scoreboard visible (scoreboard differed for each condition), GBG rules reviewed, announcement that GBG was beginning, timer set, teacher monitoring rule violations, teacher noting points via hash marks on board/ points on scoreboard, game lasts one hour and thirty minutes, each condition change is noted by the timer going off teacher announcing change in condition, and the change in condition data collection procedure, end of game announced, and total points noted on data sheet visible to students. The treatment integrity obtained during this study yielded the following results across the classrooms: Ms. M's = 100% and Ms.

D's = 100%. Due to the Good Behavior Game Teacher Guide, the teachers were supplied with a GBG Teacher Treatment Integrity Checklist that was utilized by the teacher's every time the intervention was conducted, which kept the treatment integrity data high due to the availability of the checklist to the teachers and the teacher training that stressed the importance of using this checklist during each GBG session.

Interobserver Agreement

Interobserver agreement (IOA) is defined by Cooper et al. (2007) as the most commonly used measurement of quality in applied behavior analysis, that looks at the degree to which two or more independent observers report the same values for the same identified and measured event. Understanding the importance of IOA, data regarding student target behaviors was collected by comparing the teacher's data collection and this researcher's data collection gathered for student behavior. IOA was also collected regarding teacher's data which included behavior specific praise statements and disapproval statements. Teacher data IOA was obtained by comparing the agreement of data collection of this researcher and a trained graduate student. IOA agreement data were collected by thus researcher and the teacher for one set of data and by this researcher and a trained graduate student for the additional data collected in this study. Prior to data collection for IOA, a classroom assistant (graduate student) was trained by this researcher and informed of the data collection process and procedures. The data collection sheets used to gather the teacher data are within the appendix. The teacher data collection sheet was identical for both observers, and the same data collection sheet was used during each data collection session.

IOA was obtained for this study related to the teacher's target behaviors, by utilizing the event recording IOA formula (small count/ larger count x 100%). This formula is also known as a total count IOA. IOA was gathered across the two classrooms during two sessions. The teacher data IOA was collected by this researcher and a trained graduate student.

The data collection and the results for teacher data were as follows: the IOA data collection Ms. M's praise statements (PS) 96.66% and disapproval statements (DS) 96.66%, and Ms. D's PS 100% and DS 96.66%.

CHAPTER 5

Discussion

This research study indicated that the use of computer-based data collection systems within the classroom increases teacher's accuracy in data collection while also having a positive impact on teachers target behaviors.

The research indicated that teacher's accuracy in data collection was more noticeable during the computer-based data collection procedure than the historically used hand-collected data procedure. Understanding that teacher's accuracy in data collection with the classroom can be improved through the use of technology based systems, will assist school districts across the nation with adopting more technology based data collection systems and procedures in order to positively impact the educational outcomes for all learners. This information is also very important when districts are proposing budgets and making requests to acquire new advancements in technology to school boards and governing bodies that supply funding for certain projects within the schools. Research that shows that technology based systems are benefiting both the students and staff will make the decision to fund technology-based systems within the classroom more evidence-based and believable.

This research study also indicated that the use of the GBG with differing data collection procedures also positively impacted the teacher's usage of behavior-specific praise statements to students. The increase in behavior-specific praise statements to students was noticeable in each data collection procedure when compared to baseline data, but there was an evident positive increase during the computer-based data collection condition.

The pre and post test results collected during this study indicate that teacher's perceptions of data collection within the classroom was fairly high to begin with, but that the use of computer-based data collection systems actually showed improvements in the teachers perception of data collection within the classroom setting.

Additionally, this replication and extension study verified that the GBG produces continue to result in significant improvement in the behaviors of the students within the classroom. The research and literature stands the test of time and replication, the GBG is an effective tool that should be implemented in all schools as a measure to decrease unwanted classroom behaviors. The students talk out and out of seat behaviors improved during the GBG intervention and proved to positively impact the classroom behaviors of students within each researched classroom.

Practical Implications

This GBG replication and extension is applicable to the classroom setting due to its ease of implementation, minimal effort by the teacher, minimal preparation before initiating the intervention, and accessibility of the intervention for all teachers in all areas of the world.

The GBG is a cost and time-effective intervention that has been proven to modify one of the most concerning problems for teacher within the academic class setting-student displays of inappropriate behaviors. Data collection, proof of the use of evidence-based interventions, and effective outcomes in practice are becoming more widely expected within the field of education. Data collection is highly regarded practice and more and more educators are being expected to adequately monitor student progress. This research study proves that teachers are capable of collecting data, that the use of

computer-based data collection systems aide in the data collection process, and that teacher's perception of data collection is positive. With more and more school systems moving towards the use of technology in the classroom, this research proves timely and important in showing the positive effects of computer-based data collection procedures within the applied setting.

Limitations

There were some noted limitations in this study. One limitation of the current study is the fact that the data collection procedures did not end with the most successful intervention in place. Due to time constraints during the study, the researcher was unable to continue an additional session with the most successful intervention, computer-based data collection modality, in place. This limitation can be addressed in future research where time constraints are not impeding the research.

Another noted limitation of the current study is that no social validity was obtained from the students. Social validity from the students would assist in determining which data collection condition was most admired by the students. This type of social validity would also be helpful in determining student's feelings about the GBG being facilitated within the context of the classroom. Even though the students appeared to respond positively to the computer-based data collection procedures during the GBG, it would benefit future researchers to conduct social validity to ensure that the students accepted that data collection procedure type.

The time of year in which this research was conducted could also be noted as a limitation of this study. The intervention was conducted close to the end of the school year, and right after standardized state testing was completed. This may have impacted

the data related to teacher's target behaviors, student's target behaviors, as well as teacher's accuracy in data collection and their perceptions of data collection within the classroom.

Reactivity was a noted limitation within the study as it relates to data collection. Reactivity occurs when the researchers/observers presence within the classroom causes some changes in typical behavior of the person being observed. During the data collection condition within Ms. M's classroom reactivity was noted. Ms. M was a first year teacher. Ms. M's praise statements were noted at a high frequency at the beginning of the sessions but decreased to a lower frequency by the end f the observation period. Similarly, Ms. M's disapproval statements were noted at a low rate at the beginning of the observation session, but by the end of the observation the frequency of disapproval statements were at a higher rate. This could be the effects of reactivity. Having an outside observer within the classroom collecting observational data could definitely cause reactivity to occur. To assist in preventing this limitation from happening in future research a longer data collection period may benefit as well as staying in baseline for a longer period of times.

Finally, a larger sample size across different classroom settings, with more tenured teachers, with students with varying needs, in different grade levels, and with students of differing ages would assist in making future research related to computer-based data collection procedures and the impact it has on teacher accuracy in data collection more accepted by the field of education. Future replications of this study should be considered in order to show the timeless positive effects of the GBG on student

and teacher behavior while also noting the positive impact computer-based data collection systems has on teachers accuracy in data collection procedures.

Future Research

Future research should further investigate the use of computer-based data collection systems on increasing accuracy of data collection by pedagogical practitioners in the applied setting, and the impact that the data collection processes have on student learning.

Future researchers may want to replicate this study and it is suggested that future researchers do the following: future researchers attempt this intervention with teachers with varying experience, throughout the school at different times in the school year, with teachers of varying experience, gather social validity of students, and to have enough time to observe the data gathered during the condition with the most successful intervention in place for an entire session.

Future researchers should initiate similar studies in classrooms across the country from preschool to high school. The field of education is in its early stages with data collection procedures in general, and in an even more infancy stage in regards to the implications of technology and computer-based data collection procedures within the field of education. Further investigation and research within this area is needed in order to promote successful outcomes for all systems involved from student to teacher.

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A Good Behavior Game Teacher Guide:

A Systematic Intervention Guide
for Research Replication within the Classroom

Susan E. Elswick MSSW, LSSW

Table of Contents

Purpose of GBG

Purpose of Good Behavior Game (GBG): To decrease maladaptive and disruptive classroom behaviors (talking out, roaming/ out of seat, and disrespectful behaviors). The GBG assist students with adapting to school rules and consequences, and helps students to understand the impact of their behavior on the classroom environment. The GBG will also assist the children with learning self-regulatory skills that will benefit them in all settings.

Many teachers across the nation express a major concern of classroom behavior and behavioral disruptions, and how much time is wasted on recurrent redirection for maladaptive classroom behaviors. Many teachers request effective classroom interventions that require minimal cost, time, and effort, but yield positive and productive results. That is what the GBG will supply. The GBG is an easy to implement class wide intervention that works on the concept of group reinforcement contingency. Students will work together to obtain the reward, and in the process learn to self-regulate due to social/ peer reinforcement and interaction. The teacher explains the game to the students, sets rules and guidelines for the game, and allows students to choose an appropriate reward for winning the game- this portion of the GBG only takes about 15-30 minutes. The GBG is then initiated at a time when teacher reports/ notices high frequency of maladaptive classroom behaviors. The GBG lasts 30 minutes per session. The teacher simply monitors the student's behaviors while continuing to teach. The teacher does not stop the lesson to redirect unwanted behavior, instead the teacher makes a tally mark on the score board as a visual reminder that a rule was violated. The teacher will add a point to the student team when an unprompted appropriate behavior is noticed, and when supplying the point to the team will offer behavior specific praise to the student that displayed the appropriate behavior. The students will want the positive recognition, want to win the game, thus increasing appropriate classroom behaviors and decreasing time consuming maladaptive behaviors.

Previous Research on GBG

The GBG was originally created by Barrish, Saunders, and Wolf in 1969, as a response to reported problematic behaviors exhibited in a fourth grade classroom that had identified several "problem children." This study was the first of its kind that used the theory of group contingent reinforcement within the classroom setting to attempt to decrease unwanted classroom behaviors. This study initiated the GBG game during reading time and later during a math class. This research did utilize the group contingency and the rewards that were offered were things that were considered readily available within the school setting such as extra recess, first in line for lunch, time for special projects, and just winning the game. The targeted behaviors were "talk out" and "out of seat" behaviors that were noted by the teacher and observable within the class. The experimental design used was a reversal and a multiple baseline phase design. The results of this study indicated that the GBG was an effective intervention that dramatically modified disruptive classroom behaviors (talk out and out of seat).

In 1972 a GBG replication was conducted by Medland and Stachnik. This study employed the use of the GBG previously done in the 1969 study with a few noted changes. The Medland and Stechnik study used rules, a light (response feedback), and group consequences (extra recess and extra free time) to decrease three targeted behaviors (out of seat, talk out, and disruptive behaviors). The light used for the response feedback was a red and green light attached to a box that was controlled by the observer. The light response feedback was used to increase student awareness of current unwanted behavior as a visual reminder to self-regulate and monitor their own behavior. The results indicated that the GBG with the visual light response feedback was effective.

Harris and Sherman (1973) conducted a GBG replication and extension study that looked at the effects of the GBG across classrooms and grades (looked at a 5th and 6th grade classroom). The results did show that the GBG did decrease maladaptive classroom behaviors, and it appeared that the impact of the reinforcer for winning the game really impacted the results of the intervention.

In 2007 two researcher, Lannie and McCurdy, looked at the effects of implementing the GBG on student and teacher behaviors within an urban school district. This study replicated again the positive effects pf the GBG on increasing student on-task behavior, while decreasing the maladaptive behaviors previously noted by the faculty.

Due to the noted and researched effectiveness of the GBG many practitioners continue to find ways to make the game appealing to current classrooms and teachers. In 2008, a two year study was conducted by Kellam, Brown, Poduska, Ialongo, Wang, Toyinbo, Petras, Ford, Windham, and Wilcox, that looked at the longitudinal effects of a universal classroom management program with first and second grade classrooms on young adult, psychiatric, and social outcomes. The study was conducted in a public school district in the Baltimore area. The results indicated that the GBG had a dramatic impact on decreasing aggression, disruptive behavior, and noted a reduction in drug/ alcohol dependency and anti-social behaviors in young adult males who had been identified as more problematic while in the first grade. There were similar results for the female participant, but not as significant as the male population.

The Good Behavior Game has been utilized across many classroom settings with numerous age groups with differing strengths and needs. For example the GBG has been replicated in upper elementary classes (Barrish et al, 1969; Maloney & Hopkins, 1973; Johnson, Turner, & Konarski, 1978; Warner, Miller, & Cohen, 1977), first and second grade classrooms (Lannie & McCurdy, 2007; Bostow & Geiger, 1976), preschoolers (Sweizy, Matson, & Box, 1992), adolescents diagnosed with emotional and behavioral disorders (Salend et al, 1989), and students with noted developmental and intellectual disabilities (Phillips & Christie, 1986).

In 1981, the researchers Fishbein and Wasik, wanted to see if the GBG was an appropriate intervention for other settings outside of the class room. This study used the GBG within a public school library. This replication displayed that the GBG was effective outside of the class room, and while being implemented by school staff other than the direct classroom teacher. This study opened the doors for the use of the GBG in multiple settings. In 1979 the GBG was used to assist in improving effective outcomes for productivity of adults in the workplace (Lutzker & White-Blackburn, 1979), and later it was used to increase oral hygiene for a group of participants which was also noted as effective (Swain, Allard, & Holborn, 1982).

The GBG has also been proven to be effective across demographic areas as well as across diverse populations. Many researchers have utilized the GBG in replication studies. The GBG was replicated in Germany (Huber, 1979), the Sudan (Saigh & Umar, 1983), and within both rural and urban settings across the United States (Darveaux, 1984; Salend, Reynolds, & Croyle, 1989).

Teacher Pre/ Post Test Survey (Social Validity)

Teacher :_____   Pre/ Post

                                                      Score:_____

GBG/ Data Collection Teacher Inventory

Please read each item. Answer the question by circling the number which best describes your agreement or disagreement with each item. The following explains the inventory scale: SD= Strongly Disagree, D= Disagree, N=Neutral, A=Agree, and SA= Strongly Agree.

	SD	D	N	A	SA
1) I feel that using hand collected data in the class room is too difficult to attempt.	1	2	3	4	5
2) I understand how to collect data by hand in order to monitor information about classroom interventions.	1	2	3	4	5
3) The hand collected data on GBG is a good way to assess classroom behaviors.	1	2	3	4	5
4) The GBG was an easy & effective intervention.	1	2	3	4	5
5) I would suggest the GBG with hand collected Data procedures to other teachers.	1	2	3	4	5
6) I feel that there is a need for teachers to use More evidence based research interventions In the classroom and use hand collected data procedures.	1	2	3	4	5
7) I believe most teachers would attempt to use The GBG intervention and hand collected data.	1	2	3	4	5
8) If I had to gather the materials, research, and Implement the GBG on my own I would have Still implemented the game and would have collected Data with assistance of hand systems.	1	2	3	4	5
9) In the future I will look at using hand collected data collection procedures in Classroom applications in education to improve The educational experience for my students.	1	2	3	4	5
10) I feel like I have time to implement hand Collected data in my classroom.	1	2	3	4	5

Teacher Pre/ Post Test Survey (Social Validity)

Teacher :_____ Pre/ Post
Score:_____

GBG/ Data Collection Teacher Inventory

Please read each item. Answer the question by circling the number which best describes your agreement or disagreement with each item. The following explains the inventory scale: SD= Strongly Disagree, D= Disagree, N=Neutral, A=Agree, and SA= Strongly Agree.

	SD	D	N	A	SA
1) I feel that using computer collected data in the class room is too difficult to attempt.	1	2	3	4	5
2) I understand how to collect data by computer in order to monitor information about classroom interventions.	1	2	3	4	5
3) The computer collected data on GBG is a good way to assess classroom behaviors.	1	2	3	4	5
4) The GBG was an easy & effective intervention.	1	2	3	4	5
5) I would suggest the GBG with computer collected Data procedures to other teachers.	1	2	3	4	5
6) I feel that there is a need for teachers to use More evidence based research interventions In the classroom and use computer collected data procedures.	1	2	3	4	5
7) I believe most teachers would attempt to use The GBG intervention and computer collected data.	1	2	3	4	5
8) If I had to gather the materials, research, and Implement the GBG on my own I would have Still implemented the game and would have collected Data with assistance of computer systems.	1	2	3	4	5
9) In the future I will look at using computer collected data collection procedures in Classroom applications in education to improve The educational experience for my students.	1	2	3	4	5
10) I feel like I have time to implement computer Collected data in my classroom.	1	2	3	4	5

Parent Permission to Participate

April 20, 2011

Dear Participant/ Parent/ Guardian:

We are asking your consent for your child's participation in a study investigating appropriate classroom management techniques and data collection tools. We are investigating the effects of positive behavior intervention and supports within the classroom setting by using a program known as the Good Behavior Game. The procedures involve creating a classroom environment where the students teach themselves to self-regulate and monitor their own behaviors by working as a team to earn points for positive behaviors. Your consent will allow us to use findings to disseminate the results of this study. By participating in this study, your child's performance will help to identify the most effective pedagogical practices to improve academic and behavioral performance of all students. The risks of participating in this study are minimal. The procedures are ones that are typically used in classrooms. If you consent to your child's participation in this study, we will not reveal your identity in any way as we disseminate the results of this study (e.g., journal articles, conference presentations). We will maintain your confidentiality within the limits allowed by law.

Participation in the study is voluntary and you may withdraw your consent at any time. There are no consequences if you choose not to participate. If you are interested in participating in this study, please return one copy of the enclosed consent form. If you have any questions, please contact Dr. Laura Casey at lpcasey@memphis.edu or Susan Elswick selswick@memphis.edu. We thank you for considering this research project and look forward to your reply.

By signing this, I agree to participate in a research study entitled *Effective Data Collection Modalities Utilized in Monitoring the Effects of The Good Behavior Game: Technology-based Data Collection versus Hand Collected Data*

Dr. Laura Casey and/ or Susan Elswick within this permission letter have explained the purpose of the study, the procedures to be followed, and the expected duration of my participation. I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. I understand that my and my child's identity will not be revealed in any publication, document, or any other form of report developed from this research. Furthermore, I understand that I may withdraw my consent for my participation at any time without penalty. This study has been approved by the Institutional Review Board at the University of Memphis. Should you have any questions regarding the approval of this study or your rights, please call at 901-678-2533.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____
Participants Signature Date

Sincerely,

Laura Baylot Casey, Ph.D., BCBA Susan Elswick MSSW, LSSW
Assistant Professor Doctoral Student
Instruction and Curriculum Leadership Instruction and Curriculum Leadership
College of Education College of Education
University of Memphis University of Memphis

GBG Parental Permission Obtained Data Sheet

Students who do not return their permission sheet or whose parents did not give consent will be noted on this sheet. The data collected within the classroom will not include their information. No identifying information will be used for any child.

Student Name	Classroom	YES	NO

Teacher Permission to Participate

April 20, 2011

Dear Participant/ Teacher:

We are asking your consent to participate in a study investigating appropriate classroom management techniques and data collection tools. We are investigating the effects of positive behavior intervention and supports within the classroom setting by using a program known as the Good Behavior Game and monitoring the effects of two types of data collection modalities (computer-based data collection versus hand collected data). The procedures involve creating a classroom environment where the students teach themselves to self-regulate and monitor their own behaviors by working as a team to earn points for positive behaviors. Your consent will allow us to use your data to disseminate the results of this study. By participating in this study, you will help to identify the most effective pedagogical practices to improve academic and behavioral performance of all students and to assist all teachers with identifying the most effective classroom management techniques. The risks of participating in this study are minimal. The procedures are ones that are typically used in classrooms. If you consent to participate in this study, we will not reveal your identity in any way as we disseminate the results of this study (e.g., journal articles, conference presentations). We will maintain your confidentiality within the limits allowed by law.

Participation in the study is voluntary and you may withdraw your consent at any time. There are no consequences if you choose not to participate. If you are interested in participating in this study, please return one copy of the enclosed consent form. If you have any questions, please contact Dr. Laura Casey at lpcasey@memphis.edu or Susan Elswick selswick@memphis.edu. We thank you for considering this research project and look forward to your reply.

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Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____   _____
Participant's Signature Date

Sincerely,

Laura Baylot Casey, Ph.D., BCBA Susan Elswick MSSW, LSSW
Assistant Professor Doctoral Student
Instruction and Curriculum Leadership Instruction and Curriculum Leadership
College of Education College of Education
University of Memphis University of Memphis

Preparing for GBG

GBG Replication & Extension:
Team 1 VS Team 2

Students loose points for displaying inappropriate behaviors identified as Talk Out Behaviors and Out of Seat Behaviors (defined below).

Each group Team starts the game with 0 points a piece. The Team will lose points for the display of any of two targeted behaviors, and the opposing Team earns the points that the other Team lose. Whoever has the most points at the end of the week wins access to a reward. Even though the Team earns a point for other Team/ student misbehavior, the students are able to redeem the lost points for displaying appropriate behaviors and these are noted by the teacher.

Winner is decided by number of points earned at the end of the game daily. The teacher will keep a log of total points earned on the daily point tracking sheet (see attached). The teacher can be the winner at the end of the game if the points prove this outcome. The GBG points start over each session conducted. Rewards are given out after the game ends.

Protocol for implementing the GBG:

Obtaining parental permission is the first step in this process (use sample permission slip). Keep up with students that were not granted parental permission to participate and ensure no data is collected on these children (see log sheet for returned permission slips). No students identifying information will be used in the project, and confidentiality is always important to maintain.

Determine which behaviors will be targeted for change. Choosing a target behavior is so important to ensuring that the intervention is successful. Target behaviors should be chosen by following the simple rules noted on pg.10 in the GBG manual/ guide.

Collect baseline data before beginning GBG intervention. Collecting 5 data points for the classroom is standard, but waiting until the data are stable before intervening with the GBG intervention is vital to the results. However, intervention can start if the data path is moving in a counterproductive/ non-therapeutic manner (ex. Students behaviors are worsening and becoming extremely problematic). Once baseline is obtained the nest step is to begin the process of initiating the GBG intervention.

Inform and educate the students about the GBG and purpose. Once baseline data is obtained, the teacher should discuss the idea of initiating the GBG (using the teacher script provided) within the classroom to assist students with improving classroom compliance and understanding of the game. Implement the GBG within a classroom that

has a high incident office referrals and in a setting where the teacher is comfortable and engaged in the change process.

The students are informed of the game details and rules on a Friday to initiate on a Monday (teacher ensures students understand that they can regain lost points for displaying appropriate behaviors). Each group (teacher and students) start off with 0 points a piece. Points are removed for inappropriate behavior and regained for appropriate behavior. The 2 rules include: **We will raise our hands before talking. We will ask to get out of our seats before moving.**

The class determines the reward that will be received each week on the first day of the week by voting for rewards listed on a reward sheet that was determined as appropriate for classroom setting (see sample list).

Students participate in creating poster boards that display the 3 rules noted, and the poster boards are placed on each wall of the classrooms as a visual reminder of game and classroom compliance. The group that creates the most outstanding poster board display of the defined rules wins a reward (prior to GBG starting). This art activity increases student buy in to the game and gets them excited about the intervention.

Implement GBG and collect data daily. Collecting data daily will inform you whether or not the intervention is effective. If the intervention is effective continue until an appropriate change in target behavior is noticed. If the intervention is not effective, the switch to another evidence based classroom intervention that has been proven as effective for decreasing target behaviors.

Materials Needed for GBG

Materials needed to implement:
GBG Manual/ Guide
        <u>The Following are available in the GBG Manual/ Guide</u>:
Parental Permission to participate
GBG parental permission return sheet
GBG data collection sheet (daily for baseline phase)
GBG data collection sheet (weekly for intervention phase)
Graph paper to graph data daily
List of possible Classroom appropriate rewards for groups
GBG teacher script
Teacher Pre/Post Survey
Parental Closure Letter
Student Feedback Survey
Materials to make posters (poster board, markers, crayons, glitter, glue, scissors)

        <u>Other material needed for intervention:</u>
Condition 1:
        Chalkboard/ Whiteboard
        Timer
Condition 2:
        http://www.educatorshandbook.com/
        computerized data collection system
        Smartboard/ Computer with a projector
        Remote clicker system
        Timer

Target Behavior Definitions

Definitions for target behaviors:
For this replication and extension the target behaviors were noted and defined as follows:

"Talk Out" was defined as any talking that is not initiated by raising the hand and being called on by the teacher (talking to peers, talking out loud, responding out loud).
"Out of Seat" behaviors were defined as students roaming in the classroom, standing up out of the seat, or jumping up out of the seat without first obtaining teacher permission by raising hand and requesting to move.

* If you decide to conduct a future replication study where other behaviors are targeted for change, here is a quick tutorial on identifying target behaviors for change:

- o Choose behaviors that are socially maladaptive/ inappropriate and decrease success for the participant.
- o Choose behaviors that are noted excess or deficits behaviors.
- o Make sure the target behavior is a needed skill for the participant.
- o Make sure the target behavior is well defined (the stranger test).
- o Try to use a function based definition that is objective and measurable.

Log Sheets/ Data Collection
GBG Data Collection Sheet

Date:_____   Observation Time:_____

Classroom:_____ Activity:_____

Student Behavior

Behavior	15 minutes	15 minutes
TO		
OS		

Behavior	15 minutes	15 minutes
TO		
OS		

Behavior	15 minutes
TO	
OS	

Notes:_____
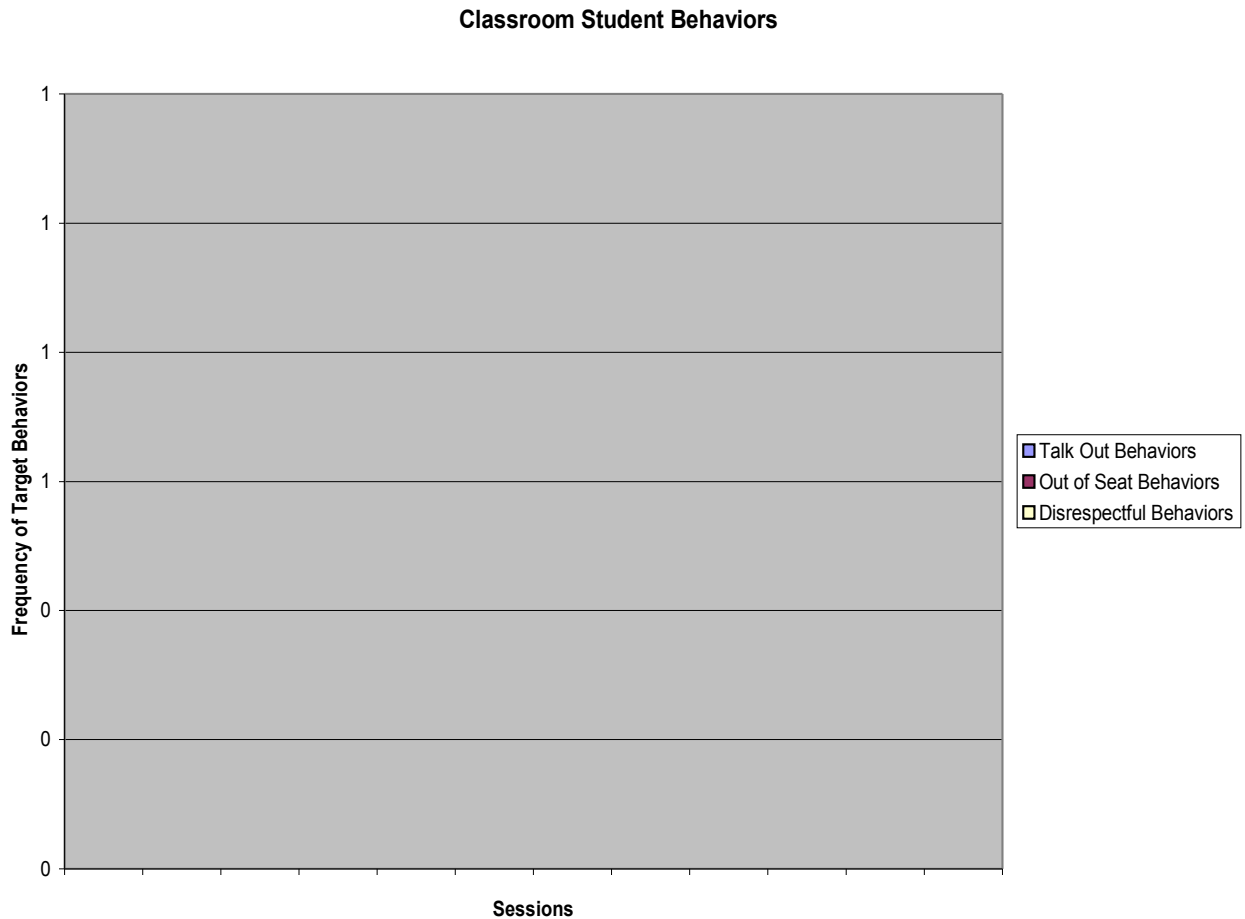
TO= Talk Out Behaviors

OS= Out of Seat Behaviors

*Observation is done over a 1 hour 15 minute time span. The frequency of behaviors are tracked in 15 minute intervals during the observation session.

_____

Signature of Observer   Position   Created by Susan Elswick

Graph Paper

- It is important to graph data daily to monitor progress

Classroom Student Behaviors

- How to create a graph using Microsoft Excel:
  - Open Excel template. Open Sheet 1.
  - Create rows that are labeled with target behavior (talk out, out of seat, etc) and columns that indicate sessions conducted (1,2,3,4,etc).
  - Enter the gathered data under the appropriate row/ column.
  - Highlight data and press the graph button on the top tool bar.
  - Click on Line graph. Hit continue from the first prompt. Open the Gridline tab and remove gridlines. Open the Title tab and insert title for graph and titles for your x and y axis.
  - Click finish and save as a new sheet (it will save as a chart under a tab at the bottom of the Excel sheet. You can add data daily and save using these steps.

Teacher Script

Class today we are going to discuss a game that I think would be fun to play. The game will help us all with being better listener's, help us with following directions, and help us with being kind to each other and you can win a reward at the end of each week. The way the game works is as follows: <u>in the afternoon at 1:00 o'clock during our afternoon work,</u> we will play a game of Team A versus Team B for one hour and 15 minutes everyday. A timer will be used for the game. We will be alternating between a computer and hand data/score collection system. The timer will go off every 15 minutes and we will switch data collection procedure.

Each Team will start off will 0 points each day. If I notice any of the following: Talking out behaviors or out of seat behaviors during the one hour and 15 minute game by any student the opposing Team will earn a point. If any student responds negatively to a lost point (tantrum, yelling, or getting upset with a peer) then an additional point will be added to the other Team's points. The Teams can earn points by displaying positive behaviors which can include using manners, listening appropriately, sitting appropriately, raising hand before talking/ getting out of their seat, showing respect and good citizenship. We will keep a log of the winning team. Whichever team has the most points at the end of the game will win a reward.

Now let's talk about the rules of the game. (have students verbalize these to ensure understanding)
Rule 1 is **We will raise our hands before talking.**
Rule 2 is **We will ask to get out of our seats before moving.**

**Also have the students identify ways they can regain lost points. (some mentioned above in narrative)

Now that we all understand the rules and how we loose and earn points, let's start off by creating some poster boards with these 2 Rules so we can post them in the room. Let's split up into 4 groups to work on the posters. The group that has the most creative poster will win a little something special…let's get started.

**After posters are completed have another staff member vote on best poster, hang all posters up, and reward winning group (but all students receive a sticker for their participation).

Ask students if they have questions, and let them know you will review rules and the game again before initiating the game.

List of Sample Rewards

Rewards to be earned:
See the list of classroom rewards and reinforcers that can be used. The teacher can adapt this reward list as needed, and in order to make sure that the reward is successful and accessible within the classroom.

- Social Rewards-
    - Verbal praise
    - A hand clap
    - Nod
    - Wink
    - 1:1 time with teacher for 5-10 minutes
    - Tap on shoulder
    - Visual praise (sign)
- Recognition-
    - Trophy
    - Certificate
    - Ribbon
    - Token
    - Sticker
    - Photo recognition
    - Note from teacher
    - Phone call, e-mail, letter from teacher
- Privileges-
    - Leadership activities
    - Teacher helper
    - Reading/ helping in another class
    - "No Homework" pass
    - Peer/ social time
    - Free time
    - Extra computer/ art/ reading time
    - Sensory box (each student gets to decorate and have access to a sensory box filled with liked items)
    - Student teaches class
    - Eat lunch with teacher/ administrator
    -
- Class wide rewards-
    - Extra recess
    - Student choice rewards
    - Popcorn party
    - Pizza party
    - Eat lunch outside

- Reading outside
- Extra PE/ recess time
- Dancing to music
- Classroom game/ activity
- Movie in class
- Field trip
- Book read aloud by teacher
- "spot light" time (all students get to perform their favorite activity in front of classmates)
- School Supplies-
    - Pencils
    - Pencil toppers
    - Erasers
    - Paper
    - Crayons/ markers
    - Scissors
    - Bookmarks
    - Stencils
    - Coloring books
    - Certificate to school bookstore
- Toys/ Trinkets-
    - Stickers
    - Temporary tattoos
    - Silly bands/ bracelets
    - Marbles
    - Balls
    - Bubbles
    - Balloons
    - Capsules that turn into objects when placed in water
    - Silly putty
    - play dough
- Token economy system-
    - A book store gift certificate
    - Movie pass/ rental
    - Puzzle
    - Book
    - Stuffed animal
    - Free time

Teacher Treatment Integrity Checklist for GBG (Hand Collected Data Condition)

__1) Score Board/ Chalkboard set up to collect points.

__2) Game Rules reviewed. Teacher makes a point to remind students of poster board "rule reminders" for the GBG.

__3) Announcement made that game is beginning. Teacher reminds students of already determined reinforcer (picked week before). Teacher will start timer. Timer goes off every 15 minutes to indicate a condition change.

__4) Teacher scans room for rules violations. Points lost are noted on the board for each behavior violation noted.

__5) Teacher scans room for positive behaviors, teacher will praise these noticed behaviors, and then add a point to the student team for exhibiting positive behaviors.

__6) Game will last one hour and 15 minutes.

__7) End of game will be announced to students after timer goes off.

__8) Total points will be noted on data sheet and chalkboard.

Teacher Treatment Integrity Checklist for GBG (Computer Data Collection Condition)

__1) Computer and projector/ Smartboard
http://www.educatorshandbook.com/

__2) Game Rules reviewed. Teacher makes a point to remind students of poster board "rule reminders" for the GBG.

__3) Announcement made that game is beginning. Teacher reminds students of already determined reinforcer (picked week before). Teacher will start timer. The timer will go off every 15 minutes indicating a condition change.

__4) Teacher scans room for rules violations. Points lost are noted on the computer scoreboard for each behavior violation noted.

__5) Teacher scans room for positive behaviors, teacher will praise these noticed behaviors, and then add a point (on the computer scoreboard) to the student team for exhibiting positive behaviors.

__6) Game will last one hour and 15 minutes.

__7) End of game will be announced to students after timer goes off.

__8) Total points will be noted on data sheet and visibly on computer scoreboard.

Intervention Closure

Intervention Conclusion:
Once the project is concluded the teachers will give students direct feedback about the results of the data obtained and any suggestions or tips that may make the GBG more effective, tips on improving their self-regulation, and obtain student feedback on ways to assist the teacher in improving classroom pedagogical skills for all learners (example could be a "voice Box" or "suggestion box" for students to leave their ideas).

Once the results are reviewed the teachers are encouraged to review the data collected, review student's feedback, and determine if the continuation of the GBG within the classroom is appropriate. Teachers are encouraged to use materials in this manual, use the data gathered, share results with other teachers, reproduce for other teachers, and train other teachers on the ease and importance of the GBG replication within the classroom. Teachers are also encouraged to identify other target behaviors that may need intervention, and use the GBG replication with alternative target behaviors defined as a future intervention.

Parent Follow-Up Letter

A follow-up letter will also be sent to the parents of all participating students. The results letter will show general information and results, and will inform the parent of the project completion.

Parent Conclusion Letter

<p align="center">The Good Behavior Game</p>

Dear Parents,

      Thank you for allowing your child, _____, to participate in the Good Behavior Game classroom intervention. Your child participated in this study per your permission. The Good Behavior Game intervention lasted from_____ to _____ and the results were as follows:

       *
       *
       *
       *
       *
       *
       *

      If you have questions about this intervention, please feel free to contact us at anytime. This study has assisted the education discipline with understanding appropriate ways to increase student self-regulation and increase appropriate classroom behaviors with the use of positive behavior interventions and supports. Thank you for your assistance and cooperation.

<p align="center">Sincerely,</p>

Resources

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Treatment Integrity Checklist for GBG (Hand Collected Data Condition)

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__8) Total points will be noted on data sheet and chalkboard.

___ **Total steps completed**
___**% of steps completed**

Notes:_____

_____

X= occurrence

Treatment Integrity Checklist for GBG (Computer Collected Data Condition)

__1) Computer and projector/ Smartboard
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___ Total steps completed
___% of steps completed
Notes:_____

_____

X= occurrence

GBG Data Collection Sheet

Date:_____   Observation Time:_____

Classroom:_____ Activity:_____

Student Behavior

Behavior	15 minutes	15 minutes
T		
OS		

Behavior	15 minutes	15 minutes
TO		
OS		

Behavior	15 minutes
TO	
OS	

Notes:_____

TO= Talk Out Behaviors

OS= Out of Seat Behaviors

Teacher Behavior

Behavior	15 minutes	15 minutes
PS		
DS		

Behavior	15 minutes	15 minutes
PS		
DS		

Behavior	15 minutes
PS	
DS	

Notes:_____

PS= Praise Statements

DS=Disapproval Statements

*Observation is done over a one hour 15 minute time span. The frequency of behaviors are tracked during observation session.

Signature of Observer   Position   Created by Susan Elswick