The Effect of Barkley's Behavior Management Principles on ADHD children in inclusive classrooms: a case study

A research project presented to the Faculty of

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In partial fulfillment

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For the degree of

Master of Arts in Education

Emphasis: Special Education

By

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Under the direction of

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LEBANESE AMERICAN UNIVERSITY

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Dedication

To my husband, Moustafa; I really appreciate your everlasting support.

Without you, I would have never been able to make it!

To my son, Kareem and my daughter Jenna.

I love you!

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Abstract

This project involves a case study using Barkley's behavior management principles for students with ADHD which involve the application of specific behavior modification techniques in class aiming at teaching the ADHD child self-control, response inhibition and social skills training. The system emphasizes the cooperation of general education teacher, the special education teacher and the student. Two behaviors targeted: calling – out and out of seat. Pre-observations and observations during the program's implementation are conducted to examine the effectiveness of the behavior modification principles. The results show that the system is effective when consistency and collaboration between regular and special education teachers are present.

CHAPTER ONE

Context of the Problem

Students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) are usually placed in mainstreamed classrooms. One major challenge for teachers is managing the behavior of the ADHD child (Appelbaum & Appelbaum, 1995) because the presence of ADHD students places demands on the teacher and often results in potential loss of instructional time (Berliner, 1979; Brophy, 1987; Du Paul & Stoner; 2003).

Rationale

Children with ADHD are inattentive and overactive, and their impulsive behaviors significantly hinder their social and educational success. They often need behavioral, educational, medical, and social interventions in the general education classroom (Salend, 2001). Many teachers are uninformed about how to effectively manage the behavior of these children. Russell Barkley (1994), an authority on ADHD, has emphasized ten core principles for the behavior management of ADHD students in school settings. These principles are to be applied through different behavior modification techniques: positive, negative and social skills training. They stress the paramount role of teachers and practitioners who come in contact with the child, and view behavioral strategies as preventive measures for behavioral problems in classrooms. When teachers know more about these interventions, they will be able to deal more effectively with behavior problems of students with ADHD (Du Paul & Stoner; 2003).

My project is a case study of a child who is diagnosed with ADHD. The purpose of this study is to investigate the effectiveness of Barkley's ten core principles of behavior management when used with an ADHD child in an inclusive setting to help him reduce inappropriate classroom behaviors.

Significance of the study

First, it is important for educators that inappropriate behaviors problems be modified, and kept at a manageable level in order for children with ADHD and their peers to learn with minimum frustration and fewer disruptions (Din, Feng S & Martino, Merilyn, 2001). Barkley (1997) introduced 10 research-based principles. They emphasize consistency and cooperation and prompt behavior changes through a system of praises, rewards and mild punishment.

Barkley's ten core principles are:

- Rules and instructions must be clear, brief, and delivered through visible modes of presentation.

- Immediacy of the consequences

- Frequency of the Consequence

- Saliency of the Consequence

- Teachers "act not yack"

- Positives before Negatives

- Consistency

The chapter concludes that medications coupled with behavior modification programs, the behavior of the ADHD child improves drastically (Barkley; 2006).

Research Questions

The research questions investigated in the study are:

Will Barkley's behavior management principles improve the behavior of the child with ADHD?

Will this behavioral change be observable and measurable?

Will Barkley's behavior management principles solve the behavioral problems that the teacher might face during inclusion?

Method: Implementation of Barkley's Behavior Management Principles

Chapter three of this report describes how Barkley's behavior management principles are implemented on one ADHD child in an inclusive classroom setting. The class consists of 25 regular students with Fouad being only child with ADHD. The class has a regular teacher and a special education teacher who help Fouad stay focused, clarify concepts and help him control his impulsivity.

A system derived from Barkley's principles is created. Observations are done before and during the system are implemented. Two observable behaviors are targeted: calling out and out of seat. The regular and special education teachers collected baseline

- Anticipating problems

- Keeping Perspective

- Practicing Forgiveness(Barkley; 2006)

Second, it appears that in Lebanon, very few classrooms use a systematic research-based approach to deal with ADHD. The study makes a unique contribution to the field of classroom management and hyperactive students in that it suggests a well-researched, effective and practical behavior management program.

Summary of Literature Review

Chapter two of this report presents a literature review of recent studies on modifying the behavior of the ADHD child. Researchers have documented subtle neuro-anatomical differences in the brains of ADHD children that are responsible for behavioral inhibition, sustaining attention, and controlling emotions (Barkley; 1998). Consequently, ADHD children suffer from two simultaneous difficulties: inhibition of excessive inappropriate responding and initiating and sustaining required responses.

This chapter also explores documented research results of different forms of behavioral management interventions of ADHD children in the regular classroom. It also describes Barkley's intervention principles in classrooms that modify the behavior of the ADHD child.

data related to Fouad's behavior during Arabic instruction on five consecutive days for a week. They used the event recording technique to record observations.

The system was implemented for a month. The same observations were conducted for two weeks during the implementation period. Results revealed whether Fouad's behaviors improved and hence whether the program was effective.

Participant's Information

Fouad, a 10-year-old child, is of average intelligence as indicated by the WISC-R Test (IQ=91). He is diagnosed with ADHD - combined type at the age of 8 and has been on Ritalin (10 mg/ two pills per day) for the past six months. The assessment process included the administration of Barkley's rating scales for ADHD: school setting and home setting. Teachers' observations, parents' interviews as well as observations done by the social assistant in the rehabilitation center were also used during the assessment process. The neurological examination, including the MRI scan, showed no neurological damage.

Before being referred to the center, Fouad was in a public school until he reached second grade. He was not able to follow classroom rules or even sit in his chair for more than ten minutes. His behavior was affecting his academic performance. Teachers tried to provide in-class support through teachers' help as and peer-tutoring. However, Fouad's misconduct was highly detrimental to his academic performance. Fouad failed grade two twice; he was then moved to a rehabilitation center to receive the needed medical

attention, psychotherapy and necessary academic support that would prepare him to cope in a regular class.

During the special education process, Fouad was placed in a special class for a year with five other children who had emotional and behavioral problems. Fouad received psychotherapy twice per week. He was also receiving one-to one instruction (1 session /day) to capitalize on his academic weaknesses, especially reading.

Six months later, the special education team met to discuss Fouad's improvement. The team agreed that Fouad had shown improvement academically with all the services he received in the center. His grades rose from the 50s to the 60s. However, he was affected to a certain extent by the other children in his class whose problems were more severe; his self-esteem showed no major improvement as indicated by the center's psychologist. Thus, the special education team suggested that it might be helpful to include Fouad in a regular school and to provide in-class support by a special education teacher.

Operational Definitions

In the regular classroom, and as indicated by interviews conducted with the regular as well as the special education teacher, Fouad displayed the following behaviors during the first week: frequent interruption , leaving classroom and seat without teacher's permission, active defiance of teacher's directions or class rules, deliberate annoyances and blaming of others for his mistakes, argumentativeness, resentfulness, and anger.

When asked about the priority behaviors that need immediate modifications, both teachers agreed that they are mostly annoyed when Fouad is out-of his seat and when he is calling-out.

Out-of –seat: to leave one's place without the teacher's permission

Calling –out: to talk or blurt out answers without the teacher's permission.

Description of the Application of Barkley's Behavior Management Principles

Barkley's ten principles for dealing effectively with ADHD students will give teachers the necessary techniques that maximize the student's engaged time (Barkley; 2006). The following is a description of the ten core principles for behavior management of ADHD students and how these will be applied in this case study:

1. *Rules and instructions must be clear, brief, and delivered through visible modes of presentation:* Rules will be agreed on with Fouad and will be posted clearly on an easel facing Fouad's desk. The rules will be: 1. Follow directions given by your teacher 2.Stay in class 3. Do your best.

2. *Immediacy of the consequences:* Fouad will require more immediate feedback about his acceptable behavior. Feedback will be clear and specific, and will occur as soon as the target behavior takes place. This principle will be demonstrated in class through using the "color chart system". Fouad will be encouraged to follow the rules and "stay red". The

yellow square will be placed on the color chart every time Fouad breaks a rule. Fouad

will be rewarded after three consecutive "reds" and will not be rewarded after three

consecutive "yellows".

3. *Frequency of the Consequence:* Using the color chart system, Fouad will be given

feedback on his behavior every ten minutes because Fouad cannot sustain attention for a

longer period. He gets bored fast.

4. *Saliency of the Consequence:* As an ADHD child, Fouad might need more important

or salient rewards. In addition to praise, teachers will often provide physical affection,

privileges, tokens, and collectible items to motivate Fouad to persist in following rules.

As a group, teachers will also be using the "Big Deal System". On a large pizza

cardboard, and every thirty minutes, Fouad will put either a red pin or a yellow pin on the

pizza. A red pin means in seat and not calling out. A yellow pin means the opposite. At

the end of the week, the pins will be counted and Fouad will go out for lunch with his

favorite teacher when he gets 20 red pins.

During the third week, teachers will use a "token economy system". A plastic cup

will be placed on Fouad's desk. Every ten minutes, the teacher will place a token in

Fouad's cup if Fouad is following the rules. Fouad will exchange the tokens for

inexpensive gifts at the end of the day.

5. *Teachers will "act not yack"* when dealing with Fouad in the regular classroom, Teachers will always act with consequences; for every good behavior, there is a reward and for every bad behavior there is a negative consequence-a loss of a certain privilege.

6. *Positives before Negatives:* Teachers will explain the undesirable or negative behavior to Fouad by redefining the behavior problem into a more desirable one. At the end of every period, the special education teacher will work on a "follow up" period during which she will discuss with Fouad his behavior and evaluate his efforts during the period. The special education teacher will also suggest other ways by which Fouad's behavior will improve. After the new behavior has been reinforced consistently for at least one week,   teachers will begin punishing the undesirable behavior. Teachers will use mild punishment: Fouad will sit beside the teacher and will do some worksheet.

7. *Consistency:* Fouad's teachers will be consistent over time which means they will also respond in the same way across in the classroom as well as the playground during recess. They will use the "sign system" with Fouad to make sure Fouad knows what to do. A red sign means "raise your hand before talking". A yellow sign means "soft voices" and a green sign is "free play". Fouad will be encouraged to watch the signs and behave accordingly. The sign system will not be used during recess time. Teachers will make sure to be consistent in reinforcing rules and in giving feedback.

8. Anticipating problems: Teachers will try to anticipate problem situations. They will consider ahead of time the best ways to deal with them, develop a plan, share it with Fouad and classmates, and then implement them. This will be implemented through social skills training sessions that will take place twice/week for the whole class of 25 students. The teachers will describe social situations like fighting with a friend during recess and will encourage the whole class to suggest friendly ways by which these problems are solved.

The "brave talk" technique will be suggested. This technique encourages Fouad to talk about his problem instead of reacting impulsively.

The "turtle control" technique will also be applied. The technique is a four-step plan. It encourages the child to stop, focus, think and then find a solution to the problem; consequently, control his impulsivity.

9. Keeping Perspective: Teachers will keep perspective on the behavior problems that may arise. They will stay calm, keep a sense of humor about the problem, and will try to follow Barkley's principles in responding to the child.

10. Practicing Forgiveness: Teachers will forgive the anger, disappointment, or other destructive feelings that might arise that day due to Fouad's misconduct or disruptions.

Expected results

It is expected that Fouad will improve his out-of-seat and calling-out behaviors and will develop more self-control skills after the implementation of the system derived from Barkley's ten core principles.

Limitations

It should be noted that the implementation of this program requires consistency and collaboration between the staff dealing with the ADHD child. The inconsistency of the behavior of one member of the team might change the results.

Another limitation is the lack of generalization due to the sample size. The research is conducted on one case study. It has also been applied for two weeks only. Further investigation and application are needed.

CHAPTER TWO

Review of the Literature

Method

The literature review will tackle the following topics: ADHD, diversity and the challenge , emotional and social competence of the ADHD child, teachers' attitude towards their included ADHD students, techniques to minimize disruptive behaviors, Barkley's behavior management principles and system, teacher –administered intervention strategies, maintenance and generalization , and opinions about behavior modification programs.

ADHD, Diversity and the Challenge

ADHD is a major problem affecting hundreds of children in schools. These children are facing learning, behavior and emotional problems. Children who have the behavior characteristic of ADHD often find it difficult to attend to tasks, remain seated and resist distractions. They often exhibit impulsivity, variability in task performance, and significant academic, social and emotional difficulties (Barkley, 1997; Manning, &Miller, 2001; Smith, Brown, Bunke, Blount, & Christophersen, 2002).

Teachers are now confronted with the difficulty of designing appropriate strategies to meet students' diverse academic and social needs (Hill, 2000; Hogan, 1997). The behavior of one student seems to spread to other classmates even when clear expectations are established (Smith & Rivera, 1995). Thus, it is important to create

appropriate approaches to manage classes with different learners, especially students with ADHD.

Emotional and Social Competence of the ADHD child

The model of emotional functioning that includes the skills of emotion expression, emotion identification or appraisal, and emotion regulation has been termed emotional competence (Saarni, 1989). Competence in emotional expression requires that children use socially appropriate facial expressions of emotion as well as use of vocal expression of emotion through both the quality of speech and the words used (Norvitilis, Casey, Brooklier, & Bonnello, 2000).

Children with ADHD face emotional skill deficits that make it difficult for them to interact effectively with others or to succeed at tasks. Children with emotional skills deficits have been identified also as having social competence deficits (Gresham, Sugai, & Horner, 2001). These deficits in emotional competence skills have implications for the poor peer relations found among children with ADHD. Children with ADHD cannot understand how their feeling affect and affected by others (Norvitilis, Casey, Brooklier, & Bonello, 2000).Children who have emotional and social competence deficits may have a hard time getting along with peers at school. This is manifested through aggressive and hostile behaviors towards peers (Norvilitis, Casey, Brooklier, & Bonello, 2000; Bagwell, Molina, Pelham, & Hoza, 2001; Herpertz, Wenning, Qunaibi, Sass, & Herpertz-Dahlmann, 2001). Thus, the emotional competence of the child manipulates his behavior.

Teachers' Attitude towards students with ADHD

Previous research studies have shown that teachers' attitudes and expectations toward students with ADHD affect students' performance (Hepperlen, Clay, Henly, & Barke', 2002; Barton, 1992). The degree to which general education teachers have emotions of attachment, care, indifference, and rejection toward their students directly affects the ADHD student's educational experience (Cook, Tankersley, Cook, & Landrum, 2000).

In a study about the achievement of ADHD students in inclusive classrooms, it was found that ADHD students, who received more process questions, more praise, and less criticism from teachers, gained better scores and displayed more appropriate behavior (Cummins, 1998). Teachers who are caring, understanding and supportive to ADHD kids had less chaos in their classrooms (Cook, Tankersley, Cook, & Landrum, 2000; Hepperlen, Clay, Henly, & Barke, 2002). Consequently, teachers' attitude towards the child affects the way he\she behaves.

Classroom Organization and Management

Classroom organization and management are important concerns. These are the base of a great work in teaching (chiles, 1997, p.114). These measures must be carefully planned and implemented by the teacher. For both beginning and experienced teachers, misbehavior is unacceptable (Graham, Holt-Hale, & Parker, 1993). Inappropriate student behavior tends to ruin the stability in the classroom and therefore affect instruction and student learning (Du Paul & Stoner, 2003).

Evertson (1989) has identified some important elements in developing a classroom-management system. These are arranging the classroom, working on rules and procedures to allocate time. These critical areas make the "big picture" that the teacher must keep in mind in order to create a classroom-management system that works.

A valuable strategy that helps in better management is the use of routines. Each lesson should consist of a sequence of routines that are clearly understood by both teacher and students, and there should be a smooth move from one activity to another (Reynolds, 1992). In designing classroom routines, the teacher should keep in mind that it is that both teacher and student should apply the routines unconsciously. Key steps in establishing classroom routines include (1) identifying necessary routines and listing them, (2) articulating the rules for each routine, and (3) teaching each routine to the class explicitly. Unless order is worked on seriously, student "testing" behaviors may increase until the classroom becomes chaotic (Farlow, 1996). In any classroom, students will keep trying to test limits to determine what they can and cannot do in the classroom. These behaviors include talking out of turn, not following directions, and not getting to work immediately.

The rule –making procedure should be a learning experience. Rules are regarded as "an integral part of the instructional process. Discipline programs should not violate laws of good teaching" (Reid, 2001). Classroom organization and management affect the behavior of the ADHD child.

The ADHD child in the classroom- The behavioral manifestations

Students with ADHD show excessive *hyperactivity* in the classroom that is more accurately defined as spontaneous, uncontrollable, overt, purposeless motor activity that is internally driven by the students' greater rate of responding and exacerbated by their difficulty in self-regulation and sustaining attention (Calhoun &Greenwell, 1997). They show excessive fidgeting with hand, feet and objects, and they squirm a lot and have trouble remaining in their seats (Barkley; 1998). Symptoms' display was maximized when students with ADHD were required to modify their behavior according to a certain situation or according to the commands of others (Barkley, 1990).

Students with ADHD exhibit the following impulsive symptoms in the classroom: calling out, blurting out answers in class, speaking out of turn, interrupting others, talking excessively and badgering for a promised reward. Second, they might also be abusive to peers: physically and verbally (Cambell, 1990). They always engage in aggressive, immature, and uncooperative behaviors such as not sharing with others or failing to wait their turn during social activities (Swanson et al., 1993). Third, they exert careless academic errors especially in unclear, detailed, or complex tasks that require a delay in response (Reid, 2001). These impulsive symptoms can be linked to their self-control deficit that affects the separation of thoughts and emotions and guidance of behavior by the internalization of rules, and analysis and synthesis of explicit ideas. Students with ADHD have *poor organizational skills*. They have difficulty finding their books, keeping

their desks clean or finding their homework and are described as disorganized (Du Paul & Stoner, 2003).

Students with ADHD have *difficulty following directions* in the classroom. They appear not to listen, frequently forget, and fail to follow through on instructions (Hallowell, Edward M. & Ratey, John (1994).

Students with ADHD have particular difficulty during transitional time or shifting between tasks. This is attributed to their state regulation deficit of time use which renders them unable to regulate their activation state both in shorter intervals due to over activation with unorganized interfering stimuli, and in longer intervals due to state of under activation caused by a slow rate of presentation that requires greater persistence and more effective memory(French et.al., 2003).

Students with ADHD experience learning difficulties in the classroom when learning complex material, in drill and practice learning, and in regular classroom settings (Damasio, 1994).The high rate of off-task behavior of students with ADHD compromises both their performance on independent tasks and their ability to cooperate and be productive in group discussions (Barkley; 1998). Kids with ADHD disrupt the classroom and impede the process of learning. " the problems of the ADHD child don't stem from a lack of skill but a lack of self-control and ADHD is therefore not a problem with a child's knowing what to do but a problem with doing what the child knows" (Barkley, 2000, p.47).

Intervention for Individuals with ADHD: Traditional Approaches

Although pharmacological intervention is most likely the best supported treatment

for individuals with ADHD (Anastapoulos, Du Paul, & Barkley, 1991), the anticipated

effects appear to be restricted to temporarily reduced symptoms of overactivity,

inattention, impulsiveness, and short-term reductions in negative behaviors and increase

in academic productivity. This treatment appears to be less supporting for children who

do not demonstrate significant attention problems and for those who have a co morbid

internalizing disorder (Swanson et al., 1993).

Cognitive –behavioral approaches have received mixed reviews in the ADHD

literature. Abikoff (1985) recommended further investigation of these approaches, after

concluding that the initial gains achieved with cognitive-behavioral approaches do not

generalize and are not maintained. In a recent meta-analysis of 23 studies of the

effectiveness of contextualized (i.e., school-based) cognitive –behavioral interventions

for adolescents with aggressive behavior, Robinson, Smith, Miller, and Brownell

(1999) noted strong support for the effectiveness of this approach in reducing

hyperactivity\impulsiveness and aggression, as well as maintenance of effects over time.

Despite this positive recent meta-analysis, the intervention literature has largely

failed to support a single treatment for ADHD; Support now exists for the use of

combined interventions, specifically the pairing of pharmacological and behavioral

therapies (Pelham, 1989).

Although behavioral theory views behavior as a consequence result of antecedents and consequences, the tradition of behavioral intervention has been characterized by a disproportionate emphasis on consequences. That is, behavior that is considered desirable is rewarded and that which is considered undesirable is ignored or followed by punishment or removal from reinforcement. This emphasis on consequences is questionable when applied to individual with ADHD because of anecdotal reports and recent research suggesting that learning may be particularly difficult for such students (Damasio, 1994). An experience that is either punishing or rewarding will influence future behavior only if the feeling state associated with punishment or reward is firmly attached (consciously or unconsciously) to the memory of that experience (Alderman, 1996).

Behavioral interventions for students with ADHD

Students misbehave for a number of reasons, within several situations, and from several motivations (Arcia, Frank, Sanchez-LaCay & Fernandez, 2000). Therefore, the teacher must examine the classroom within which the inappropriate behavior occurs. Behavioral interventions or contingency-management techniques based on a functional analysis of the student's behavior are usually recommended as treatments for the behavioral problems of students with ADHD (Pfeiffer & O'Leary; 1996).The classroom based behavioral management interventions that were often recommended for students with ADHD included token economies, contingency contracts, response cost, peer-mediated interventions, school-home report cards, and time-out (Garrick Duhaney, 2003).

Minor misbehaviors can be easily overcome through eye contact, a touch, moving closer to the student or calling on him\her. Prolonged misbehavior will need more direct intervention. The teacher must face the situation, set the appropriate behavior, and settle for what she decides. One common form of inappropriate behavior is interrupting class discussions (Winebrunner; 1996). This behavior can interfere with student learning because it ruins the flow of instruction and time on-task. Techniques for preventing such incidences include setting clear expectations, supplying models for appropriate behavior, and establishing routines that enhance self-control in the classroom(Charney ; 1998).

Charney uses the following strategies to overcome the " blurts-outs" in her classroom: (a) giving children a clear explanation of the expected tone to be used in the classroom, (b) listing, defining and reinforcing expected student behaviors, (c) developing a set of strategies and acting them out, (d) setting up routines that show that self-control is important, such as wait time,(e) setting predictable consequences for blurting out so that student can't ignore the rules(f) having students start over when there is a communication break-down (f) encouraging the class to be disruption- free , especially when the class is very excitable.

Some of the techniques that work with ADHD kids include a (a) different seating ways, (b) break time during seat work, (c) use attention self-monitoring to increase on task behavior, and (d)a use of positive reinforcement (Reis, 2002).

Research indicates that communicating to the students' families is essential to change the behavior of students who have ADHD (Reid, 2001).Parental support at home may include (a) checking completing the homework, (b) talking in a quiet voice, (c) waiting his\her turn to speak when his/her parents are in conversation, (d) and sitting properly when dining with the family (Reis, 2002). Parents have to provide a weekly feedback about their child's behavior to the teacher by writing a report.

Research has also shown that for children with ADHD, short class rules improve the behavior when they are combined initially with the teacher praise /positive reinforcement for following the rules and mild punishment for rule disobedience (Reid, 2001; Rief, 1993; Parker, 1994).

It is very important that the teacher use strategic positive attention; teachers are to look for "catch them being good" by applying differential reinforcement of alternative behaviors (Garrick Duhaney, 2003).

Barkley's Behavior Management Principles

Russell Barkley discusses behavior modification strategies and the importance of consistent, positive, and immediate consequences. Barkley's ten principles for dealing effectively and beneficially with ADHD students support teachers and bring order and learning to their classrooms (Barkley; 2006).

1. More immediate feedback and consequences: ADHD children require more immediate feedback about their behavior. Feedback must be clear and specific, and must take place as soon after the target behavior takes place.

2. More Frequent Feedback and Consequences: ADHD children require these types of behavioral consequences more than other normal children.

3. More Salient Consequences: These are needed to motivate the ADHD child to work, follow rules, and behave well. Since ADHD have a reduced sensitivity to rewards as Barkley explains, it makes sense that larger, more important or salient rewards are to be used with ADHD children. In addition to praise, teachers will often have to provide other consequences, such as physical affection, privileges, tokens, and collectible items to motivate ADHD children to persist in following rules.

4. Teachers should "act not yack" in dealing with the behavior of children with ADHD in the classroom.

5. Positives before Negatives: when teachers wish to change an undesirable or negative behavior in an ADHD child, they should first define the behavior problem into its positive alternative. This will lead them to watch for that positive behavior, praise and reward it when they see it. After this new behavior has been rewarded consistently for at least one week, teachers will begin punishing the undesired opposite behavior. Punishment is mild and teachers should be selective.

6. *Consistency:* Teachers need to be consistent over time. They should not get tired too soon when they are starting a behavior change program. They should also respond in the same way in different places and settings.

7. *Anticipating problems:* Teachers should try to anticipate problem situations. They should consider ahead of time the best ways to deal with them, develop their plan, share it with the child, and then implement the plan.

8. *Keeping Perspective:* It is important to keep the right perspective on the behavior problems that may arise. Stay calm, have a sense of humor about the problem, and try to follow Barkley's principles in responding to the child.

9. *Practicing Forgiveness:* Teachers should ignore the anger, resentment, disappointment, or other personally destructive emotions that might arise due to the children's misconduct or disruptions. ADHD students do not always control what they do.

10. *Rules and instructions must be clear, brief, and delivered through visible modes of presentation.*

Barkley's Teacher –Administered Intervention Strategies

For the past 100 years, it was thought that ADHD was due to bad parenting, personality problems, and environmental pollution; however, none of these has shown to be true. Studies performed by the Natural Institute of Mental Health have shown that certain areas in the brain of the ADHD child are less active. These areas control impulses, attention and sensitivity to reward (Barkley; 2006).

Bronowski (1977) as well as many other researchers have speculated that ADHD children display diminished reactions to delayed consequences, or fail to maintain their effort toward rules and work when the consequences for performance are weak, delayed or unavailable (Hallowell & Ratey, 1994). If ADHD is in fact a developmental delay in the regulation of behavior by rules and their later consequences, then interventions should directly alter the pattern, timing, salience of such consequences in the classroom. Such procedures are precisely those provided by behavior modification (Barkley, 1998).

With the recent trend toward viewing ADHD as a potential problem in inhibition, a most compelling rationale now exists for using behavioral interventions with ADHD in the classroom. Teachers must understand that ADHD is a disability and students with this disability should be dealt with from this perspective.

Teacher –administered consequences are the most commonly used behavioral interventions with ADHD students (Barkley, Shelton, Crosswait & Meteria, 1996). A

combination of positive consequences: praise, tangible rewards and token economies and negative consequences: reprimands, response cost and time-out has been shown to be optimal. Their success with ADHD is highly dependent on how and when they are administered (DuPaul & Stoner, 2003).

I-Positive Consequences:

A. Praise and other forms of positive teacher attention such as smiles, nods, and pats on the back have documented positive effects on ADHD students. Praise appears to be most effective when it specifies the appropriate behavior being reinforced and when it is delivered in a genuine fashion-with a warm tone of voice. Praise is also more effective when it is delivered as soon as possible following the desired behavior. Active ignoring requires the complete and contingent withdrawal of teacher attention. The simultaneous use of praise and ignoring can be quite effective (Barkley, 1997; Pfiffner& O'Leary, 1996).

To assist teachers with remembering to attend and reinforce ongoing appropriate child conduct, several cue or *prompt systems* can be recommended. One such system involves placing large smiley face stickers about the classroom in places where the teacher may frequently glance (e.g., toward the clock on the wall). When these are viewed, they cue the teacher to remember to check out what the ADHD student is doing to attend to it if it is at all positive. A second system relies on tape-recorded cues. A soft tone can be taped onto a 90-or 120 minute cassette such that it occurs at random intervals. This tape is then played during class-either openly to the class or with a small, portable,

pocket-size tape player, with an earpiece for private monitoring by the teacher. Whenever the tone is emitted, the teacher is to briefly note what the ADHD child is doing and provide a consequence to the child: praise, token or response cost for the behavior at that time. It is recommended that the tape contain relatively frequent tone prompts for the first 1 to 2 weeks, which can then be faded to less frequent schedules of prompts over the next several weeks(Barkley; 1992).

Such a system can then be converted to a self-monitoring program for second-grade level or older students by providing the children with two small white file cards on their desk. One card has a plus (+) sign or smiley face and is taped to the left side of the desk; the other has a minus (-) sign or frown face and is taped to the right side of the desk. The teacher then instructs the children that whenever they hear the tone, if they are doing as instructed for that activity, they can award themselves a hash mark on the plus card. If they were not obeying instructions or were off-task, they must place a hash mark on the negative card. The teacher's job at the sound of the tone is to rapidly scan the classroom and note the ADHD child's behavior, then note whether the child is delivering the appropriate consequence to him\herself.

The program can be made more effective by having an easel at the front of the classroom with a list of five or so rules that should be followed during that class period. The five rules for desk-work might be: stays in seat, stay on-task, don't space out, don't bug others and do your work. A third system for prompting strategic teacher attending and monitoring is to have the teacher place 10 Bingo chips in his or her left pocket that

must be moved to the right pocket whenever positive attention has been given

appropriately to the ADHD child (Barkley, 1990; Hallowell & Ratey, 1994).

B. Tangible rewards and Token Programs: ADHD students require more frequent and

more powerful reinforcement often in the form of special privileges or activities to

modify class performance (Barkley, 1998; DuPaul & Stoner, 2003). In a token economy

system, students earn tokens throughout the day and then later exchange their earnings

for "backup" rewards. Backup rewards are assigned a purchase value so that rewards can

be matched to the number of tokens or points earned. Some tangible or backup rewards

are distributed on a daily basis or on weekly basis.

The identification of powerful rewards and backup consequences is critical for

program success and may be achieved through interviews with children regarding the

kinds of activities or other rewards they would like to earn. Homework passes, removing

lowest grade, grab bag with small toys or school supplies, free time, computer time,

stickers, stamps, helping the teacher, playing special games, and doing art projects are all

effective rein forcers (Pfiffner & O'Leary, 1996).

C. Reward programs are very effective for the ADHD child (Barkley; 1998). It involves

the whole-class. Some sample programs include the following:

"*Big Deals*" stickers called big deals are earned individually and\or as a group for

exhibiting target behavior: following directions, sharing, using an assertive tone of

voice…etc. stickers are posted on a Big Deal Chart. Once the class earns a pre-determined number of stickers, the class earns a group party "big deal fiesta".

"Peg *system*" in this system for younger children, the teacher sets a timer for a brief period. (2-5 min).If the student follows all class rules until the timer goes off, he or she earns a peg kept in a cup. Whenever the child breaks a rule, the teacher earns a peg and re-sets the timer. At the end of the period, if the child has more pegs than the teacher, the child selects an activity for the class to do. Otherwise, the teacher selects the activity and the child does not participate.

Visual aids (cards) taped to students' desktops serve as a way to conveniently keep track of progress toward established goals. The cards may be divided into columns as described previously or they may depict colorful pictures to correspond with progress.

"*Lotteries and Auctions*" students earn tickets for a variety of target behaviors throughout the day and exchange them for chances in the lottery or items during class auctions offered at least once a week.

"*Team Contingencies*" children are divided into competing teams and earn or lose points for their perspective team depending on their behavior. The team with the greatest number of positive points or fewest points earns the group privileges. For example, teams may be divided by tables or rows. Points would be given to a team for behaviors of the

individual members, such as getting along, keeping area clean. The team with the most points or all teams that meet specified criteria earn the reward.

"Class movies and theme parties" to make it interesting, posters depicting the activity to be earned and a record of class progress toward earning the activity are helpful. For example, for every 15 minutes class members are on-task, the children in the picture are moved an inch closer to a picture of a theater. When they reached the theater, they earn the movie.

"The Good Behavior Game" the class is divided into two teams. Each team receives marks for rule violations of individual team members. After a specified period, both teams earn a reward if their marks do not exceed a certain number; otherwise, the team with the fewest marks wins. This game has proved effective in improving student behavior.

II-Negative Consequences:

A. Reprimands: Reprimands and corrective statements are the most commonly used negative consequences. The effectiveness of reprimands is a function of how and when they are delivered. A number of studies (Barkley, 2006) indicate that reprimands that are immediate, unemotional, brief and consistently backed up with time out or a loss of a privilege for repeated noncompliance are very effective. Proximity also seems to make a difference. Children respond better to teachers who deliver consistently strong reprimands at the outset of the school year: immediate, brief, firm and in close proximity.

The practice of using encouragement in attempt to coax a student into good behavior is not as effective as clear direct reprimands (Hallowell & Ratey, 1994; DuPaul & Stoner, 2003).

B.Response cost: response cost involves the loss of a reinforcer every time the inappropriate behavior occurs. Lost reinforcers can include a wide range of privileges and activities. Response cost has been always used to manage the disruptive behavior of ADHD children in the context of a token program. Response cost has also been used in a variety of other formats: color-coded response cost programs. In these program, students' behavior is reviewed every 30 minutes and they receive a color card corresponding. For example, the student starts the period with a red (the color presenting optimal behavior). Following the minor infraction, the color changes to yellow; following a major infraction the color changes to a blue. Color strips are either attached with Velcro or inserted in paper pockets to a board containing the students' names down one side and the period listed across the top. Color earnings are totaled one or two times per day. Weekly rewards based on daily earnings are also provided.

Response cost has also been implemented in a group format. In one procedure, a self-contained class was given 30 tokens each day at the beginning of a 90-minute period ((Hallowell & Ratey, 1994). A token was removed contingent upon each occurrence of an interruption by any student. Tokens were counted at the end of the period; remaining tokens were exchanged for I minute of reading time by the teacher.

C. Time-out: Time –out from positive reinforcement is often effective for hyperactive children who are particularly aggressive or disruptive. This procedure involves the withdrawal of positive reinforcement contingent upon inappropriate behavior (Barkley; 1997). Several variations are used in the classroom:

1. Removal of a student from the classroom situation, referred to as social isolation to a small empty room "time-out room" for short periods. Isolation time-out has been increasingly criticized over the years due to ethical concerns and difficulty in implementing the procedure correctly (Pfiffner& O'Leary, 1996).

2. "A good behavior clock" is earned for a target child and the class contingent upon the child's behaving appropriately for a specified period. A clock runs whenever the child is on-task and behaving appropriately but is stopped for a short time when the child is disruptive or off-task.

Time –out may not be effective when inappropriate behavior is due to a desire to avoid work or to be alone, because in these cases time out may actually be reinforcing. It is important that time out be implemented with minimal attention from teachers and peers (Barkley, 1998; Hallowell & Ratey, 1994).

D. Suspension: suspension from school is sometimes used as a punishment for severe problem behavior but may not be effective with students with ADHD (Hallowell & Ratey, 1994). The use of suspension violates several features of effective punishment. In-

school suspension programs may be appropriate for particularly chronic, severe, intentional infractions (serious aggressive and destructive behaviors). If in-school suspension is used, the suspension should be short-term (usually not more than a day or two) and have clear entry criteria, clear rules, and structured educational assignments for the student to do while they are away from the classroom(Barkley, 1997).

In a study conducted on six hyperactive boys ages 7 to 10, the effectiveness Barkley's behavior management principles were investigated. Results indicated that the self-control package derived from the principles was effective in improving misbehavior and attention to tasks during seat work but not during group instruction. The children were not able to follow up with the teacher when using the sign system or the color chart system because they were distracted by other peers. (Barkley; 1998).

Maintenance and Generalization

Maintenance occurs after withdrawing the treatment plan and stopping all behavior modification techniques. This continues to be a challenge. Unfortunately, generalization does not occur automatically. The most effective approach for promoting improvement in behavior in all classes and periods (recess, lunch) is to implement behavioral programs in all the settings in which behavioral change is desired (DuPaul & Stoner, 2003).

Token economies should not be removed abruptly. Gradual withdrawal of token programs may be accomplished by reducing the frequency of feedback (fading from daily

needs professional development and long-term commitment by all members of the school community. Schools can benefit "from having in place a clearly defined, consistently enforced behavioral –management system designed to support students in controlling their own behaviors" (Fitzsimmons, 1998).

Recent Findings

Children with ADHD have weaknesses in areas of test performance and cognitive functioning leading to deficits in problem solving and organizational skills, expressive language abilities, and\or fine and gross motor control. When these weaknesses are present, the risk for scholastic underachievement is compounded (DePaul & Stoner, 2003). On the other hand, some research findings indicated that this disorder does not appear to affect the general cognitive abilities of diagnosed children. This reinforces the assumption that ADHD is not related to a lack of ability, but rather represents a performance deficit (Barkley; 2006). Many children with ADHD do not evidence the specific cognitive deficits listed above. Barkley suggests that ADHD involves demonstrated inhibitory and executive function deficits not found among children with learning disabilities. Debonis (2000) views learning disabilities as having their foundation in cognitive factors and views ADHD as having behavioral foundations. Both, Barkley & Debonis underscore the importance of determining the occurrence of one, the other, or both in a given child who is struggling in the classroom with problems of learning and attention.

Conclusion

Attention –Deficit Hyperactivity Disorder (ADHD) produces aversive effects not only for children with the disorder, but for their parents, teachers, classmates, and significant others as well (Pavri, 2001). A variety of methods exist for the treatment of ADHD, including behavior modification, medications, and the combination of both.

The purpose for classroom organization and management is to help students to become self-initiating and responsible for their own behavior and to learn how to achieve well in school. The teacher's responsibility is to provide the framework and to intervene judiciously when needed. To do this, the teacher must be always aware of preventive and interventional considerations when responding to inappropriate student behavior.

Barkley's adaptation of Bronowski's theory (1977) of delayed responding to ADHD seems to provide a more elegant explanation of existing research findings, a deeper appreciation for the pervasive impact of this disorder on daily life, and exciting suggestions for numerous future research explorations. Improve the capacity for delay, and these functions should act more proficiently, feeding forward information that guides adaptive behavior (Barkley; 2006).

Children with ADHD need love, acceptance, discipline and the right to grow and learn. Each ADHD child has his or her own individual learning style regardless of the group to which that individual belongs. The strategies I listed in my literature review can give the teachers a variety of useful applications that can be applied in their classrooms to

modify their ADHD student's behavior. Behavioral modification and educational

planning will result in improving ADHD students' achievement and behavior as well.

Success with ADHD depends upon the collaboration of all those involved: the regular

teachers, special educators, parents, and peers.

CHAPTER THREE

Method

Introduction

The method adopted for modifying the behavior of one ADHD child is a research-based, multi-step procedure. The teachers' attitude toward students with ADHD, and the emotional state of the ADHD child were also investigated because they are major factors that affect the way the ADHD child behave in class as shown in many studies (Pfiffner & O'Leary, 1996). The behavioral manifestations of ADHD were also examined since the understanding of these characteristics help the teacher find ways to deal with the ADHD child (Barkley; 2006). Last, behavioral interventions from the literature were carefully examined and specifically Barkley's ten core intervention principles. These were applied on one student in an inclusive school. The system was implemented for one month; observations were then done over two weeks of the implementation of the program. Baseline data was collected for a week before the system was implemented. Observations were done during the implementation of the system for two weeks and over a week after the behavior management strategies were stopped (Reversal Period). Refer to the appendix to check the observation sheet.

Student Information

Fouad was placed in Miss Lina's regular class with 25 other children. During the first two weeks, Fouad was not able to follow class rules or any kind of structured instruction. He showed no respect for classroom rules, wandered around the room during

seatwork, blurted out answers and called out comments and answers. He even left class without taking the teacher's permission.

Team Planning

Miss Lina, the regular education teacher, and her support, Miss May, the special education teacher, agreed to work together to improve Fouad's behavior. They decided to adapt Barkley's behavior management principles of ADHD students in school setting and specifically those that are described clearly in the videotape "ADHD in the classroom" (Barkley; 1998).

The special education teacher prepared a survey about the list of reinforcers Fouad would like to have as rewards. Fouad arranged these reinforcers in a hierarchy from the most to the least favorite. Fouad's favorite reinforcers were (1) To paint horses (2) To spend some time with favorite teacher (3) To play basketball with a friend (4) To surf the internet. These are to be used when Fouad's behavior needs to be reinforced.

The Implementation of Barkley's Behavior Management program

Barkley's behavior management techniques that are clearly described in the videotape emphasize the use of four techniques: color charts, signs, point system and social skills training. These techniques are to be used on a consistent basis by the team working with the ADHD child and specifically the teachers.

First, Miss Lina and Miss May placed a visible reminder-the color chart -in class. The chart had all the students' names with six spaces next to each name- every space corresponded to a ten-minute interval. Every ten minutes, the teacher placed a square describing the behavior of the child: a red-for good behavior, yellow for –a can be better behavior and a blue square-for not abiding by the rule. They explained to the class the pre-fixed rules and specifically to Fouad. If the student broke a rule, he takes a blue. If he doesn't, he stays red. When Fouad collects three reds on the chart, he gets a reinforcer. If he has three yellows, he can have a less favorite reinforcer. The rule is: "stay red. It is not the color that motivated Fouad; it is what the color is associated with. The pre-fixed rules were (1) follow directions of your teacher (2) stay in class (3) Do your best. The color chart system was used for two weeks.

Miss May and Miss Lina used also a timer during seat-work to keep Fouad focused and provided frequent verbal reminders such as: "you have ten minutes to finish this activity."

Miss Lina and Miss May made sure to give feedback after every class for two weeks. Fouad was asked to evaluate his behavior at the end of every period: "What did you have today? Why did you take three yellows? What should you do next time to stay red?" Teachers also provided feedback in class through verbal praise, a tap on the back, or a smile.

Second, teachers used signs to help Fouad stay focused. When the red sign was up, Fouad had to raise his hand before talking. Yellow was associated with soft voices and green was associated with free time work. This was used for two weeks.

Third, the "Big Deal System" was used with the class as a whole for a week and as a way to motivate students to work as a group. Students placed a red pin on a large "pizza" cardboard every time they were following class rules. They placed a yellow pin on the pizza every time they were not abiding by the rules. When fifty red pins are attained, a really big reward was given (a pizza party, a pop-corn party, or a field trip).

Fourth, during the third week of the implementation of the program, Miss May and Miss Lina felt the need to add one new behavior modification program; they implemented the "token economy system". Teachers gave plastic chips to Fouad every time he displayed appropriate behavior. Fouad accumulated these during the day and at the end of the day, he traded them for inexpensive gifts: Fouad's teachers offered different stickers of horses-Fouad's favorite animal.

Fifth, when Fouad misbehaved, teachers used with him "mild punishment"-the task system. Fouad was given a piece of paper; he was reminded about the rule he broke and he had to write down on a piece of paper what he was supposed to do instead.

Sixth, they also used "time-out" for unacceptable behavior. Teachers removed Fouad from the situation and seated him alone in the classroom for ten minutes –the

purpose was to allow Fouad's emotions to subside and to provide an opportunity to reflect on his behavior.

Seventh, social skills training were also used with Fouad on daily basis. Fouad was encouraged to talk about his feelings alone and within the group everyday for five to ten minutes. In addition, teachers also used "acting out" situations or "brave talk" to explain to the students what they should do in certain situations: "What would you do if somebody pushed you? Do I push back? What do I do?"

Eighth, during recess, Miss May and Miss Lina encouraged Fouad to use the "Turtle Control" Technique. The technique is a four step plan. It encourages the child to stop, focus, think and find a solution to his problem; consequently, to control one's impulsivity.

Fouad's teachers applied the system in all its details. During the intervention period, Miss Lina and Miss May followed the system's rules. They were consistent and forgiving, tried to anticipate problems and plan solutions ahead. They collaborated to provide immediate feedback so that Fouad will differentiate between acceptable and unacceptable behaviors. All the above techniques were used by the teachers during the implementation of the system except for the color chart system. It was replaced by the token economy system after two weeks of the implementation of the program.

Teachers applied by Barkley's ten core principles of behavior modification of the ADHD child in school setting. Collaboration between both teachers helped improve Fouad's behavior.

Behavioral Observations

Baseline data related to Fouad's behavior was collected by the regular and the special education teachers during Arabic instruction on five consecutive days for five hours. Teachers recorded two behaviors: calling- out and out- of- seat behaviors using an event recording technique (see appendix A). The event recording technique was also used to record data during the treatment phase. Inter –observer agreement for each observation was determined in terms of occurrence frequency by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Inter – observer agreement averaged 98.8%for calling out behavior and 100%for out-of-seat behavior.

The same observation was conducted for one week after the behavior management principles were stopped for the reversal stage.

CHAPTER FOUR

Outcomes

Figure 1 and figure 2 in the appendix include the results of implementing Barkley's

behavior management principles on one child with ADHD in an inclusive setting. Two

behaviors are focused on: calling out and out-of-seat. The figures clearly show Fouad's

changes from undesired to more desired behaviors. During the intervention, Fouad's

calling out behavior and out of seat behavior decreased. When the color chart has been

implemented, Fouad earned "yellows" during the first week. During the second week,

Fouad has been able to "stay red". Fouad is rewarded according to the hierarchy of

 reinforcers that he prepared with Miss May. He has painted horses as well as spent

sometime with his favorite teacher.

Based on teachers' informal observations, Fouad has demonstrated better social skills

in interacting with peers during recess. His critical thinking abilities also improved

through the continuous drill of the "turtle control" technique. Fouad is now able to handle

one's impulsivity; he has also stopped putting himself into trouble as indicated by his

peers. Fouad's teachers are happy to see Fouad's behavior improving. Fouad is satisfied

and is motivated to know his teachers' positive feedback about his behavior.

During the reversal period, and after the behavior modification strategies have been

stopped, Fouad was still able to practice self-control skills. He was able to control his

impulsivity in class and during recess. He was able to maintain a good relation with his friends. Teachers have noted no fights with friends during this period.

During recess, Fouad always repeated the steps of the "turtle control" technique to himself to be able to control one's impulsivity.

CHAPTER FIVE

Discussion

The purpose of the study was to examine the effectiveness of Barkley's behavior management principles on one ADHD student in an inclusive setting. In this chapter, the main research questions were discussed and findings were compared with the reviewed literature.

Based on the results of this case study and specifically the two figures that describe Fouad's behavior during and after the intervention period, it is clear that Barkley's behavior management techniques implemented by Fouad's teachers have improved Fouad's calling out as well as out of seat behavior. The behavioral change is observable as shown in the two figures.

Teachers found the "color chart" system effective because (1) consequences were immediate (2) Rewards were salient (3) Rules were clearly stated and reviewed.

The token economy system worked well with Fouad because it was consistent, frequent and positive.

Regular teachers of other subjects indicated that if Fouad maintains a stable improvement in his behavior they are ready to include him in their classes and provide extra-sessions to fill in the academic gaps Fouad still has. Consequently, we can say that Barkley's behavior management principles facilitated inclusion.

Du Paul & Stoner have noted that "rewards should include teacher praise, hugs, and social attention for children less than five years of age, tangible rewards for children up to nine years, and activity rewards for older children."(DePaul & Stoner, 2003, p.112) During the second week, teachers used the token economy system with Fouad. Tangible rewards such as stickers of horses as well as activity rewards-going out with one's favorite teacher –worked well with Fouad.

Teachers used the "time-out" technique as a mild punishment procedure with Fouad. Time out is another consequence based strategy that incorporates the removal of the child with ADHD from a reinforcing situation swiftly, and for a specified ratio of time. According to Paul & Stoner (2003), this ratio equals to 1 min per every 2 years of age. In fact, the removal from the reinforcing environment is the most salient and effective variable in the success of the time-out strategy and not the amount of time spent. Fouad calmed down after the time-out period.

Barkley's behavior management principles implemented through different behavioral strategies proved to be effective when the teacher applied the principles consistently. Structure was also very important to Fouad and had improved his behavior. Pfiffner & O'Leary (1996) recommended putting the structure and incentives in place, then let the child be responsible for his behavior.

Concerning social skills of students with ADHD, the literature review showed that students with ADHD are usually at risk for being rejected by their peers, can not pick up

easily on social cues, and are desperate to make friends. Students with ADHD have problems with their emotional and social competence that might lead to anti-social attitude ((Pavri, 2001). Thus, teachers have to model social skills so that ADHD students would acquire the skill with practice. Fouad's teachers used the "brave-talk" strategy that helped Fouad consider other options to solve a problem rather than react impulsively. Communicating with Fouad about his\her behavior and giving him immediate feedback were effective in improving Fouad's behavior.

Classroom behavior treatments improve the "adaptive, aggressive, self-control and social skills but not academic skills" (Barkley, 2000).The behavioral plan implemented in my project contradicted Barkley to some extent. Based on teachers' observations, Fouad spent a longer time doing worksheets and applying concepts and his academic grades improved from the fifties to the sixties after the behavior plan has been implemented in class.

Barkley (2006) indicated that "It is the individual teacher who spends most of the time with the child. Teachers' understanding of ADHD and the consistent application of the principles of educational management had a significant impact on the success of these children in their academic career" .Fouad's teachers believed that their collaboration made   Fouad's behavior plan a real success.

CHAPTER SIX

Conclusion

The need to develop programs to enhance maintenance and generalization of teacher-administered intervention techniques with ADHD is paramount when managing behavior of ADHD students.

Teachers are critical elements in the success of ADHD children in school. By implementing the principles through different behavior modification methods, teachers could make a significant contribution to the educational progress and adjustment of children with ADHD (Barkley, 1997).

"The educational success of children with ADHD involves the support of teachers actively and willingly engaged in the process of working with ADHD. Effective improvements will require time and effort on an ongoing basis." (Barkley; 1998, p.97). It is true there are no guaranteed "quick fixes" or "sure-fire" treatments for students with ADHD. However, when effective methods are used in a consistent, systematic fashion, there are more chances for successful pushes (Barkley; 2006, p.69)

"Students with ADHD do not think before they act so much as they act before permitting time to think"(Barkley; 2006,p.34). The great poet, Rabelais, was once said, "Everything comes to those who can wait." Thus, the educators' mission is to teach ADHD students how to wait. Creativity to different ways is open!

Barkley's principles encourage teachers to use different behavior modification methods with the child and create their own behavior management system because what works with one student might not work with another. This is what special education is for: individualized and systematic.

Limitations

Although it yielded positive outcomes, the findings of this study are limited because it was applied on one case study. Generalization of these techniques to other students and other types of behavior problems may need additional research.

Recommendations for further study

The investigation of the effect of these behavior modification techniques on achievement is one issue.

Another issue is whether these strategies will have a positive effect on other students without ADHD.

Furthermore, in this study, the informal observations of teachers on the child indicated that he showed better social skills with peers during recess. Formal observations of social skills' improvement are to be investigated.

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Appendix A

Event recording student observation sheet

Weekly Sheet

Arabic Class

Observation time: 10:00-10-50 A.M

Target Behavior: **Calling out**   Target Behavior: **Out- of -seat**

Day\time	10:00-10:10	10:10-10:20	10:20-10:30	10:30-10:40	10:40-10:50	10:00-10:10	10:10-10:20	10:20-10:30	10:30-10:40	10:40-10:50
Monday										
Tuesday										
Wednesday										
Thursday										
Saturday										

P.S: The Observer fills in the corresponding space by putting a tally (/) every time the target behavior is observed.
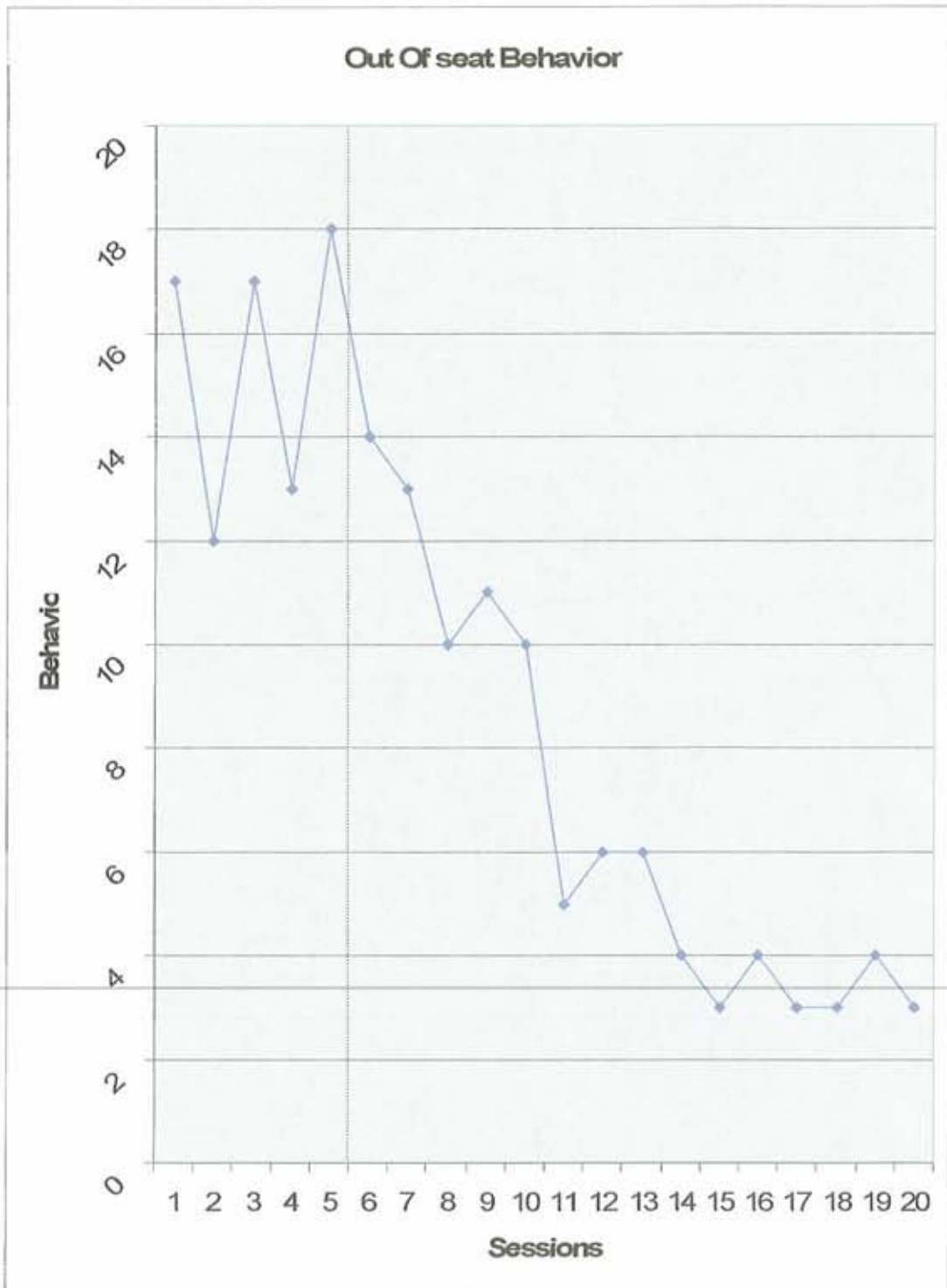
Figure 1

Figure 2

Calling-out Behavior