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Effects of self-monitoring on hyperactivity in a student diagnosed with attention deficit hyperactivity disorder (ADHD)

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EFFECTS OF SELF-MONITORING ON HYPERACTIVITY IN A STUDENT DIAGNOSED WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

A Thesis

by

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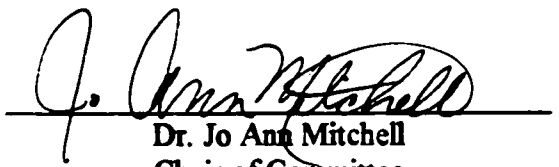

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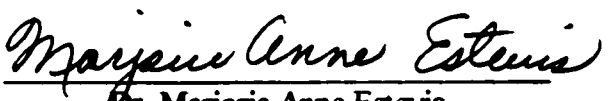

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ABSTRACT

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This single subject multiple baseline study tested an intervention using a self-monitoring procedure. The Subject was a nine-year-old Hispanic male identified as having Other Health Impairments and Attention Deficit Hyperactivity Disorder (ADHD) and was taking psychostimulant medication. Using an A-B-A-B design, the Investigator and two observers collected time interval data of on-task behavior, during baseline phases. During intervention phases the Subject was involved in a self-monitoring procedure addressing on-task behaviors.

Additional data were collected on a scoring sheet, whereby the Subject, the Investigator and the two additional Scorers, scored the student on five on-task behaviors. The intervention was effective. Results of the study indicated that the intervention was successful in increasing on-task behaviors in the Subject.

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CHAPTER I

Introduction

Students with Attention Deficit Hyperactivity Disorder (ADHD) frequently present multiple problems in classroom settings. Although the primary problems are typically behaviors that are disruptive and off-task, many of these students experience academic difficulties. Students, whose behaviors impede learning and disrupt the ongoing routine of the classroom, present substantial problems for the teacher. Pharmacological treatment is provided for these students; however, to enhance their academic skills, many students continue to need different types of interventions implemented by the teachers.

Many teachers report that they do not have adequate training and expertise in classroom management to address these problems effectively. Based on research studies, self-monitoring has been an effective tool utilized in the school settings (e.g., Storey and Lawry, 1994). According to Kings-Sears and Bonfils (1999) self-monitoring provides an instructional technique that is used to transfer the control of behavior to the student. Some of the students when using self-monitoring techniques, are able to control their behaviors when they are trained to monitor their behavior in the classroom.

Need for the Study

There is a paucity of literature on the efficacy of self-monitoring techniques with children with ADHD in relation to their hyperactive behaviors. This Investigator found numerous articles dealing with self-monitoring and daily living skills; however less information was found dealing with self-monitoring of hyperactive behavior. Effective techniques are needed to help students with ADHD control their own behavior. Techniques are also needed to help increase students' academic performance while monitoring their own behavior. Improving control of behavior can lead to improved academic performance. Parents, as well as teachers, are in need of effective treatments for ADHD.

Although, historically, self-monitoring strategies based on cognitive control have not been found to be effective for students with ADHD, it is important to continue researching the strategy of self-monitoring with different procedures and methods until results indicate effective relationships in reducing the students' behavior (Shapiro, 1989).

Statement of the Problem

Establishing self-monitoring as a strategy to improve the classroom behavior of children with ADHD is vital to the educational system. Subjects with ADHD often manifest inappropriate types of behaviors or behaviors that are not consistent with learning. In today's classroom, teachers must be trained and equipped with knowledge and skills for dealing with students with ADHD problems. Self-monitoring can be one of the effective strategies that teachers may employ for student that are ADHD.

Purpose of the Study

The purpose of this study was to investigate the efficacy of a self-monitoring procedure used with an ADHD child.

Research Question

The following research question was used as a guide in the current study: What is the impact on a self-monitoring technique on on-task behaviors of a nine-year-old boy with ADHD?

Benefits of the Study

The greatest benefit of this study was in providing an effective behavior management strategy for teachers. In turn, the student benefited through gaining insight into his own behaviors. This may have been a major factor in helping the student increase his on-task behavior.

By shedding light on a much-needed subject, the field of special education receives benefits from this study. Because there is a paucity of research addressing this specific method, the special education field has gained specific information.

Definition of Terms

The following terms have a special meaning in this study and are defined as follows:

Attention Deficit Hyperactivity Disorder (ADHD)

ADHD is "a persistent pattern of inattention and/or hyperactivity impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development. It is a neurobiological disability that causes

developmentally inappropriate levels of inattention, impulsivity, and hyperactivity" (American Psychiatric Association, 1994, p. 85).

Behavior Management

Behavior management is "a term loosely used to describe any direct attempt to modify a student's behavior. However, it is often used synonymously with behavior modifications" (Shapiro and Cole, 1992, p. 515).

Time Interval

Time Interval is the measured "length of time from when a behavior begins to its termination" (Richards, Taylor, Ramasamy, and Richards, 1999).

Self-Monitoring

Self-monitoring defined by Shapiro and Cole (1992) "a systematic observations and recoding of one's own behavior to produce reactive effects, or changes, in the behavior being monitored (p. 124-139)."

Target Behavior

Target behavior is "the dependent variable that is used to measure changes that demonstrate that the desired outcomes of the study are or are not being achieved" (Richards et al., 1999 p. 7).

Summary

Frequent problems manifested by students with ADHD are disruptive and off-task behaviors. Studies have shown that self-monitoring procedures to be effective in an ameliorating these problems. Studies are needed in testing self-monitoring interventions with students with ADHD. This study investigated the efficacy of a self-monitoring

intervention with a student with ADHD who was also receiving a psychostimulant medication.

CHAPTER II

Review of Literature

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most intriguing, beguiling, and complicated topics in the field of education. This chapter will address the prevalence of ADHD in the United States. A review of literature revealed a number of interventions used to ameliorate the problems caused by ADHD. These interventions are addressed in this chapter.

Prevalence of ADHD

The number of children and youth with ADHD has increased in recent years (Barkley, 1990). According to Children and Adults with Attention Deficits Disorders (CHADD), a parent organization, there are 3.5 million children and 2 million to 5 million adults who have some type of Attention-Deficit Disorder (Children and Adults with Attention Deficits Disorders, 1994). In public school settings, there is a population of 80% of the children with ADHD who are codiagnosed as having behavioral disorders or learning disabilities, and these students receive special education services (Reid, Maag, Vasa, and Wright 1994).

Treatment and Intervention

According to DaVilla, Williams, and MacDonald (1990), numerous school districts have begun to serve students with ADHD in general education classrooms. Even though pharmacological treatment have been in place for these children, teachers are expected to provide educational modifications. Because there is a tremendous increase in the mainstream setting for students with ADHD, education treatment approaches that focus on attention problems are needed.

Treatments Using Medication

The most common and widely used intervention for students with ADHD is medication. According to Barkley (1990), psychostimulant medication such as methylphenidate (Ritalin), d-amphetamine (Dexedrine), and pemolin (Cylert) are frequently prescribed.

There are more children receiving medication to control ADHD symptoms than any other childhood disorder (Barkley, 1990). Because of this wide use of medication treatment, as well as its success, some teachers and parents have begun to rely on the medication treatment as the primary intervention for the student, rather than utilizing any other interventions to further enhance the child's ability to learn in the classroom.

Educational Treatments

Clearly, the general education teacher must be prepared with other behavior strategies to aid children with attention problems in the learning environment, even though these students may be receiving medical intervention (Bender and Mathes, 1995). Often utilized educational strategies include behavioral techniques in the classroom,

parent training in behavior management skills, cognitive-behavioral training, and a combination of these treatments.

Cognitive-behavioral treatments. Cognitive-behavioral treatments represent one of the most recent treatment approaches. This approach involves intervention for overt behavior through the manipulation of covert thought process (Hallahan and Sapona, 1983). These intervention strategies are created to help the student in becoming more aware of their own responses to academic tasks and social problems. Cognitive-behavioral intervention strategies have their own responses to academic tasks and social problems. They are different from the traditional treatment methods in that they emphasize having children participate actively in the treatment process.

Self-monitoring is a cognitive-behavioral strategy that has been recommended for students with attention problems (Harris, Graham, Reid, McElroy and Hamby, 1994). Review of the school-based literature on self-monitoring indicate that, in a majority of cases, students have self-monitored attentional behavior while completing academic tasks (Shapiro and Cole, 1992). However, a number of writers have suggested that it may be more beneficial to target students' academic performance rather than attention to task (Snider, 1987). The rationale is that focusing on academic performance with a procedure such as self-monitoring will likely enhance students' academic performance and attention to task, whereas targeting on-task behavior may increase on-task behavior but cannot be expected to improve academic performance.

Self-monitoring treatment studies. Five studies were found that compared the relative effects of self-monitoring academic performance and attention to task among student with various disabilities. The results of those studies are described below.

Rooney, Polloway, and Hallahan (1985) taught students with learning disabilities two procedures for self-monitoring attention and academic accuracy. During self-monitoring of the former, students were required to ask themselves, at prerecorded tones, whether they were paying attention and to record their responses on prepared answer sheets. During self-monitoring of academic accuracy, each time students completed a highlighted problem on their worksheets; they compared their answer to the one on the answer sheet and recorded whether they had answered correctly. No clear differences were found between the two self-monitoring procedures.

Harris (1986) compared the effects of self-monitoring attentional behavior and spelling productivity with four children with learning disabilities. The procedure for self-monitoring on-task behavior was similar to that used by Rooney, et al. (1985). However in self-monitoring spelling productivity, students counted the number of spelling words written and recorded this on a graph at the end of each period. However, both procedures resulted in similar increases in on-task behavior; the effects of these two procedures on academic productivity (number of correct spelling words) were mixed. Self-monitoring academic productivity showed a strong effect on academic productivity for one student, somewhat slightly effect for two students, and the equivalent effect for one student. The statistics support the hypothesis that, in some instances, self-monitoring academic performance may produce better effects (i.e., increases in both on-task and academic behavior) than self-monitoring attention to task.

Lloyd, Bateman, Landrum, and Hallahan (1989) evaluated the effects of self-monitoring attentive behavior and academic productivity among five elementary students with behavior disorders and/or learning disabilities. The procedure for self-monitoring

attention to task was equivalent to Harris (1986). During self-monitoring of arithmetic productivity, students counted and recorded the number of problems completed since the previous cue. Results of the study indicated that both self-monitoring procedures increased students' percentage of on-task behavior and rate of correct movements. Although neither self-monitoring procedure produced clearly superior effects, there was a trend toward better performance under self-monitoring attention (Lloyd et al., 1989).

Reid and Harris (1993) compared the effects of two types of self-monitoring on the attention and academic performance of 28 students with learning disabilities (9 years, 3 months to 12 years, 11 months). The self-monitoring attention procedure was similar to those used in the previous studies, whereas self-monitoring academic performance had students count and graph the number of correct spelling practices after each session. The study indicated the same positive effects on attention and productivity for both types of self-monitoring. Therefore, the results failed to support the hypothesis of differential effects of self-monitoring attention versus productivity.

In a study by Maag, Reid, and DiGangi (1993), the differential effects of self-monitoring on-task behavior, academic productivity, and academic accuracy were compared with six elementary-age students with learning disabilities. Self-monitoring attention procedures were similar to those used in the last studies, with addition of listing on-task behaviors on the recording sheet. The self-monitoring productivity involved having students, at the prerecorded tone, mark the problem on which they were working, count the number of problems completed since the previous tone, and record the number on a recording sheet. Finally, in self-monitoring accuracy, students compared each completed problem with the correct answer.

Although each self-monitoring procedure resulted in some positive effects, self-monitoring academic productivity and self-monitoring academic accuracy were generally superior to self-monitoring on-task behavior. These results support the hypothesis that self-monitoring academic outcomes are more effective than self-monitoring attention to task. However, differential effects on math performance were obtained across age groups, with self-monitoring productivity most effective for fourth graders and self-monitoring accuracy most effective for sixth graders.

In summary, the results of all of the treatment studies comparing self-monitoring attention to task and self-monitoring academic performance are varied. No studies were found that compared the relative effects of self-monitoring attending and academic performance with self-monitoring disruptive behavior. It is important to note that the target behavior selected for intervention should be one that would enhance both academic and social behaviors.

Combination of medication and cognitive behavioral treatments. A number of other studies have failed to show significant improvements resulting from a combination approach of medicine and cognitive-behavioral treatments, (e.g., Brown, Wynne, Borden, Clingerman, Geniesse and Spunt, 1996). For example, Brown et al. studied the effects of methylphenidate, cognitive therapy, and a combination approach on children with ADHD. Subjects were 28 boys and 7 girls between ages 5 and 13. In laboratory settings, these subjects were randomly assigned to four-treatment conditions-cognitive training with methylphenidate, no training with methylphenidate, cognitive training with placebo, and training with placebo. The dependent variables included measures of academic achievement and ratings of behavior, attention, and impulse control. Cognitive training

involved teaching the subjects to gain awareness of the importance of planning, to initiate a recognition of the causal relationship of the child's own behavior and environmental. consequences, and to develop general strategies to solve a variety of tasks. The results indicated that no significant treatment effects were observed among the groups as a result of this cognitive intervention beyond the effects of medication. However, the procedures used in the study seem to have mainly focused on developing awareness of casual relationships between the child's behavior and consequences, rather than providing step-by-step procedures to lead children to change their behavior.

The latter type of cognitive intervention--a more intensive intervention may be more effective. Even so, some have concluded that there is little evidence that a combination of self-monitoring procedures and psychostimulant intervention enhances the attentive behavior of children with ADHD beyond medication treatment alone Swanson (1993).

Summary

Medication is the most common and widely used intervention for ADHD. Perhaps a drawback to medication as an intervention is that teachers come to rely on medication as the primary source of treatment. This means that teachers may overlook other effective interventions.

Studies presented in this chapter, which addressed self-monitoring tended to be effective for academic performance rather than improving on-task behavior. Most of these studies on self-monitoring involving students with ADHD took place in laboratory settings or treatment facilities rather than general and special education classrooms in public schools (e.g., Brown et al., 1996). Fiore, Becker and Nero (1993), for example,

found that only 21 out of 137 studies reporting on interventions for children with ADHD were conducted in public classrooms. This is a concern because interventions for children with ADHD conducted by clinical psychologists, neuropsychologists, and physicians in elaborate settings may not generalize well to public school classes.

With these issues in mind, the present study investigated the efficacy of a combined treatment approach, medical and self-monitoring. Specifically, the purpose of this investigation was to document the efficacy of an intensive cognitive-behavioral intervention coupled with a pharmacological treatment plan in an actual classroom setting.

CHAPTER III

Methodology

The purpose of the study was to examine the relative effects of a self-monitoring intervention addressing on-task behavior in a nine-year-old Subject with Attention Deficit/Hyperactivity Disorder (ADHD). The Investigator collected data by using a self-monitoring procedure with the Subject. The Subject was taught to rate his own on-task behaviors. His scores were analyzed and compared with those of the Investigator and the two Secondary Scorers. This chapter describes how the study was conducted and consists of the following subsections: (1) research design; (2) subject; (3) setting; (4) dependent variable; (5) data collection procedures; and (6) additional data collection.

Research Design

A single subject multiple baseline research design was used to answer the research question. This design was selected to determine a functional relationship between the target behavior and the intervention. The following paradigm was used: ABAB (A=baseline phase; B=treatment/intervention). Introducing the intervention twice to compare the target behavior with two baseline phases was done to strengthen or validate the functional relationship between the target behavior and treatment. According to Richards et al. (1999) using an ABAB design has its advantages, such as when the

withdrawal of a particular treatment reverses the target behavior to baseline, or preintervention, levels. There are times when the target behavior could be maintained after the treatment is withdrawn due to factors that link to the natural environment. If the criteria for reversibility of the behavior and treatment can be met, the withdrawal design is a powerful design that documents the functional relationships between the independent and dependent variable.

There are disadvantages for using an ABAB design, even though it is both easy and powerful to implement. Many researchers are hesitant to withdraw effective interventions for experimental control. Also individuals' behaviors during subsequent baseline conditions might be negatively affected by resentment over having the treatment withdrawn (Richards et al., 1999).

Subject

The Subject of this study was a nine-year-old Hispanic boy with average intellectual skills. According to a psychological evaluation, the Subject met eligibility as Attention Deficit/Hyperactivity Disorder (ADHD) which adversely affected his education performance. He met the criteria for special education services under the disability eligibility of Other Health Impaired.

Teacher interviews indicated that the Subject had difficulty following directions and staying on task. He manifested poor attention and concentration skills. He also exhibited excessively high activity levels. He would not complete assignments and demonstrated little importance to his work.

A parental interview indicated that the Subject had trouble with his siblings and was uncooperative and disobedient. The mother indicated that she had trouble

controlling the Subject at home. At school, it was noted that he would not accept responsibility for his actions and came to class unprepared. The Subject also had trouble with independent work. Several behavior intervention plans had been utilized for the Subject but they did not aid in decreasing the target behaviors. He was under medication therapy with 20 milligrams of Ritalin twice a day. He was attending special education classes for reading, writing and math.

Setting

The study was conducted in a fourth-grade resource class that served approximately 10-12 students. All the students in the resource classroom meet eligibility criteria for special education services as Learning Disabled (LD). Three out of the 12 students also met eligibility as ADHD. Two out of those three students were under medication therapy. The classroom followed a highly structured set of classroom rules, such as follow teacher directions, keep hands, feet and objects to yourself, do not leave the room without permission, no swearing or teasing and no yelling or screaming.

Teaching strategies in the resource room ranged from individual work to large group activities and instruction. Some mainstreaming tutoring was also utilized in the classroom. A teacher certified in special education and two paraprofessionals managed the classroom. Each resource class contained no more than six students per period.

Dependent Variable

In this study the dependent variable was on-task behavior as measured by timed observations. On-task behavior was defined as attending to assigned class work in an active (i.e., writing, reading aloud, raising hand, verbal behavior relevant to the task) or passive (i.e., eyes directed toward the task or teacher during lecture, looking at work,

silent reading) manner. Any time that the Subject was not engaged in any type of on-task behavior, it was assumed he was engaged in other than on-task behavior. Data were collected using a simple observation form (Appendix A). This determined the length of time the Subject is on-task.

Data Collection Procedures

The Subject was observed under four conditions: 1) Baseline Phase 1; 2) Intervention Phase 1; 3) Baseline Phase 2; and 4) Intervention Phase 2. All observations took place in a special education resource classroom that involved reading, writing and math lessons.

Baseline Phases

Both baseline phases were conducted at least two times per class period for three class periods, totaling six times per day. Each observation segment lasted 10 minutes. The Investigator set a timer to delineate 10-minute segments and used a stopwatch to accrue the time the Subject was on-task. The Investigator started the stopwatch each time the on-task behavior would begin and stopped the stopwatch each time the behavior terminated. The stopwatch was not reset during the observation, thus at the conclusion of the observation period, the total time on the stopwatch represented the total duration of the on-task behavior.

The Investigator conducted class activities as per a typical day. The activities included small-and-large group instruction, as well as independent activities. The Investigator encouraged active responding by the Subject. The Investigator did not use any behavior management during baseline observation. Self-monitoring activities were not utilized during baseline phases.

Interobserver Training

The Investigator, who was the primary data collector, completed 100% of the data collection. In addition two observers were employed to collect data simultaneously over a minimum of 35% of the observations. These two observers were trained by the Investigator to identify the dependent measure. They were trained by the Investigator to score their observations on the appropriate recording sheets. The Investigator and the two observers trained and practiced together until all three observers scored at least 80% in agreement for the dependent measure. During the 35% of the observations, the two data collectors simultaneously, but independently, measured the duration of the dependent measure. Interobserver agreement was determined by the following formula (Richard et al. 1999):

$$\frac{\text{Shorter Time Recorded}}{\text{Longer Time Recorded}} \times 100\%$$

Intervention Phases

Prior to the intervention phases, the Subject was trained to self-monitor his behavior according to the procedures developed. The Investigator introduced to the Subject the self-monitoring procedures and instructions on how to track his own behavior, including rating himself on his behavior. A pictorial cue (Appendix B) was used to demonstrate on which behavior he needed to rate himself. The pictorial cue included (1) completing assignment; (2) eyes on teacher or on work; (3) sitting appropriately on seat; (4) raising his hand for help; and (5) working quietly. The pictorial cue helped to serve as a reminder, as it was displayed in every center that the Subject was working in the room.

Intervention phases were conducted for two weeks. The Investigator reviewed with the Subject the self-monitoring record form, which was used to rate his behavior (Appendix C). Each class was 45 minutes in length. The Subject rated this own behavior at the end of a thirty-minute session. A timer was used to notify the Subject when the segment had ended. A percentage of 80 or higher was established for achieving his goal. If the Subject achieved the established percent, he was rewarded. Rewards ranged from 15 minutes of computer time, drawing time or a reward of a table game of his choice. These rewards were shown to be effective for this Subject in previous management situations. If the Subject did not achieve his percentage for the day, a note was sent home to the parent and the Subject was not able to choose his reward for the day.

The Investigator rated the Subject's behavior using the same form that the Subject used to rate his behavior. There was no discrepancy of 20% or greater between the investigator's and the Subject's rating. The Investigator needed to practice random surveillance and check Subject's record form daily. If the Investigator found that there were discrepancies that favored the Subject, the Subject was penalized. Penalization resulted in losing time from his pre-selected activity for the day. However, if the investigator found that the Subject was being honest, Subject was rewarded.

Additional Data Collection

During the intervention phases, the Investigator employed two Secondary Scorers to score the Subject on the self-monitoring form (Appendix C). The Subject and the Investigator scored all of the sessions and the Secondary Scorers scored 35% of the sessions. To achieve high interscorer reliability, the Investigator trained the Secondary Scorers in the scoring system until an agreement of 80% was reached. The overall

percent correct of the subject's responses was calculated by all three Scorers using the following formula (Richard et al., 1999):

$$\frac{\text{Number of Correct Responses}}{\text{Number of Correct Responses} + \text{Number of Incorrect Response}} \times 100\%$$

Summary

The purpose of the study was to examine the relative effects of self-monitoring on a nine-year-old Hispanic boy with average intellectual skills. A single subject multiple baseline research design was used to implement the study. The dependent variable was on-task behavior. The investigator and the two data observers were trained to collect data during baseline phases. Additional scoring addressing self-monitoring was accomplished during intervention phases.

CHAPTER IV

Results

This study examined the relative effects of a self-monitoring intervention on on-task behavior in a nine-year-old subject with Attention Deficit/Hyperactivity Disorder (ADHD). The participant in this study was a nine-year old boy who met the criteria for special education services as Other Health Impaired (OHI), and who was also identified as an individual with ADHD.

A single-subject multiple baseline research design was employed using an ABAB design to assess the effectiveness of using a self-monitoring procedure to enhance on-task behavior of the subject with ADHD who is already receiving pharmacological treatment. Observation data were collected on the first 32 class sessions. The effects of the intervention were graphed and analyzed visually.

Interscorer Agreement

Time intervals were collected for on-task behaviors on all four phases of the study. The Investigator was the principal data collector. Two additional data collectors (observers) were employed. Interscorer agreement was established for the collection of data for all phases. An agreement level of 99.96% was established between the Investigator and Scorer one for 35% of the sessions. An interscorer agreement level of

99.72% was established between the Investigator and Scorer two The above percentages indicated that there was a high level of consistency between the data collectors.

Events of on-task behavior for self-monitoring were collected for this study. The events were scored as present or not present. The Investigator was the principal Scorer of the events. Two additional Scorers were employed for 35% of the scoring. Interscorer reliability coefficients were established for the self-monitoring phase of the study between the Subject and the Investigator, and between the Subject and Scorer one, and the Subject and Scorer two. A correlation coefficient of .94 was established between the Investigator and Subject. Between Scorer one and the Subject a correlation coefficient of .93 was established and .92 between Scorer two and the Subject. The above data indicated that there was a high level of agreement between the Scorers.

Results of Study

The results of the study are presented in Figure 1. During the baseline phase A1, the time interval of on-task behavior per day ranged from 16:59 minutes to 20:11 minutes, with a mean of 18:52 minutes.

When the intervention phase B1 was introduced, the time interval of on-task behavior per day fluctuated. A trend line was established to determine the direction of the data path. The direction of the data indicated that there was an increasing trend. The time interval of on-task behavior ranged from 15:44 to 26:59 minutes, with a mean of 20:06 minutes. Time interval of on-task behavior showed an average increase of 1:54 minutes.

During phase A2, the intervention was withdrawn, and the time interval of the on-task behavior decreased. The time interval of the on-task behavior ranged from 16:39 to 27:05 minutes, with a mean of 22:01 minutes.

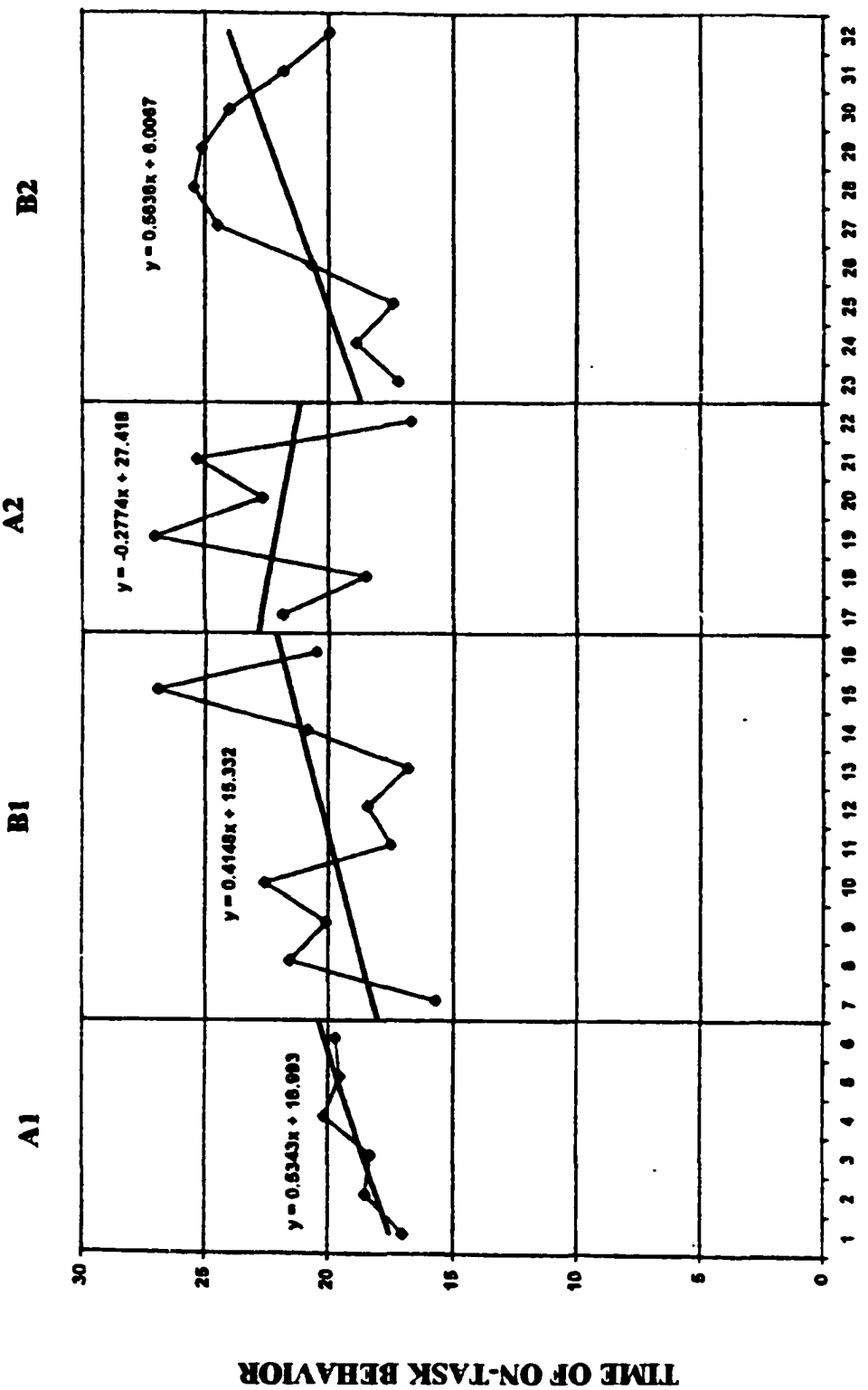

Figure 1: Time Interval for On-Task Behavior

During the second baseline B2, the intervention was reintroduced. A trend line established that there was an increasing trend, indicating that the time interval of on-task behavior increased when the intervention was reintroduced. This shows that the intervention had some effect on the dependent variable. Time interval of on-task behavior ranged from 17:10 to 25:28 minutes, with a mean of 21:50 minutes.

Validity

Internal Validity

Internal validity is established when the intervention, and only the intervention is responsible for the change in behavior. Evidence of internal validity was demonstrated through the high interobserver reliability and the consistency of the Investigator throughout the study (Tawney and Gast, 1984). Results of the study suggested that the intervention treatment produced increases in the time interval of on-task behavior.

Social Validity

The social validity of this study was examined by interviewing the subject at the end of the study. The Subject reported that the self-monitoring procedures helped him in increasing his on-task behavior in the special education classroom and in the regular education classrooms, as well. The primary Investigator noted increases in on-task behaviors. According to the social validity data, this study was effective. The main goal for the study, to increase on-task behavior of the Subject, was socially important in the Subjects' environment. The self-monitoring procedures implemented were age appropriate.

External Validity

External validity is demonstrated if the intervention can be applied with other subjects, in other environments, with other experimenters, and with minor variations in the basic procedure (Tawney and Gast, 1984). Due to the unique nature of the disability and special education setting of the subject of this study, the intervention is limited to settings and subjects not unlike those of this study. As a tool for the teacher, the practicality of the procedures is questionable.

Summary

This study examined the relative effects of a self-monitoring intervention involving on- task behavior in a nine-year-old Subject. He had also been designated as ADHD. The Subject, whose intellectual abilities were reported to be within the average range, was a Hispanic male, who met the special education criteria for eligibility as Other Health Impaired.

A single subject research multiple baseline design with a self-monitoring intervention, was used to evaluate the effects of on-task behavior for a child with Attention Deficit-Hyperactivity Disorder.

Results of this research suggest that the intervention was effective, but the effects, in general, were not dramatic. An effect was seen when the intervention was reintroduced.

CHAPTER V

Summary and Discussions

The intent of this study was to examine an intervention, using a self-monitoring procedure for a subject with Attention Deficit Hyperactivity Disorder. A review of literature indicated that because of the wide use of medication treatment for children with ADHD, teachers and parents have begun to rely on the medication treatment as the primary intervention for a number of children with ADHD, rather than utilizing other interventions to further enhance the child's ability to learn in the classroom. Cognitive-behavioral treatments represent one of the most recent treatment approaches. These cognitive-behavioral intervention strategies are created to help the subject in becoming more aware of their own responses to academic tasks and social problems.

A single-subject research multiple baseline design was used to determine the effects of a self-monitoring procedures involving on task behavior, designed to facilitate improved class behavior, on hyperactivity in children with ADHD. Results of the study showed that the intervention was effective in increasing the time intervals of the on-task behavior for the subject.

Research Question

The research question of this study was designed to examine the impact of a self-monitoring intervention used with ADHD children on self-control and task engagement.

The study employed a single subject multiple baseline research design. A nine-year old Subject who was diagnosed with Attention Deficit Hyperactivity Disorder, receiving pharmacological treatment, participated in the study. Observations occurred in a special education resource classroom. Observation data were collected in thirty-two sessions.

The results of the study indicated the positive effects of utilizing self-monitoring on subjects with ADHD who are already receiving psychostimulant medication. There was an established functional relationship between the self-monitoring intervention and the increase of on-task behavior. The positive outcomes of the present study concur with the results demonstrated by Hallahan and Sapona (1983), in which the effects of the combined use of a self-monitoring intervention and psychostimulant medication were observed. Once the intervention was applied, the percentage of intervals of on-task behavior improved. The results indicated that the intervention was effective in improving on-task behavior of the subject when both the cognitive-behavioral and pharmacological interventions were used.

Discussion of Self-Monitoring Scoring

Figure 2 demonstrates the ratings that the investigator and subject scored for on-task behavior. During the study, the subject was trained to score his behavior. If the Subject would score honestly, he would be rewarded with computer time. At the same

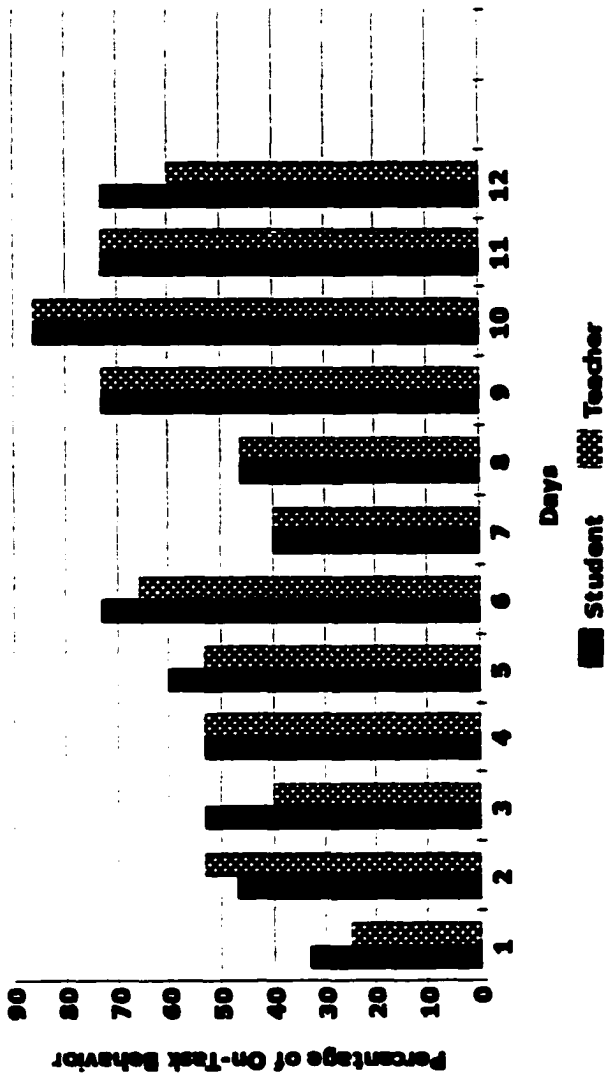

Figure 2: Comparison of On-Task Behavior Among Investigator and Subject

time, the Investigator would also rate the Subject's behavior. The Investigator would compare her rating of the subject with the Subject's own rating. In this present study, the Investigator noticed a consistent pattern that the Subject displayed throughout the intervention phases. Looking at the data chart, one can see that every third session, which landed on the last day of school week, the Subject over rated himself. It was bought to the Subject's attention and Subject admitted that he wanted to give his parents good results on his behavior. The Subject mentioned that if high results were not given to his mother, the Subject would be given more household chores and would lose all of his television privileges for the entire weekend.

Figure 3 displays a comparison of the subject's rating and the ratings of the two scorers. The data also indicate that the scorers scored the subject lower than the Subject scored himself. The data on both charts indicate that there was consistency between the Investigator and the scorers. It is suggested that the Subject did not want to be reprimanded by the parents, thus scored himself higher on behavior so he could enjoy his weekends.

Relevant Factors

According to the Subject and the Subject's teachers, there are relevant factors that could explain the outcomes of the study. These factors are not under the control of the Subject or the teachers that work with the Subject on a daily basis.

One factor may that the Subject's home environment contributed in the Subject's behavior. The Subject commented to the Investigator that, he didn't "like to go home," because of the living arrangements with mother and her significant other. Also the Subject didn't like to go home after school because he had a lot of household

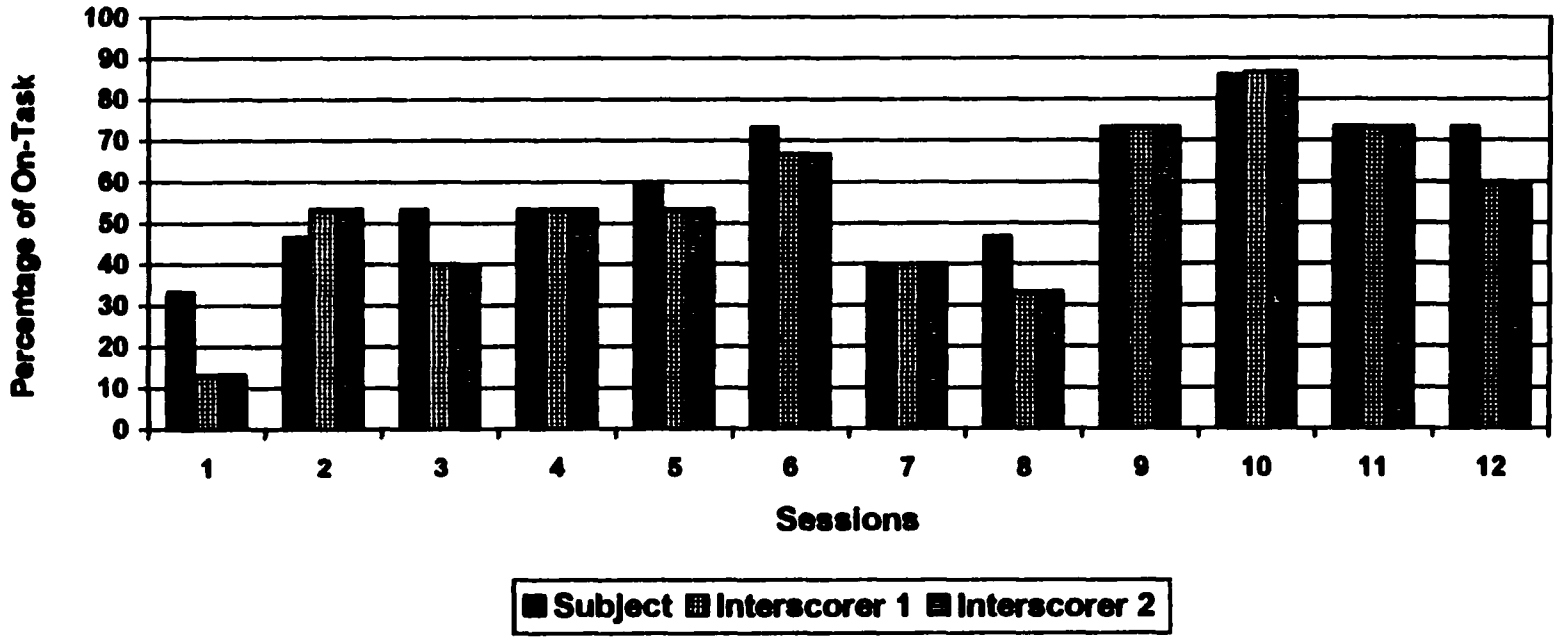

Figure 3: Comparison of On-Task Behavior Between Scorers and Subject

responsibilities. Researching through the Subject's school records, it was reported in previous Admission Review and Dismissal Committee (ARD) documents that the mother had already made contacts with the Office of Cameron County Child Protective Services to intervene in assisting her with her child. According to the report, the mother was having a difficult time adjusting to meeting the needs of the Subject. At one point the mother wanted for the Buckner Homes to remove the Subject from the house because she did not want to be responsible in purchasing medication for the Subject. The Subject's home environment could have contributed to the fluctuation of the Subject's behavior during the study.

Another factor that may have played a role in the Subject's behavior was his displaying of inappropriate behavior as reported by the regular education teachers. According to the teachers, the Subject affected a persistent cough and displayed a lot of nervous movements, such as shrugging his shoulders constantly and blinking his eye rapidly. His teachers were concerned about Subject's recent behavior change. It was recommended by the Admissions and Review Committee that the Subject undergo further psychological evaluations. The Investigator had also noted the change in the Subject during the beginning of the baseline phase A1 sessions. The Investigator and observers noted that the Subject would display nervous behavior that at times would be persistent throughout the sessions.

According to the school nurse, the mother informed the school that the Subject was taking a medication at home to aid sleep. The Subject was having difficulty sleeping at night and would only receive two to three hours of sleep. According to the mother,

she took the Subject to the doctor because his behavior was causing too many problems at home. The change of medication occurred during the end of the second baseline phase.

The regular education teachers also noted that the Subject was having difficulty academically. His academic grades were being effected. He was not able to complete his work and was being sent to Content Mastery on a daily basis to complete his work. The educators who worked with the Subject on a daily basis reported that the Subject was frustrated.

Summary of Relevant Factors

These factors addressed above may have affected the Subject's behavior, which in turn affected the results of the study. These factors occurred throughout the study and seemed an integral part in the Subject's behavior. The Subject's behavior throughout the study fluctuated, possibly due to the home situation and the medication change that the Subject had undergone.

Limitations of the Study

Although potentially effective for enhancing Subjects' on-task behavior, the utility of the self-monitoring procedures described in this study is limited by several factors. First, implementation for the study only involved one Subject. The results of a single subject research study are not thought to be easily generalized. Second, some special education teachers might question the practicality of a self-monitoring procedure, given the various responsibilities typically associated with teaching. Another potential limitation is the possibility of Investigator-Subject disagreements over their ratings. Given that Subjects with ADHD demonstrate higher than average levels of defiance and conduct problems, this risk must be carefully considered.

Summary

The study examined an intervention using a self-monitoring procedure. The primary research question was answered by a multiple baseline single subject design. The results of this study indicated that the intervention was effective to a limited degree. On-task behavior in the nine-year-old Subject was increased.

Some interesting patterns were noted from observing the Subject's behavior. These patterns were probably the results of several factors, which were addressed in this chapter. Some behaviors that are of concern to this investigator are shrugging shoulders and an apparent affected cough.

The major limitation of this study is its need of replications. It should be noted that this present study is a modified replication of the Hallahan & Sapona, study of 1983.

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APPENDICES

APPENDIX A

DATA RECORDING SHEET

DATA RECORDING SHEET

Session:_____

Class 1		Class 2		Class 3		
10 min.	10 min.	10 min	10 min	10 min	10min	TOTAL

Session: _____

Class 1		Class 2		Class 3		
10 min.	10 min.	10 min	10 min	10 min	10 min	TOTAL

Session: _____

Class 1		Class 2		Class 3		
10 min.	10 min.	10 min	10 min	10 min	10 min	TOTAL

Session:_____

Class 1		Class 2		Class 3		
10 min.	10 min.	10 min	10 min	10 min	10 min	TOTAL

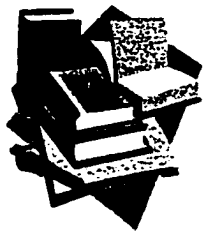
Session:_____

Class 1		Class 2		Class 3		
10 min.	10 min.	10 min	10 min	10 min	10 min	TOTAL

APPENDIX B

PICTORIAL CUE

PICTORIAL CUE



1. Complete assignment

2. Eyes on teacher or work

3. Sit appropriately

4. Raise hand for help

5. Work quietly

APPENDIX C

SELF-MONITORING SHEET

SELF-MONITORING SHEET

CLASS 1

BEHAVIOR	
COMPLETE ASSIGNMENTS	
EYES ON WORK	
SITTING CORRECTLY	
RAISE HAND	
WORKING QUIETLY	
TOTAL	

CLASS 2

BEHAVIOR	
COMPLETE ASSIGNMENTS	
EYES ON WORK	
SITTING CORRECTLY	
RAISE HAND	
WORKING QUIETLY	
TOTAL	

CLASS 3

BEHAVIOR	
COMPLETE ASSIGNMENTS	
EYES ON WORK	
SITTING CORRECTLY	
RAISE HAND	
WORKING QUIETLY	
TOTAL	

TOTAL - = _____

TOTAL + = _____

TOTAL % = _____

APPENDIX D

INFORMED CONSENT

INFORMED CONSENT

I _____ parent(s) of _____ have been asked for my child to participate in a master's thesis research study. The purpose of this study is provide data for a masters thesis examining the effects of self-monitoring on hyperactivity in students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). The teacher will use self-monitoring tracking sheets to collect information and reward his behavior.

All the information obtained during this study will be kept confidential. Students' initials will be used in any written materials.

Participation in the study is voluntary. Parent(s) or student may elect to participate and is free to withdraw from the study without any penalty or loss others are entitled.

This research has been reviewed and approved by the Institutional Review Board-Human Subjects in Research. For research related problems or questions regarding subject's rights, the Human Subjects Committee maybe contacted through Dr. Juan Gonzalez, Chair, at 956-381-2880.

Should you have any questions about the study or procedures please call Lillian L. Pedroza, C.E. Vail Elementary, La Feria I.S.D., at 956-797-1712.

_____Yes, I give permission for my child to participate.

_____No, I do not give permission for my child to participate.

_____ _____

Parent Signature Date

Sincerely,

Lillian Lee Pedroza
Masters of Special Education Candidate
C.E. Vail Elementary/ University of Texas-Pan American

APPENDIX E

ASSENT FORM

ASSENT FORM

I _____ student at C.E. Vail Elementary have been asked to participate in a research study. The purpose of this study is to provide information on the effects of self-monitoring hyperactivity in students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). The teacher and myself will use self-monitoring sheets to collect information about my behavior.

All the information obtained during this study will be kept confidential. My initials will be used in all written materials. The study will begin once all regulations have been in place. The date for when the study will began on the last week of October, and will last for approximately six weeks.

Participation in the study is voluntary. I may elect to participate and I am free to withdraw from the study without any penalty or loss others are entitles.

This research has been reviewed and approved by the Institutional Review Board-Human Subjects in Research. For research related problems or questions regarding subject's rights, the Human Subjects Committee maybe contacted through Dr. Juan Gonzalez, Chair, at 956-381-2880.

_____ Yes, I give my permission to participate.

_____ No, I do not give my permission to participate.

_____ _____

Student Signature Date

Lillian Lee Pedroza
Masters of Special Education Candidate
C.E. Vail Elementary/ University of Texas-Pan American

VITA

Lillian Lee Pedroza is a graduate student at the University of Texas-Pan American specializing in The Cultural Linguistically Diverse Exceptional Learner -a Masters in Special Education. Her projected date of graduation is May of 2002.

Miss L. Pedroza graduated in 1995 from the University of Texas Pan American, with a Bachelor of Arts in the field of Communication Disorders and a minor in Generic Special Education. She has been teaching Special Education students for the past six years.

Her address is 28586 S. Kansas City Road, La Feria, Texas.