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THE EFFECTS OF SELF-MANAGEMENT AND POSITIVE REINFORCEMENT ON  
THE OFF-TASK BEHAVIOR OF STUDENTS WITH ADHD

by  
Cari McGaffney Bonner

A Thesis

Submitted in partial fulfillment of the requirements of the Master of Arts Degree  
of  
The Graduate School  
at  
Rowan University  
May 8, 2003

Approved by \_\_\_\_\_  
Professor

Date Approved 5/8/03

## ABSTRACT

Cari McGaffney Bonner

THE EFFECTS OF SELF-MANAGEMENT AND POSITIVE REINFORCEMENT ON  
THE OFF-TASK BEHAVIOR OF STUDENTS WITH ADHD

2002/03

Dr. Joy Xin

Master of Arts in Special Education

The purpose of this research was to evaluate the effects of self-management strategies together with positive reinforcement to reduce the off-task behavior of children with ADHD. Three first and second grade students with ADHD and classified with a disability attending an elementary school participated in the study. Students were taught to self-monitor their behaviors in their special education classroom. They were trained to record their behaviors by completing a self-management form that consisted of 7 items at the end of each school day. Three off-task behaviors: out-of-seat, calling out and interrupting instruction were observed. The decrease of the student target behaviors was positively reinforced. An A-B-A-B withdrawal design was used in the study. Behavior occurrences were recorded using a checklist during baseline and intervention phases. The repeated application and withdrawal of the intervention made it possible to determine the change of the behaviors being measured. The results indicate a positive decrease of all children's behaviors of out-of-seat and interrupting instruction, however, the calling out behavior was not reduced. The findings provide support to previous research to suggest a cognitive-behavioral approach to meet the needs of students with ADHD and

add data and implication for future research to further enhance the effectiveness of self-management for students with ADHD.

## MINI-ABSTRACT

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## Chapter 1

### INTRODUCTION

#### Statement of Problems

One of the most prevalent childhood disorders reported by schools is Attention Deficit Hyperactivity Disorder (ADHD) (D'Alonzo, 1996). Children with ADHD are being diagnosed after parents describe their child's problem behaviors to their pediatrician (Fewell & Deutscher, 2002). Common characteristics of this population include inattention, impulsivity, and hyperactivity (American Psychiatric Association, 1994). These children are identified by their constant, spontaneous, uncontrollable, overt, and purposeless behavior (Calhoun, Greenwell-Iorillo, & Chung, 1997). Many children with ADHD physically move a lot, without paying attention, and are often nonconforming, and disruptive in class, therefore, they do not function well in school. Their characteristics and behaviors interfere with their learning. These children are often underachieving and accused of lack of motivation by frustrated teachers. Such adverse experiences can seriously affect their self-esteem and feeling of competence (Henker & Whalen, 1989). Some of them continue to exhibit behavioral problems, poor academic performance, cognitive impairment, low self-esteem, and difficulty with peer relationships even in their adulthood (Woods, 1986).

The common inappropriate behaviors of children with ADHD are calling out answers, leaving seat without permission, and interrupting instruction (Montague & Warger, 1997). Some of them lack impulse control and blurt out answers prior to the question being completed in class (Montague & Warger, 1997). Additionally,

hyperactivity and overactivity may result in making noises at inappropriate times during classroom instruction. However, these behaviors appear out of the child's control and tendencies vary in frequency among children with ADHD. The more frequent the inappropriate behavior, the greater the need for intervention. Teachers spend a large amount of instructional time trying to manage these behaviors that may affect the instructional time of the entire class. A behavior management system seems imperative to reduce these inappropriate behaviors.

Medication is the most common intervention for children with ADHD. Stimulant drugs, such as Ritalin and Adderall will mimic brain neurotransmitters and produce and arouse the central nervous system (Ballard et al., 1997). There are several prescribed stimulant medications that have made positive impacts. These stimulants quickly pass through the blood stream to the brain to improve attention (Pelham, Harper, McBurnett, Milich, Murphy, Clinton, & Thiele, 1990). However, this improvement was noted in limited areas through numerous studies, such as performance and skill areas including intelligence, but academic testing was not impacted (Ballard et al., 1997). In addition, drug therapy may involve risks. Many variables must be taken into account before drug therapy is recommended for a child. For example, short-term side effects include headaches, nausea, weight loss and fatigue, and long-term effects are uncertain (Barkley, 1990). It is not sure if the drug would cause cardiovascular problems in the future. Additionally, a weakened sensitivity to reward cues and enhanced reactivity to punishment cues are found among children taking Ritalin (Arnett et al, 1996). Because schools cannot determine the use of medication, using pharmacological approaches to intervention remains inconsistent and controversial (Montague & Warger, 1997).

Behavioral intervention has proven advantageous over the other methods to manage the behaviors of children with ADHD. These interventions include positive and negative reinforcement, punishment, and a combination of both procedures. The earlier the behavior is identified and an intervention is implemented, the more likely the behavior can be modified before it becomes a more serious barrier to learning (Fewell & Deutscher, 2002). Behavioral intervention can be used with children who do not respond well to medication or for whom the use of medication is contraindicated by other problems (Pelham, 1991). Implementation of the behavioral intervention must be lengthy, consistent and intensive (Pelham, 1991). For effectiveness, these interventions should be used at school in conjunction with the family to support the intervention at home. It is found that “behavioral treatments may help families actively cope with their child’s disorder and make necessary life accommodations to optimize family functioning” (MTA Group, 1999). However, limitations arise when using the behavioral intervention approach. There are many variables that must be considered prior to implementing a behavioral treatment strategy. These variables including teacher-training, severity of student’s disability and time, may impact the effect of intervention treatment. Treatments must be of sufficient intensity and duration to have an immediate impact of the core ADHD symptoms. Additionally, the behavioral intervention alone rarely supplies enough support to maintain adequate functioning (Schachar et al., 2002).

Cognitive intervention is suggested in hopes that changes in thinking will result in changes in behavior. The use of cognitive intervention in treating ADHD was a result of the success this type of intervention had in treating depression and anxiety (Frazier & Merrell, 1997). Early research in the 1980’s produced disappointing results. However,

there is resurgence in research using cognitive techniques. Contemporary cognitive interventions have a behavioral connection (Frazier & Merrell, 1997). These cognitive-behavioral approaches have proven successful. Self-monitoring is one of the cognitive intervention strategies. It refers to behavior change programs that promote self-monitoring of behavior and/or performance and ultimately delivery of self-reinforcement. This strategy can be used to document whether or not a target behavior was displayed during a period of time (Quinn, Swaggert, & Myles, 1994). Teachers may play a role of facilitator to model the strategy and to evaluate the individual's behavior change. This type of intervention relies heavily on self-evaluation. Self-evaluation is difficult to be used exclusively when working with young students who have additional cognitive disabilities.

The present research will investigate the use of a combination of cognitive and behavioral intervention methods. Cognitive behavior modification techniques teach self-control through increased awareness of cognitive processes and knowledge of how behavior affects academic and behavioral outcomes. This combination will emphasize students rather than teacher's evaluation of their performance (Swaggert, 1998). It will be implemented to increase attentive behavior of children with ADHD. Three-targeted behaviors will be addressed through a positive reinforcement program. The positive behavioral reinforcement will be combined with a cognitive approach of intervention using self-management and a self-recording checklist. Students will be taught through the teacher's modeling, and practicing with appropriate responses. The outcomes of the student performance will be examined.

## Background

A physician investigated ADHD in 1923. He became fascinated with the disease “epidemic encephalitis” and found that children with the disease were: talkative, irritable, hyperkinetic, and impulsive (Calhoun, et al., 1997). Over the past eighty years, the name continuously changed while the symptoms remained. In the last decade, ADHD has received significant attention in education and counseling communities, with some considering as a life long disability (Silver, 1992). It is found that nearly 2 million children have ADHD symptoms (Dulcan & Popper, 1991). This prevalence challenges educators to consider the impact on a child’s development, classroom management, and learning success (D’Alonzo, 1996).

In 1960 Freibergs and Douglas compared normal and ADHD children in their study and reported that ADHD children responded better on specific tasks where the teacher utilized partial reinforcement techniques. This was the first study to demonstrate the advantages of positive behavioral interventions for children with ADHD. In their study, behavioral interventions were utilized to change unwanted behaviors through the manipulation of environmental antecedents and consequences. It is called behavior modification. The use of behavior modification frequently results in improvement of behaviors, but can be extremely difficult for the child’s family to apply (Breakstone, 1987). In 1980, research on cognitive interventions was suggested and advocated. Cognitive techniques such as self-monitoring with a wide variety of treatment procedures tend to be a cognitive-behavioral nature (Frazier & Merrell, 1997). These interventions aid in generalization and maintenance of appropriate behaviors by promoting self-monitoring. A wide variety of treatment procedures fall under the cognitive-behavioral

intervention strategy such as, self-control, self-reinforcement and self-evaluation. These multimodal treatment approaches are supplemental and extend the treatment gains of single modal approaches (Frazier & Merrell, 1997).

The present research was designed partly following the research procedures used by Hutchinson, Murdock, Williamson, and Cronin (2000) to study combine self-management strategy, self-recording with points and teacher praise. It emphasized on decreasing a student's time to begin an assignment and increasing the on-task and nondisruptive behaviors through self-encouragement. However, instead of providing intervention to a student in an advanced first grade in the previous research, this study will be conducted in a special education classroom for students with multiple disabilities. Instead of addressing the effects of this strategy in a reading class, this study will be conducted throughout the day including reading, math and less structured instructional times such as calendar activity and writing period.

#### Significance of the Study

Educators are confronted daily with students who are diagnosed with ADHD. ADHD is often misinterpreted by educators and can be mistreated. This mistreatment hampers the performance of children with ADHD throughout the educational setting. Although multiple treatment approaches have been made available to educators, inconsistencies of implementation still exist. The lack of knowledge and consistency of interventions are critical factors that influence the effect of strategies to help children with ADHD (Montague & Warger, 1997).

For students with ADHD, it is imperative to examine intervention methods, to change their inappropriate behavior. Recently research has focused on different

strategies to reduce inappropriate behaviors of these students including multimodal strategies (Frazier & Merrell, 1997). Self-management is a simple way to teach students to monitor and control their own behavior (Alberto & Troutman, 1999). It has been demonstrated that self-management combined with positive reinforcement was effective in first grade reading class (Hutchinson et. al, 2000). However, little research has been found to use this combined strategy for students with multiple disabilities in a special education class. This present study will design a self-management strategy combining with positive reinforcement to decrease off-task behavior of children with ADHD. The effectiveness of multiple management techniques will be examined.

#### Statement of the Purpose

The purpose of this study are to evaluate the effects of self-management together with positive reinforcement to manage the off-task behavior of children with ADHD.

#### Research Questions

1. Will the strategy of both self-management and positive reinforcement reduce the out-of-seat behavior of students with ADHD?
2. Will the strategy of both self-management and positive reinforcement reduce the calling out behavior of students with ADHD?
3. Will the strategy of both self-management and positive reinforcement reduce the interrupting instruction of students with ADHD?

## Chapter 2

### REVIEW OF LITERATURE

Attention deficit hyperactivity disorder (ADHD) has been receiving considerable attention among educators (Aust, 1994). Magazines, newspapers, network newscasts and television talk shows focused on the condition in lay terms, whereas scientific and educational journals described its biological and/or neurological bases. This attention motivated physicians, parents, and teachers to search ways to help children affected by ADHD learn better at home and in school (Aust, 1994). The conditions associated with ADHD cause many learning, social and emotional problems. As a result, children with ADHD experience great difficulty in learning, where attention and impulse control are requirements for success (Fowler, 1994). This chapter will review relevant research on ADHD symptoms, behavioral characteristics and different models of intervention.

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, 4<sup>th</sup> ed.) states “the essential feature of Attention-Deficit/Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently and severe than it is typically observed in individuals at a comparable level of development” (American Psychiatric Association [APA], 1994, p.78). When diagnosing ADHD, some symptoms must have been present before age 7 in at least two settings. There must be interference with developmentally appropriate social, academic, or occupational functioning that is not accounted for by another mental disorder. Although most individuals display symptoms of both inattention and hyperactivity/impulsivity, some show one predominant pattern. After evaluating six



months' of behavior, a diagnosis of ADHD is made and categorized in one of the following areas: combined, predominantly hyperactive-impulsive, or not otherwise specified. (APA, 1994).

All youngsters exhibit behaviors associated with ADHD to some degree in certain situations. Thus, identifying a student of ADHD requires a multifaceted diagnosis and evaluation process (Montague & Warger, 1997). Comprehensive assessment of children with ADHD for educational purposes is a multistage, multimodal process that gathers information to make decisions about the nature of children's educational problems. The previous definition is used by educational psychologists to determine the presence of the condition in children who are referred by their teachers and parents. An estimated 3% to 5% of school-aged children have ADHD (Montague & Warger, 1997). For some children, the behaviors symptomatic of ADHD may seem to improve in adolescence. ADHD, however is a lifelong condition manifested in different ways during a child's developmental periods (Montague & Warger, 1997).

Barnett and Labellarte (2002) examined statistical figures to provide evidence of the actual number of children diagnosed with ADHD, which is often difficult to estimate. Evidence shows that the number of children with ADHD has increased in recent years, these statistical figures may aid in answering the questions of whether ADHD is being over-diagnosed (Barnett & Labellarte, 2002). The estimated prevalence of children with ADHD in the United States is three to five percent (Barnett & Labellarte, 2002). Approximately one to two children in a classroom have been diagnosed using structured diagnostic interviews. The male and female ratio of children with ADHD is

approximately 4:1, though gender is not considered an independent risk factor (Cantwell, 1996). Estimated prevalence rates of ADHD differ in samples from different countries, however, selected English-speaking countries each have a similar range (Goldman, Genel, Bezman, & Slanetz, 1998). The diagnostic strategies have been provided in hopes of validating the statistical figures available on children with ADHD.

Complicating our understanding, as well as treatment, of the disorder is that its causes presently are unknown. Research investigations continue to explore several possibilities, including

- Heredity or genetic causes
- Prenatal alcohol and drug exposure
- Lead poisoning
- Biological or physiological conditions
- Complications or trauma during birth (Montague & Warger, 1997).

Rosinsky (2001) reviewed new scientific imaging techniques that show the very front of the brain-the area involved with controlling attention and inhibiting behavior-may be smaller and less active in people with ADHD than in people without it. Magnetic resonance imaging (MRI) has demonstrated that there is less blood flow in this area of the brain. Positron emission tomography (PET) research measured less active nerve cells in the frontal area of the brain of people with ADHD. Additionally, new research addresses the hereditary nature of ADHD, focusing on specific genes that lessen the availability of specific neurotransmitters (Rosinsky, 2001).

Ballard and colleagues (1997) explored the neurological basis of this disability. The disorder is considered organic in pathology, particularly in regards to the central

nervous system functioning. The signs of neurological deficits were explored. A person's ability to maintain attention, self-regulate impulsivity, and delay gratification are all symptoms and, correspondingly, are prefrontal brain functions. This study also found ADHD to be a biological disorder (with heredity playing a role) that can be exacerbated by social factors. Segman, and associates (2002) continued to support exploring genetic factors as important in locating the cause of ADHD. They found a variant gene sequence in some children made them more susceptible to express symptoms of ADHD.

### Behavioral Characteristics

ADHD is defined as a developmental disorder characterized by inappropriate degrees of inattention, overactivity, and impulsivity (Barkley, 1990). These three key domains are evident in all young children at times. The difficulty comes in ascertaining when these behaviors are out of the ordinary and creating a handicapping condition (Barkley, 1990). Excessive levels of ADHD-type behaviors impede developmentally appropriate socialization, optimal learning, and positive parent-child interactions (Fewell & Deutscher, 2002). ADHD has been reconceptualized as a disorder of executive control and behavioral self-regulation rather than as an attention disorder (Fewell & Deutscher, 2002). ADHD results from deficits in rule-governed behavior that lead to problems initiating, inhibiting, sustaining, or shifting responses to tasks or stimuli (Barkley, 1997). ADHD has been broken into three subtypes. The classic ADHD-C category is characterized by hyperactivity, impulsivity, and inattention. ADHD-HI is predominantly hyperactive-impulsive behavioral disorder. ADHD-PI is the subtype that primary symptoms are inattention (Chermak, Tucke, & Seikel, 2002). The three domains that characterize this disorder are described as follows.

“Attention,” the hypothetical, multidimensional construct used to describe, organize, and even explain the collection of behaviors believed to reflect these essential skills, is considered a critical precursor for optimum development and learning (Hagen & Hale, 1973). Poor attentional skills are relatively common in childhood and are a primary characteristic associated with ADHD. This classification results from behaviors such as inattention to detail, careless mistakes in life activities, such as schoolwork, a difficulty in sustaining attention and listening, incompleteness of assigned tasks, organizational skill deficits, losing and misplacing materials, being easily distracted, avoiding tasks requiring sustained effort, and forgetfulness (D’Alonzo, 1996). Attentional problems fluctuate and frequently depend on the situation. Children with ADHD have been described as having an attentional bias towards novelty because they seem to need more stimulation and variety than other children (Montague & Warger, 1997). Warner-Rogers, Taylor, Taylor and Sandberg (2000) examined inattentive behavior in childhood. They indicate that inattentive behavior should be viewed as a developmental problem rather than simple and normal variants of behavior. Inattentive behavior was closely linked with adjustment problems in the classroom. Their study functions to identify the implications of the presence of even a few inattentive behaviors.

Hyperactivity is another primary characteristic of ADHD (D’Alonzo, 1996). This classification results from behaviors such as being fidgety, leaving assigned areas, running about excessively, difficulty engaging or playing in activities quietly, appearing to be in constant motion, and talking excessively (D’Alonzo, 1996). Students may make noises at inappropriate time, leave their seats repeatedly without permission, and talk out

during quiet time. Research suggests that hyperactivity declines with age, however, the early years of learning are interrupted by this extreme hyperactivity (D'Alonzo, 1996).

Impulsivity is the third predominant behavior of ADHD (D'Alonzo, 1996).

Students commonly blurt out answers before questions have been completed and have difficulty taking turns, and interrupt when others are speaking and intrude on others. This can get them into trouble or danger. Additionally, feelings of embarrassment arise when they interrupt a class or conversations. Students with ADHD usually have difficulty staying on task. They are distracted, appear not to listen, and seldom finish their work without close supervision (D'Alonzo, 1996).

According to Brand, Dunn, and Greb (2002), common characteristics of their learning style are found among children with ADHD. Significantly more than the general population, these students with ADHD require soft lighting, intermittent relaxation breaks, and either late morning, afternoon, or evening learning, dependent on the individual. The diversity of behavior characteristics and the attributes generally ascribed were not the cause of their inability to learn conventionally, but they simply evidenced very different learning styles

Studies have reported that students with ADHD are more likely than others to have a number of problems:

- Grade retention
- Delinquency
- Academic achievement
- Behavioral problems
- School Failure

- Drug abuse
- Social and emotional adjustment difficulties
- Dropping out of school (CHADD, 1995)

### Interventions

Schachar and colleagues (2002) reviewed the variety of available treatments to the heterogeneous population of children with ADHD. The need exists to acquire quality information upon which to develop practice parameters for treating ADHD.

Interventions must be of sufficient intensity to have an immediate impact on the core ADHD symptoms, and must be of adequate duration and intensity to alter adverse outcomes (Schachar et al., 2002).

### Pharmacological interventions

Pharmacological interventions are used to control and treat ADHD and continue to escalate in popularity (Fewell & Deutscher, 2002). Medication therapy for children with ADHD involves the intake of a substance that alters brain chemistry and thereby changes the outward behavior of the affected child (Fewell & Deutscher, 2002). It is estimated that between 70% and 90% of children will have a positive response to one of the major stimulants when it is first prescribed (Goldman et al., 1998). Ritalin, Adderall, Dexedrine and Cylert are all stimulants commonly used with these children. Research indicates that on the days when psycho-stimulants are taken appropriately, these drugs strengthen attention and weaken impulsivity and hyperactivity (Goldman et al., 1998). If the medication is working, the child should be more able to concentrate, less distractible, and more attentive. If aggressive and inappropriate behaviors exist, there should be a decrease. Their impact on the nervous system is not completely understood, however

they can improve behavior with relatively few side effects. Because pharmacological interventions help control, but not cure ADHD, concerned families may make different decisions about their use.

Arnett and Fischer (1996) examined the effects of Ritalin on the response of ADHD children to reward and punishment. Children with ADHD taking Ritalin showed a significantly smaller response speed to reward cues. Additionally, the children responded faster to punishment cues. This study suggests that Ritalin weakens the behavioral responding of children with ADHD.

Research shows consequences for children subjected to the drug-therapy regiment associated with ADHD (Barnett & Labellarte, 2002). . Side effects that concern parents include weight loss, stomach pains, headaches and insomnia. The zombie effect of stimulants is a distinct state of passivity that may be the result of dose-related overstimulation formulated as “overfocus”. The zombie effect is clinically distinct from other activation symptoms and sedation (Barnett & Labellarte, 2002). Parents fear the potential for future drug abuse. The risk of abuse increases when a child has a family history of stimulant abuse. Meanwhile, studies need to continue to focus on the long-term effects of stimulant medications. The adverse effects and repercussions associated with drug therapy lead many researchers to endorse other alternatives to control attention (Calhoun et al., 1997).

Approximately 30% of children do not respond positively to medication and require other types of assistance in order to function successfully in the classroom. Even among those who respond positively to medication, only a small number of children demonstrate their behavior to fall within the normal range (Pelham, 1993). Additionally,

medication treats the symptoms of ADHD temporarily. Therefore, most children receiving medication also require other types of interventions.

### **Behavioral Interventions**

Behavioral interventions focus on changing observable and measurable behaviors through the manipulation of the environment (Frazier & Merrell, 1997). The basic behavioral treatment approaches used for students with ADHD include positive reinforcement procedures (e.g. praise, attention, rewards), punishment procedures (e.g. time-out), and combinations of both (e.g. token economies) (Frazier & Merrell, 1997). Praise and approval can have an impact on the behavioral characteristics of children with ADHD. Positive correlations between teacher approval and on-task behavior, and concomitant negative correlations between teacher disapproval and on-task behavior, suggest that teacher's use of approval and disapproval could be responsible for the behavioral characteristics of children in classrooms (Beaman & Wheldall, 2000). Students with ADHD need orderly organized classrooms where common routines and rules are posted and reviewed as needed. One step in creating behavioral interventions is to carefully plan reinforcement programs that include incentives and promote successful performance rather than completion of a task. Students continue to show intrinsic interest in their work even when the reinforcers are no longer present (Montague & Warger, 1997). Successful teachers of students who are distractible often suggest to reduce unnecessary stimuli in the environment (e.g. preferential seating, reducing extraneous objects). Additionally, developing cues or signals with the student that can be used to redirect attention is beneficial. Behavioral interventions have many advantages including no side effects, and both school and home setting utilization. Behavioral interventions,



however, are limited because there are many variables to influence the effect of the treatment. Examples of the variables include settings, teacher training and utilization of strategy, potency of reinforcers, and severity of the problem (Montague & Warger, 1997).

Research demonstrates that a strong classroom management system helps all children develop positive and responsible behavior (Montague & Warger, 1997). Typical management systems can be enhanced to address the unique characteristics of students with ADHD. Clear and concrete rules, expectations, and consequences have to be communicated, and sometimes explicitly taught to these students. Also, carefully planned reinforcement programs including incentives to promote student successful performance are an essential component of the management system. Student performance should be monitored daily to sustain motivation and active involvement. Verbal praise and positive feedback enhance students' intrinsic interest in tasks (Montague & Warger, 1997).

Reis (2001) supported the use of positive reinforcement after conducting field observations. This study calls the teacher's attention to the frequency of negative comments the students with ADHD receive. Once the teacher is aware of the overuse of negative comments, he/she can replace these comments with positive verbal praise. The use of positive verbal praise goes a long way toward fostering better self-esteem for learners with ADHD (McCluskey & McCluskey, 1999). A student's self-esteem or self-worth is fostered when the teacher creates a classroom environment in which the student with ADHD feels his or her efforts will be recognized. Through such recognition, the student with ADHD can perceive that they have competencies and that they will succeed

at school-related tasks. Student efforts increased in response to the positive comments as well as a decrease in the frequency of negative behaviors.

Techniques, which prevent misbehavior from occurring, are important for teachers to use to manage their classroom. Reif (1993) found crucial factors including clarifying expectations such as teaching what is acceptable/unacceptable; providing structure, routine and consistency; practicing, modeling and reviewing behavioral expectations and rules; delineating clear and fair consequences; and showing understanding, flexibility, and patience. The classroom is one arena to reinforce, model, and practice positive character traits on a daily basis. These character traits must be taught and modeled throughout the curriculum.

Behavioral interventions also have limitations. They are not effective for all children (Pelham, 1991). For example, it can be quite difficult to get consistent implementation over an extended period of time. Also, there is lack of evidence supporting the long-term effects and generalizability of behavioral interventions (Pelham, 1991). Thus, a variety of factors must be considered and directly utilized for behavioral treatments to be optimally effective.

### **Cognitive Interventions**

The importance of cognitive control in human behavior was addressed in 1970s. Cognitive factors partly determine which external events will be observed, how they will be perceived, whether they will leave any lasting effects, what valence and efficacy they have and how the information they convey will be used for future use (Bandura, 1977). Most external influences affect behavior through intermediary cognitive processes. Cognitive representations of future outcomes function as current

motivators of behavior (Bandura, 1977). Self-motivation requires standards against which performance is evaluated. When individuals commit themselves to explicit goals, perceived negative discrepancies between what they do and what they seek to achieve create dissatisfaction that serve as motivational inducements for change (Bandura, 1977). Self-motivation through self-reactive influences, wherein individuals observe their own behavior, set goals, and reinforce their performances, is a major factor in a variety of motivational phenomena (Bandura, 1977). Self-motivation is best maintained by explicit proximate subgoals that are instrumental in achieving larger ones (Bandura, 1977).

Cognitive intervention strategies are implemented on the premise that changes in thinking will result in changes in behavior (Cipani, 1991). Implementing observational learning, self-instruction, and self-motivation strategies are ways to cognitively intervene. According to Cipani (1991), observational learning is a cognitive approach that results in students acquiring information about how to behave in a particular environment by observing others. Through modeling, students attend to the behavior exhibited by others and begin to approximate their actions. This observational learning is modeled and role-played during planned activity time. Self-instruction involves the use of self-statements to assist in regulating behaviors that often interfere with effective learning and performance. Initially, students are taught to verbalize to themselves, a teacher or classmate, ways to solve the problem. Over time, the statements become more covert (Cipani, 1991). These interventions have experienced limited independent use with children with ADHD, and cognitive-behavioral interventions have been suggested.

## **Cognitive-behavioral Interventions**

These interventions derive from traditional cognitive interventions in conjunction with basic behavioral techniques. Cognitive-behavioral interventions emphasize the influence of internal cognitions on self-control (Cipani, 1991). Specific techniques teach self-control through increased awareness of cognitive processes and knowledge of how behavior affects academic and behavioral outcomes (Swaggert, 1998). Cognitive-behavioral interventions encompass a number of strategies with self-management being the most important factor. The student continuously evaluates his own progress, unlike behavioral interventions that are evaluated by the teacher. Additionally, these interventions are advantageous because students can generalize to multiple environments. This type of intervention is not just managing the symptoms of ADHD, rather providing for continued growth and rehabilitation of ADHD symptoms. Reinforced self-evaluation has been used to improve the behavior of ADHD children. As a result, greater amounts of appropriate social behavior and decreased amounts of negative social behavior were found among boys with ADHD compared with boys using pharmacological and behavioral interventions (Hinshaw, Henker, and Whalen, 1984). Reviewing research cases of students with ADHD, Hinshaw and Melnick (1992) concluded that cognitive-behavioral strategies aid in generalization and maintenance by extending the salience of contingencies in the child's mind, promoting self-monitoring and self-evaluation, and enhancing both self-reward and problem solving.

Self-monitoring or self-recording is a particular set of strategies whereby the student is taught to discriminate targeted behaviors and to record the occurrence and/or nonoccurrence of these behaviors during predetermined time intervals within a given

session or activity. Self-monitoring interventions have proven to be dramatically effective in reducing challenging behaviors with individuals with severe disabilities (Koegel & Koegel, 1990). These techniques may potentially enhance independent activity while decreasing challenging activities in the classroom (Koegel & Koegel, 1990).

Swaggert (1998) discussed the procedures necessary to successfully implement this technique. Implementing self-monitoring procedures requires the teacher to engage in pretraining activities. The teacher selects one observable target behavior that the student demonstrates to monitor. Then the teacher gathers the necessary materials to implement the strategy. Initially, the intervals that the student monitors should be brief. Subsequently, the initial periods should include reminders of the desired behavior as well as praise. Students will require prompts and feedback to ensure accurate recording and the teacher should keep records in order to compare the accuracy.

Mathes and Bender (1997) investigated the combined treatment approach of an intensive cognitive-behavioral intervention coupled with a pharmacological treatment plan in a classroom setting. The participants were elementary school boys who were experiencing mild to severe problems in their general and special education classrooms. The goal was to increase on-task behavior of the students with ADHD who had been receiving medication. The students were trained to self-monitor on-task and off-task behavior after these behaviors were clearly defined. They were actively involved in monitoring their on-task behavior and recording it each day. After ten days of the intervention, the fading phase took place. During this phase, the self-monitoring sheet and cuing tape were removed. This study produced many positive outcomes. During all

phases, percentages of on-task behavior remained much higher than those in the baseline. Finally, teachers supported the intervention and noted increased percentages of accuracy on the students' work. The data demonstrated that self-monitoring is a very effective procedure to increase attentional behavior among elementary students.

Peterson and Young (1999) reported the effects of a student self-management procedure, involving self-monitoring and teacher matching. A teacher and classroom aide were trained in the implementation of self-management in the classroom. The program emphasized, direct teaching, instructional praise, corrective teaching, and behavioral directives, with the use of modeling, role-playing and performance feedback. A rating scale was selected and completed on a self-management form. Points were awarded for scores on their self-management form matching that of the teacher's recording. Students participated in a reinforcement time where they were able to earn pens, pencils, additional game and computer activities. Eventually the program was generalized to other classes in the school. This self-management procedure was effective in generalizing appropriate behaviors across multiple settings. The implications of this study are that a practical, feasible process involving minimal teacher time and effort can support a significant change of behavior (Peterson & Young, 1999).

Hutchinson, Murdock, Williamson, and Cronin (2000) implemented a combination of self-monitoring strategy with point awards, teacher praise, and encouragement to decrease the time it took a child with ADHD to begin an assignment and to increase his on-task and nondisruptive behaviors. The first grade student received training on how to complete a self-recording form including ten items. The student recorded his own behaviors and earned rewards at home based on the points on the

record. The results showed that the student's time to begin working decreased and his on-task behaviors increased. Meanwhile, the student, teacher and guardian were all less frustrated with working on decreasing the behaviors associated with ADHD. It is also found that these methods are an effective, inexpensive way to modify the inappropriate behavior (Hutchinson, Murdock, Williamson, & Cronin, 2000).

O'Reilly, Tiernan, Lancioni, Lacey, Hillery and Gardiner (2002) studied the use of self-monitoring to increase the on-task behavior of a child who frequently moved, rocked in her seat, and gazed. A functional assessment was conducted to determine when these off-task behaviors most frequently occurred. The student was initially trained using modeling of on-task and off-task behavior. Then the student was instructed on how to use the wristwatch and self-recording sheet to monitor the behavior, and to demonstrate accuracy in recording the target behavior in the training sessions. Once the student mastered the recording skills, this strategy was implemented in one classroom. The results in that class were immediately positive and the student was able to successfully generalize into other classes. The feedback was provided at the end of each class to increase the on-task behavior. The teachers noted dramatic positive changes in the student's behavior at the end of the program and found, the intervention was not intrusive to her classroom.

Self-monitoring strategies have yielded positive results in the majority of research for various ages, genders, and disabilities of students, including ADHD, autism, and mental retardation (e.g. generalization to additional settings, increased on-task behavior, improved learning) (Frazier & Merrell, 1997). However, some researchers have reported limited gains (e.g. little empirical support) (Abikoff, 1991). Success with this type of

intervention is dependent on the individuals involved, such as, teacher and children's willingness and active participation. This type of intervention may not be practical and useful to promote sustained behavior change for all children, however, it should be considered a valuable tool in managing behaviors associated with ADHD (Frazier & Merrell, 1997).

### Summary

An intense review of literature summarized the approaches to intervene with inappropriate behaviors of children with ADHD. Various intervention strategies have been practiced as a means to control the behaviors including pharmacological, behavioral, cognitive, and combined cognitive-behavioral models. However, the need exists to continuously explore new perspectives to meet the growing need of children with ADHD.

The cognitive-behavioral approaches are an effective procedure as part of a comprehensive program to meet the full array of needs of this population. This present study will address the utilization of this approach with young students with ADHD together with other disabilities. By replicating the study by Hutchinson and colleagues (2000), more information will be added on the effect of the cognitive-behavioral approach in elementary classroom practice for managing behaviors of students with ADHD.



## CHAPTER 3

### METHOD

#### Subjects

Three first and second grade boys attending an elementary school in Southern New Jersey participated in the study. These students were diagnosed with ADHD by their physician and classified to be eligible for special education services through their Individualized Education Plan (IEP) according to the state code (2001). They were placed in a self-contained special education classroom for students with disabilities.

The students had experienced significant behavioral difficulties in school and displayed behavior problems that interfere with class activities. The most prevalent inappropriate behavior was off-task behavior. This target behavior was defined as leaving seat, calling out answers, and interrupting instruction.

STUDENT 1- Student 1 is a 7-year old male who has been eligible for special education for 3 years as a result of his diagnosis of ADHD and PDD/Autism.

STUDENT 2- Student 2 is a 6-year old male who has been eligible for special education for 2 years as a result of his diagnosis of ADHD and Emotional Disturbance.

STUDENT 3- Student 3 is a 7-year old male who has been eligible for special education for 2 years as a result of his diagnosis of ADHD and Mild Cognitive Impairment.

#### Setting

Students' behavior was observed in Reading and Math in a special education classroom located in a community with low socio-economic status in Southern New Jersey. There are eight-second graders and three first graders in the classroom. These students have various special education classifications, ranging from emotionally disturbed to cognitively impaired. One dually certified regular and special education

teacher instructs the class together with three teacher assistants to support the students in the classroom.

### Research Design

An A-B-A-B withdrawal design was used to determine whether self-monitoring strategy combining with positive reinforcement would decrease the off-task behavior. Initially, baseline data was collected for one week, then the intervention strategy was introduced for two weeks, then the intervention strategy will be withdrawn for two weeks and finally the intervention strategy for three weeks will be repeated and reinforced. The repeated application and withdrawal of the intervention condition will make it possible to determine the change of the behaviors being measured.

### Training Materials

Students were taught to self-monitor their behaviors. They received a self-recording checklist form that consists of 7 items. Items 1,2,6 and 7 are on-task behaviors and items 3-5 are nondisruptive behaviors. The students were instructed to complete the form by marking an “X” on the items, when they demonstrated the target behavior successfully (See Figure 1). A decrease in target behavior was positively reinforced.

### Training Procedures

Students participated in three training sessions on how to complete the self-recording checklist called “GREAT DAY!”. At the first session the target behavior of off-task will be defined, and on-task will be explained. On-task means answering questions, working independently, and staying in the seat. Examples will be given and modeled. The final two training sessions will emphasize accurate completion of the form (See Figure 2 for procedures).

### Observation Procedures

Two teacher assistants will record the frequency of the off-task target behaviors including leaving seat, calling out answers, and interrupting instruction during ten-minute intervals in Reading and Math throughout the day, when the target behavior is observed, an “X” needs to be marked as occurrence and, “-“ for non-occurrence (See Figure 3). The observers will calculate the percentage of time the students’ were on-task by dividing the number of times the student was off-task by the number of intervals. The percentages would be used to match the student’s record of their own behavior presented on the self-recording form.

### Interobserver Reliability

Two independent observers will complete the frequency observation form to record the student’ off-task behaviors. At the end of observation, both observers will meet to check their observation data. The interobserver reliability will be calculated by agreement/ total intervals, and 60% of agreement and above should be reached.

**Figure 1: Self-Recording Form**

---

**GREAT DAY**

<b>Date</b> _____	
<b>1. I did my work by myself.</b>	<input type="checkbox"/>
<b>2. I answered questions.</b>	<input type="checkbox"/>
<b>3. I did not laugh at others.</b>	<input type="checkbox"/>
<b>4. I did not talk out loud.</b>	<input type="checkbox"/>
<b>5. I did not hit anyone</b>	<input type="checkbox"/>
<b>6. I started my work when asked.</b>	<input type="checkbox"/>
<b>7. I stayed in my seat.</b>	<input type="checkbox"/>

**Figure 2: Training Procedures**

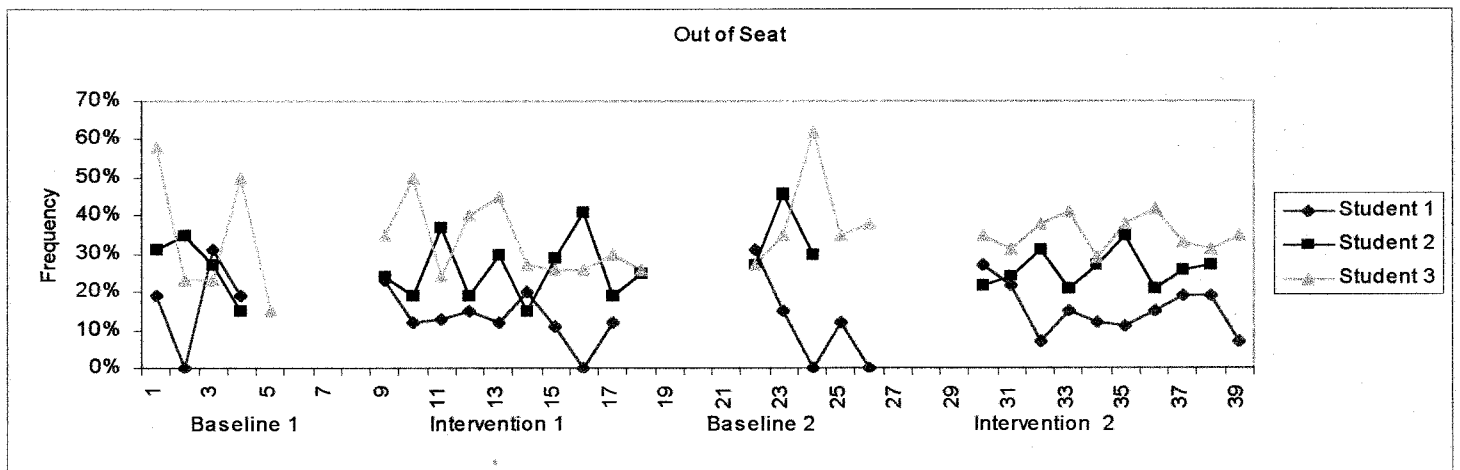
<b>Session 1: Defining Target Behaviors</b>	<b>Session 2: Self-Recording Checklist</b>	<b>Session 3: Practice Completing Form</b>
<ul style="list-style-type: none"><li>• Identify 3 behaviors</li></ul>	<ul style="list-style-type: none"><li>• Review behaviors</li></ul>	<ul style="list-style-type: none"><li>• Review behaviors</li></ul>
<ul style="list-style-type: none"><li>• Model behaviors</li></ul>	<ul style="list-style-type: none"><li>• Discuss form</li></ul>	<ul style="list-style-type: none"><li>• Review form</li></ul>
<ul style="list-style-type: none"><li>• Introduce form</li></ul>	<ul style="list-style-type: none"><li>• Provide examples</li></ul>	<ul style="list-style-type: none"><li>• Practice completing form in various lessons</li></ul>
	<ul style="list-style-type: none"><li>• Ask questions</li></ul>	

## CHAPTER 4

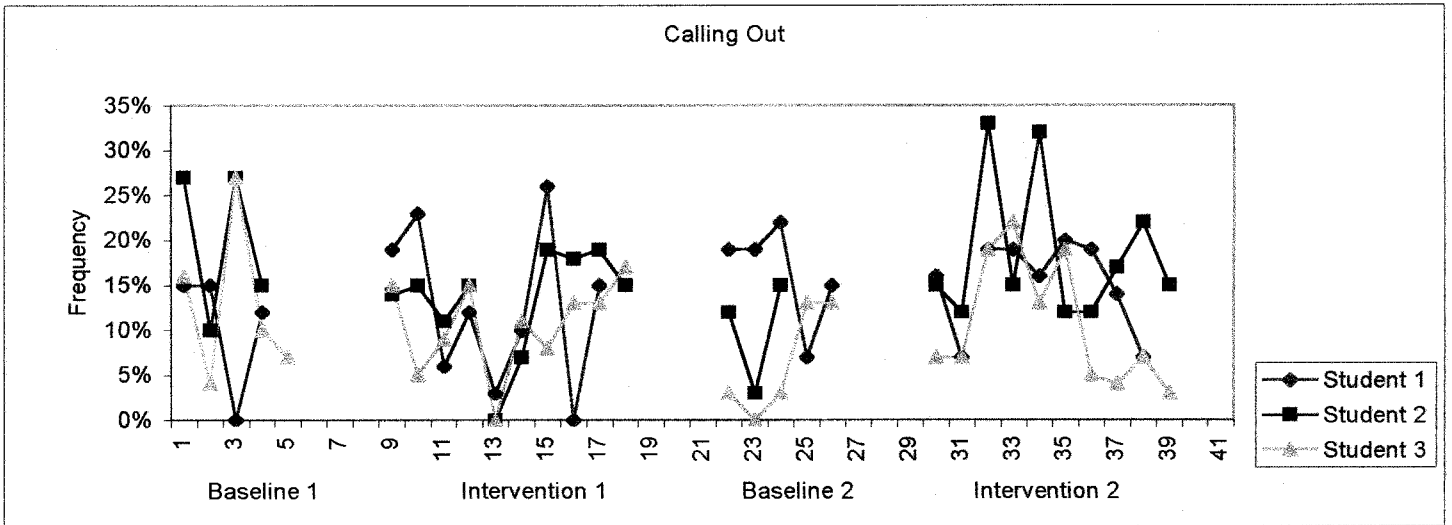
### RESULTS

An A-B-A-B withdrawal design was used in this study. Observations were conducted during the baseline for five days prior to the self-management training, then continued during the intervention phase for ten days using the self-management strategy. Observations continued for baseline data by withdrawing the intervention for 5 days, then completed with 10 days of intervention using self-management. Figures 4.1, 4.2, and 4.3 present the results.

**Figure 4.1**



**Figure 4.2**



**Figure 4.3**

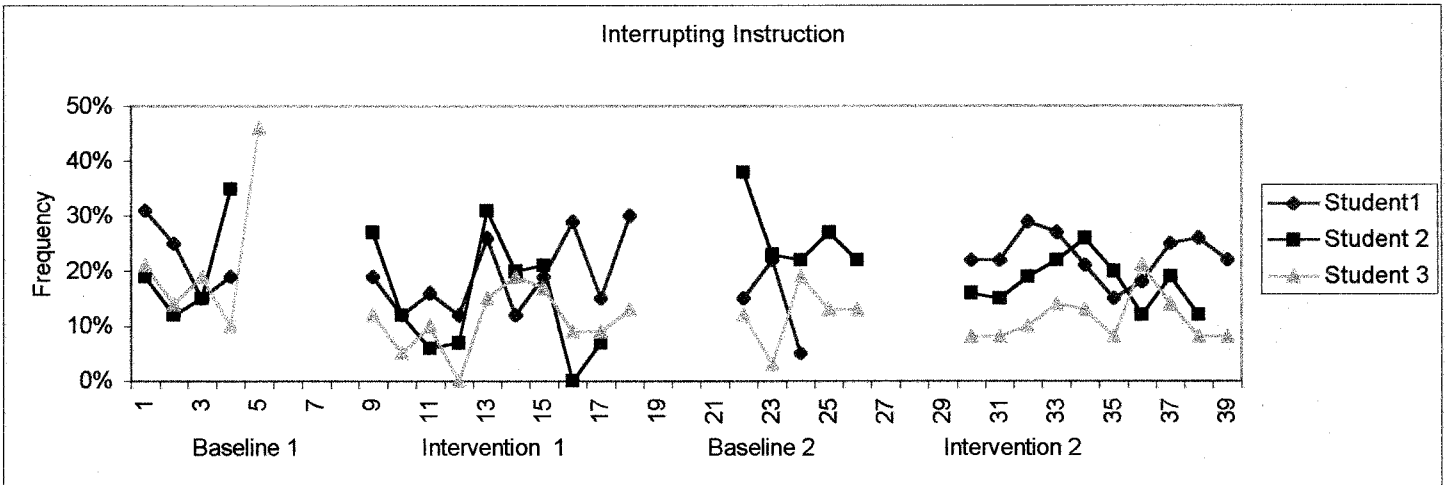


Figure 1 shows the percentage of each student's out-of-seat behavior during the baseline and intervention phases. During the baseline, of the total of 5 days in 5-minute intervals during various lessons throughout the day, students presented a high level of out-of-seat behavior. When the self-management strategy was taught to students and implemented in class during the intervention phase, out-of-seat behavior was reduced, and the decelerating trend was consistent in both intervention and follow-up phases. However, the data was variable from one student to another during the short time period.

Figure 2 shows the percentage of each student's calling out behavior during the baseline and intervention phases. During the baseline, of the total of 5 days in 5-minute intervals during various lessons throughout the day, students presented a high level of calling out behavior. When the self-management strategy was taught to students and implemented in class during the intervention phase, calling out behavior remained at a high level. However, the data was variable from one student to another during the short time period.

Figure 3 shows the percentage of each student's interrupting instruction during the baseline and intervention phases. During the baseline, of the total of 5 days in 5-minute intervals during various lessons throughout the day, students presented a high level of interrupting instruction. When the self-management strategy was taught to students and implemented in class during the intervention phase, interrupting instruction was reduced. However, the data was variable from one student to another during the short time period.



## Chapter 5

### DISCUSSIONS

The purpose of this study was to examine the effect of the self-management strategy together with positive reinforcement to reduce inappropriate behaviors of students with ADHD. The target behaviors were: out-of-seat, calling out, and interrupting instruction. These students were trained to use the self-management strategy in their special education classroom over a thirty-day period in school.

The first research question was to examine the effectiveness of this intervention to reduce the out-of-seat behavior of the students. The results indicated when self-management was implemented for ten days in *Intervention, phase B* student's out-of-seat behavior was reduced. While the intervention was withdrawn for five days during the *Baseline, phase A*, student's out-of-seat behavior resumed. During the *Intervention II*, when the self-management strategy was applied again for ten days the student's out-of-seat behavior was reduced. A decelerating trend was shown in both intervention phases of 3 students. The results indicated a decrease of out-of-seat behavior, however an extended period of time would have strengthened the results of the study if the study were continued.

The second research question was to examine the effectiveness of this intervention to reduce the calling out behavior of the students. The results indicated when self-management was implemented for ten days in *Intervention, phase B*, students' calling out behavior remained at a high level. Students' calling out behavior

continued at elevated levels when the intervention was withdrawn for five days of *Baseline II*. During the final ten days of resumed *Intervention, phase B*, the student's calling out remained at a high level. It appears that calling out behavior is difficult to reduce because of different rules in different classes. The behavior was observed in different classes, reading, math and writing. Calling out might be allowed for some classes because of the type of instruction and classroom environment.

The third research question was to examine the effectiveness of this intervention to reduce the student's behavior of interrupting instruction. The results indicated when self-management was implemented for ten days in *Intervention, phase B*, students' behavior of interrupting instruction was reduced, however, the data were variable. When the intervention was withdrawn for five days this behavior was resumed. It became consistently reduced for the final ten days of *Intervention II*. Even though the behavior of interrupting instruction was reduced, data were variable from student to student.

When comparing these results with Hutchinson et al. (2000)'s study, some similarities and differences can be found. In both studies, positive results were indicated using self-management strategy together with behavior modifications, however, neither study indicated whether self-management alone would have been effective. In addition, the participants in both studies were satisfied with the improved behavior. However, a major difference between the studies concerned the reduction of disruptive behaviors, including calling out. In Hutchinson's study it was found that using self-management strategy could reduce the occurrence of calling out behavior. It may be that classroom and instructional conditions in the advanced reading group in her study restricted the

occurrence of this behavior. In the present study, the students in the special education classroom had limited success in decreasing calling out behavior, because the rules in instruction and environment may have fewer constraints.

There are some limitations in the study. First, the findings are limited by the short time period to collect all the data. The students were provided with limited training in using the self-management strategy. If time permitted, students may have benefited from gradually using the strategy in one subject and slowly moving to a whole day of self-management. Additionally, absences and other school related services interrupted and limited the amount of time the students were involved in the classroom. In addition, the sample size was limited to three primary elementary students in special education. Their disabilities may have impacted their ability to effectively utilize the strategy. It seems that older students may benefit from using this strategy. Further, these students were only observed in one classroom setting and possible differences in other classrooms were not examined. Given these limitations, the results indicate the decrease of student inappropriate behaviors, however; more consistency would have strengthened the results of the study. When selecting participants, a group of homogenous students with similar classifications and cognitive levels may show more stable data to strengthen the consistency of behavior occurrences.

Overall, the findings of the present study provide support to the previous study to suggest a cognitive-behavioral approach to students with ADHD. Given the limitations of the present study future studies may need a longer time period for students using self-management strategies. In addition, a comparison of how students with higher and lower

cognitive abilities using self-management may be needed to examine if any differences may exist. Various strategies from medical, behavioral and cognitive perspectives have been tried to change inappropriate behaviors of students with ADHD. Self-management has been proven to be effective for this group of students. The present study has provided data to support the finding in the previous research and added data to the effectiveness of self-management for children with ADHD at the primary elementary school level.

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## APPENDICES

## Lesson Plan: Day 1

**Objective:** To introduce and define three target behaviors, to introduce students to the self-recording form

**Procedure:** 1. Take the three students to an unoccupied classroom and explain their special project 2. Use the chalkboard to list the three-targeted behaviors 3. Use examples to define the behaviors in words. 4. Model appropriate on-task and inappropriate off-task behaviors. 5. Ask students to model inappropriate off-task behaviors and appropriate on-task behaviors. 6. Provide praise and feedback 7. Introduce the self-recording form using the overhead

**Evaluation:** Participation

## Lesson Plan: Day 2

**Objective:** To review the target behaviors, to introduce how to complete the self-recording checklist

**Procedure:** 1. Use modeling to review the three target behaviors 2. Pass out checklist and go over each item 3. Model how to complete the checklist 4. Provide oral examples and students decide if that affects the checklist 5. Ask questions to ensure student understanding

**Evaluation:** Participation, completion of form

## Lesson Plan: Day 3

**Objective:** To review the target behaviors, to review the self-recording checklist, to practice using the self-recording checklist in class

**Procedure:** 1. Match the target behaviors to the appropriate definition on the chalkboard 2. Pass out form and review each item 3. Return to the classroom and participate in reading class 4. Return to the unoccupied classroom and have students complete form with teacher reading each item 5. Discuss any concerns 6. Repeat with various lessons, praising appropriate completion

**Evaluation:** Participation, completion of form

Dear Parent/Guardian:

I am a graduate student in the Special Education Department at Rowan University. I will be conducting a research project under the supervision of Dr. Joy Xin as part of my master's thesis concerning the effects of specific strategies when working to increase the on-task behavior of students. The goal of the study is to determine if these specific strategies will improve student's behavior.

The goal of the study is to decrease the number of off-task behavior occurrences in the classroom. Classroom instruction will remain the same. Names will be withheld in the project and results will be strictly confidential.

Your decision whether or not to allow your child to participate in this study will have absolutely no effect on your child's standing in his/her class. At the conclusion of the study a summary of the group results will be made available to all interested parents. If you have any questions or concerns please contact me at 884-9470 or you may contact Dr. Joy Xin at (856) 256-4747. Thank you.

Sincerely,

Cari McGaffney Bonner

Please indicate whether or not you wish to have your child participate in this study by checking the appropriate statement below and returning this letter to your child's teacher by

I grant permission for my child \_\_\_\_\_ to participate in this study.

I do not grant permission for my child \_\_\_\_\_ to participate in this study.

\_\_\_\_\_  
(Parent/Guardian Signature)

\_\_\_\_\_  
(Date)