TREATMENT ACCEPTABILITY AND PERCEIVED TIME TO IMPLEMENT INTERVENTIONS FOR CHILDREN WITH ADHD MODERATED BY GENERAL EDUCATION TEACHERS' TRAINING IN ADHD AND DISABILITY LAW, AND ELIGIBILITY FOR DISABLING CONDITIONS

By

KIM BERNICE DIELMANN

Bachelor of Arts
University of Central Arkansas
Conway, Arkansas
1993

Master of Science
University of Central Arkansas
Conway, Arkansas
1996

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of

DOCTOR OF PHILOSOPHY
July, 2005

TREATMENT ACCEPTABILITY AND PERCEIVED TIME TO IMPLEMENT INTERVENTIONS FOR CHILDREN WITH ADHD MODERATED BY GENERAL EDUCATION TEACHERS' TRAINING IN ADHD AND DISABILITY LAW, AND ELIGIBILITY FOR DISABLING CONDITIONS

Dissertation Approved:

Terry A. Stinnett, Ph.D., Chairperson, Advisor

Judy Oehler-Stinnett, Ph.D., Member

Eric Mesmer, Ph.D., Member

Charles Davis, Ph.D., Outside Member

Dean of the Graduate College

Acknowledgments

I would like to express my heartfelt appreciation to the many people who have provided me with their support through the many challenges of the dissertation process.

Special acknowledgement is given to my committee members. I especially wish to thank Dr. Terry Stinnett, my committee chair, for his constant support in my full-speed-ahead approach to graduate school. I appreciate the reality checks given to me by Dr. Judy Oehler-Stinnett. It kept my feet on the ground as I kept my head in the sky. I would also like to thank Dr. Eric Mesmer for always softening the blow of critical feedback. Thanks to Dr. Bob Davis for his wisdom, expertise, and humor.

Special and heartfelt thanks go to my husband, Paul, and my son, Cory, for enduring the lack of family time involved in getting this monster finished. To Paul, thank you for offering to read it when you had other things to do and for spending your weekends staring at the back of my computer screen. To Cory, thank you for providing the challenge of recognizing the importance of this topic.

I am also grateful for the encouragement and support of my many friends and colleagues who helped me maintain a sense of balance and perspective during this process.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Introduction to the Problem

Attention Deficit/Hyperactivity Disorder (ADHD) is considered a disruptive behavioral disorder that creates significant problems in functioning because of symptoms related to hyperactivity, impulsivity, and inattention or some combination of the three [American Psychiatric Association (APA), 2000]. Historically, the disorder has undergone many criteria changes, which have in part been a response to concerns over diagnostic reliability, but these changes also suggest a societal expectation component to this disorder (Barkley, 1990b). There is great interest from parents and teachers toward its treatment because of the significant difficulties these individuals exhibit as children and well into adulthood (Vitaro, Tremblay, Gagnon, & Boivin, 1992).

History of ADHD

Attention-Deficit/Hyperactivity Disorder has been discussed in print over the past 2000 years in some conceptualized way (Goodman & Gilman, 1975). At the early part of the 20th century, the disorder was associated with deficits in moral control that appeared to be organic in nature and characterized by hyperactivity (Still, 1902). After an encephalitis outbreak in 1917 and 1918, the etiology of ADHD shifted to a disease model caused by brain injuries (Hohman, 1922). Medications, such as dextroamphetamines, were used to treat individuals who experienced a pattern of

restlessness, inattention, overarousal, impulsivity, and hyperactivity whether these behaviors were believed to be caused organically or from an injury (Bradley, 1937). ADHD was described as a hyperactivity syndrome for the first time in 1948 by Rosenfeld and Bradley, but Laufer and Denhoff (1957) are credited with providing the first behavioral description of "Hyperkinetic Impulse Disorder."

The American Psychiatric Association (APA) in 1968 included Hyperkinetic Reaction of Childhood disorder in the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II). The third edition replaced this label with Attention Deficit Disorder (ADD) with or without Hyperactivity (APA, 1980), placing the emphasis on attentional difficulties. The definition in the DSM-III-R brought back the overactivity component that was originally discussed in the literature by renaming the disorder, Attention Deficit/Hyperactivity Disorder (APA, 1987). The DSM-IV made only a qualifying change to the label to separate two facets of the disorder, inattention and hyperactivity/impulsivity (APA, 1994). In the DSM-IV-TR (Text Revision) the disorder, Attention Deficit/Hyperactivity Disorder, is currently divided into Predominately Hyperactive-Impulsive Type, Predominately Inattentive Type, and Combined Type (APA, 2000).

Prevalence in the classroom

ADHD is highly prevalent in the U.S. Generally accepted national incidence rates are somewhere between three and seven percent for school-aged children. Boys are also more likely than girls to be diagnosed with this disorder regardless of subtype (APA, 2000). However, research has demonstrated that the number of cases of ADHD in the general education classroom is perceived as much higher. Glass and Wegar (2000)

surveyed teachers about their actual and perceived classroom incidence of ADHD. Only 28 % of the teachers identified their classrooms as having an ADHD population of five percent or less. Thirty-six percent of the teachers reported 6-15 % as having or potentially having ADHD. Twenty-three percent of the teachers surveyed reported between 16-25 %, and 13 % reported 26 % or more of their students as having or potentially having ADHD. Class size seemed to be a mediating factor for the teachers' reports. For example, teachers with small class sizes perceived lower prevalence rates than teachers with larger class sizes (Glass and Wegar, 2000). High rates of perceived children with ADHD in their classrooms may overwhelm teachers especially when they are asked to provide modifications or develop interventions for these children.

Treatment Acceptability

According to Kazdin (1980a), treatment acceptability refers to "judgments by lay persons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client." Teachers are frequently asked to implement interventions and rate their effectiveness. Eckert and Hintze (2000) found that treatment acceptability may influence if and how the intervention is implemented.

Glass and Wegar (2000) found that medication management was an important component of teachers' acceptability of treatment options in their classrooms. In fact, a majority of teachers reported that stimulant medication was preferred even if the etiology of ADHD was environmental or a part of normal development. The American Academy of Pediatrics (AAP, 1987) and the National Association of School Psychologists (NASP, 1995) recommend that medication not be the first consideration for treatment and should only be considered if behavioral interventions have already been initiated, data are

collected as to the medication's effectiveness, and strong communication between the school, home, and medical personnel has occurred.

Effective behavioral interventions for children with ADHD have been extensively documented. Higgins (2000), Pisecco (2001), and Power (1995) found that general education teachers, particularly middle school teachers, prefer interventions that include a school-home component. Teachers in these studies typically did not perceive general classroom interventions alone as acceptable. Miranda, Presentacion, and Soriano (2002) attempted to validate a school-based multicomponent program that can be used by teachers in the treatment of children with ADHD without the use of medication. These authors found that systematic training in the knowledge and management of ADHD students increased teacher acceptability of the program as well as their efficacy in carrying out the interventions. However, treatment acceptability may not be related to treatment integrity, defined by Gresham (1989) as the accuracy and consistency with which each component of the treatment is implemented. Sterling-Turner and Watson (2002) found in their study on treatment acceptability and integrity that these two constructs are not related. Therefore, acceptability does not have to be present for integrity in the treatment to take place. However, as many of these authors suggest, increasing teacher acceptability of these interventions may be related to their own efficacy in providing these interventions (Broughton & Hester, 1993; Sterling-Turner & Watson, 2002).

Because there is a limited relationship between treatment acceptability and treatment efficacy, analogue studies evaluating treatment acceptability alone can be misleading in their conclusions. Asking teachers if they like a certain intervention is very

different from evaluating whether they would actually conduct the intervention. Currently, no research exists to evaluate if other analogue measures could be related to treatment acceptability or integrity. Perhaps asking teachers if they believe a certain intervention is acceptable is not sufficient to establish a relationship between acceptability and integrity. Asked teachers how much time they would be willing to devote to implementing the intervention (effort) may provide more insight into how motivated they are to demonstrate integrity in the implementation of the intervention. Therefore, one purpose of this study is to evaluate the relationship between treatment acceptability and perceived effort in implementing the intervention, and then to determine if effort is influenced by specific inservice trainings.

Teachers' Knowledge of ADHD

The confidence general education teachers have in educating children with ADHD in their classrooms is low. According to Bussing, Gary, Leon, Wilson-Garvan, and Reid (2002), most teachers reported reading at least one article, and about 60% had read a book about ADHD. Half of the teachers had received some preservice ADHD training during their education, and three-fourths had received inservice training after graduation, mostly of a brief nature. Of the teachers surveyed, 94% wanted more ADHD training.

It has been questioned as to whether inservice trainings on topics such as ADHD are helpful in increasing teachers' knowledge and management skills. Barbaresi and Olsen (1998) examined the effects of a four-day inservice training on elementary school teachers developed by the Children and Adults with Attention Deficit Disorder (CHADD) national organization. They found that the participating teachers decreased

their misconceptions about the etiology of ADHD as well as the pre-inservice reports of teacher stress related to working with male children with ADHD. Miranda, Presentacion, and Soriano (2002) identified positive results with a more extensive, multicomponent training module that allowed general education teachers to learn about ADHD and how to manage children with this disorder, and then spend one semester implementing interventions with identified children. Therefore, research supports the effectiveness of inservice trainings for improving the knowledge of the disorder and effective management of children with the disorder. Whether this increase in knowledge translates into an increased willingness to modify and accommodate for children with ADHD in the general education classroom is not well established. Therefore, another purpose of this study is to determine if inservice training addressing the knowledge and management of ADHD influences teachers' acceptability of proposed interventions and their willingness to devote time implementing the interventions.

Eligibility for Services

Children with ADHD have several options for meeting their educational and social/behavioral needs in public schools. The Individuals with Disabilities Education Act (IDEA) offers services under the category of Other Health Impaired (OHI) for qualified children by developing an Individualized Education Program (IEP) to address the specific needs of these children (U.S. Department of Education Federal Register, 1999). IDEA mandates how the IEP is to be developed, reviewed, and evaluated. ADHD is considered a medical condition that "results in limited alertness with respect to the educational environment" (Federal Register, March 12, 1999, p. 3-50). Not all children with a diagnosis of ADHD meet the criteria for OHI under IDEA. According to

the Office of Special Education and Rehabilitative Services (Federal Register, March 12, 1999, p. 12406), children with ADHD must have a disabling condition that "adversely affects a child's educational performance." Reid, Maag, and Vasa (1994) estimate approximately 50% of children with ADHD do not qualify for special education services under IDEA. For instance, children may have significant behavioral disruptions in the classroom, but are still able to perform academically.

Besides the Other Health Impaired category under IDEA, there is a general education initiative option for children with ADHD. According to the Office of the Federal Register (2000), Section 504 of the Vocational Rehabilitation Act of 1973 (Public Law 93-112) provides non-categorical service delivery for qualified children without requiring the development of an Individualized Education Program (IEP), but it offers the same safeguards as IDEA for a free and appropriate public education (FAPE). The evaluation procedures for qualifying under either of these services are similar. Both are the result of a team decision regarding placement based on a nondiscriminatory evaluation including a medical evaluation if deemed necessary to make a decision about eligibility. These also include establishment of due process procedures that allow parents and guardians to be informed about their child's placement, review their child's records, and challenge decisions made by the school regarding their child (Federal Register, 2000).

One large and controversial difference between IDEA and Section 504 is that services provided under Section 504 are non-funded federal mandates. When school districts provide these services under Section 504, they do so without receiving any financial compensation. This can prove to be expensive for school districts (Duncan,

Forness, & Hartsough, 1995). Even though these services are available to children, eligibility does not always equate to appropriate treatment. A large number of children with ADHD, regardless of the eligibility decision spend the majority of their time in the general education classroom (Reid, Vasa, & Maag, 1994). General education teachers may not receive adequate training on disability laws related to ADHD. For instance, even though they receive specific inservice training on the knowledge and management skills of ADHD, they may not realize that attempting interventions before referrals for special education services are considered is legally mandated (Federal Register, 1999).

Goetz (2002) studied different methods for presenting training to teachers about the knowledge of terminology regarding accommodations for children with challenging behaviors. Results of this study revealed that participating in a training program, regardless of the format, increased teachers' knowledge of the terminology, and their beliefs about accommodating for children with challenging behaviors (efficacy) became more positive. Therefore, research suggests that inservice training related to knowledge of ADHD and accommodation terminology is also successful in increasing teachers' knowledge bases. It suggests that inservice training can influence teacher efficacy as well. However, the relationship between knowledge of the disorder or accommodations for children with the disorder and their acceptability for interventions is not well established. Furthermore, the extent to which the eligibility determination of children with ADHD (OHI, Section 504, Not Eligible) influences treatment acceptability is not known. Another purpose of this study is to evaluate the effect of eligibility for services on treatment acceptability.

Summary

In summary, general education teachers have reported a high prevalence of ADHD in their classrooms, particularly for boys, at rates significantly higher than those reported in epidemiological studies. However, teachers do not report high levels of confidence in providing interventions for children with ADHD. They report a lack of training in this area. Because of this lack of confidence and skill, they may not demonstrate adequate treatment acceptability, especially if they will be responsible for implementing the interventions. Therefore, general education teachers need appropriate training in the knowledge and management of children with this disorder. If these teachers do not have the skills to manage children with ADHD in their classrooms, they may be more apt to refer these children for treatment, which places the primary responsibility for managing ADHD behaviors on medication or special education teachers if the children qualify for services at all.

Unfortunately, many students do not qualify for services under IDEA. If they do qualify, the likelihood that these children will receive much of their education in the general education setting is high. Section 504 provides accommodations in the general education classroom, but as stated previously, general education teachers report that they lack appropriate training, confidence and skills to provide necessary interventions for these children. Therefore, teachers with a lack of training on the knowledge of the disorder and on the disability laws related to the disorder may be less accepting of suggested interventions, even if the interventions are usually rated as the most acceptable by general education teachers. However, treatment acceptability may not predict treatment integrity in implementing interventions. It may be important to assess the

amount of time general education teachers are willing to devote to implementing interventions in their classrooms as an analogue measure of treatment integrity. If treatment acceptability and perceived effort in implementing interventions are related and influenced by inservice training on the knowledge of ADHD and disability laws, then further research could assess the relationship between perceived effort and treatment integrity.

Purpose of the Study

The primary purpose of this study is to determine if inservice training on knowledge and management of ADHD, IDEA and Section 504 and eligibility for services contribute to general education teachers' treatment acceptability of interventions for children with ADHD and the amount of time they are willing to expend implementing interventions to treat these children. More specifically, the purposes related to teacher training are to determine: 1) if inservice training on the knowledge and management of children with ADHD and/or disability laws actually increases their knowledge of these topics, efficacy, and confidence, 2) which, if any, of these inservice trainings increase general education teachers' treatment acceptability of interventions related to children with ADHD, and 3) if these inservice trainings actually change general education teachers' willingness to spend more time on classroom interventions. The purposes related to eligibility for services are to determine: 1) if general education teachers differ in their treatment acceptability of interventions for children with ADHD who are eligible for services under either IDEA, Section 504, or who are not found eligible, 2) if these teachers differ in the amount of time they are willing to devote to implementing classroom interventions for children with ADHD who are eligible for services under

IDEA, Section 504, or who are not found eligible, 3) if there is an interaction between teachers' inservice training and eligibility for services on treatment acceptability and time to implement interventions.

General education teachers bear the primary responsibility to educate the majority of students who are diagnosed as having ADHD. Understanding these teachers' perceptions of their efficacy and confidence in making appropriate modifications, monitoring medication effectiveness, and handling behavioral and academic concerns for children with ADHD could help psychologists and school administrators understand the challenges these teachers face and provide training and support where necessary. If general education teachers are less efficacious and confident in teaching children with ADHD when they do not feel they have adequate knowledge of ADHD and appropriate training in managing these children, then specific inservice and support services could be developed to address these needs. Inservice trainings are a regular component of the educational curriculum. Teachers are required to attend inservice trainings as a part of their continuing education. Information about whether these inservice trainings actually increase teachers' feelings of efficacy and confidence and result in better practice is critical to understanding how best to train teachers. Specific to educating children with ADHD, many studies have examined the integrity of different programs for training teachers to intervene with this population with positive results (Barbaresi & Olsen, 1998; Miranda, Presentacion, & Soriano, 2002) Nevertheless, general education teachers still ask for more training in intervening with children with ADHD in their classrooms. Soodak, Podell and Lehman (1998) suggest that training opportunities should be provided

to general education teachers and the effects of more support and collaboration with other teachers or school professionals should be evaluated systematically (1998).

Currently, there are large discrepancies in the service delivery of children with ADHD in schools. Because no category exists for these children under IDEA, many children are served under Specific Learning Disabilities, Emotionally Disturbed, or Other Heath Impaired categories of special education, or under Section 504, which provides non-categorical service delivery. Often times, children with ADHD do not receive the most appropriate services to address their specific challenges. One reason may be general education teachers' lack of knowledge and training on disability law. It may be more comfortable for general education teachers to address the educational deficits than to intervene with the behavioral concerns. If general education teachers were more knowledgeable about the laws surrounding children with disabilities and if they were trained appropriately to provide those services, they may become more open to considering all options in serving children with ADHD in the general education classroom. Each of these variables, teachers' knowledge of ADHD and disability laws, and eligibility for services may contribute to how acceptable general education teachers find classroom interventions for children with ADHD and how much effort they are willing to devote to intervening with this population. This information could help school psychologists and other behavioral consultants understand why general education teachers may not be accepting of certain interventions with children with ADHD. Another benefit of this information could be an understanding of what motivates teachers' willingness to intervene with this population, thereby allowing these

professionals to target inservice trainings to meet their needs and provide them with adequate support to implement the interventions.

Research Questions and Hypotheses

The primary questions to be answered in this study include: how effective are inservice trainings at influencing teachers' treatment acceptability of classroom interventions and the time they are willing to devote to implementing these interventions; and whether general education teachers are more accepting of interventions for children who are identified as having ADHD but vary in their eligibility for services. Descriptively, the relationship between various demographic questions, such as years of educational experience, class size, reports of current ADHD students and perceived students, are examined to evaluate if any of these variables need to be covaried in the analysis of the specific research questions. Included in this analysis is an evaluation of the correlation between acceptability and effort to determine if these variables are related. The following list identifies the specific questions and hypotheses that were evaluated.

1. Is teachers' knowledge of ADHD, efficacy, confidence, and knowledge of disability laws improved after inservice trainings on these topics? It is hypothesized that inservice trainings on ADHD and IDEA/Section 504 increases their knowledge base for these topics as well as teacher's efficacy and confidence.
2. Does eligibility for services (IDEA, Section 504, Not Eligible) influence treatment acceptability and amount of effort when teachers are provided with different inservice trainings (ADHD, disability laws, and Combination)? It is hypothesized that the mean acceptability score and the mean amount of time

devoted to intervening with children with ADHD of teachers who are provided the Combination or ADHD inservice training will increase more than the mean acceptability score and the mean amount of time devoted to intervening of teachers who are provided the disability laws inservice training when eligibility changes.

Definition of Terms

1. "Children with ADHD" will be defined as boys, ages 5-11 years, who have been assessed by a school psychologist using a multi-factored assessment and found to meet the DSM-IV-TR criteria for ADHD Combined Type, and found eligible or non-eligible for IDEA or Section 504 by a multi-disciplinary team.
2. "General education teachers" will be defined as certified teachers who are employed full-time in public elementary schools in Oklahoma and Arkansas and whose primary responsibility is to teach the general educational curriculum. This research study is limited to general education teachers of students in grades kindergarten through sixth, because ADHD is typically identified in elementary school and treatments for this disorder appear to be most effective for children between the ages of 7 and 10 (MTA Cooperative Group, 1999).
3. "Disability Laws" will be defined here as IDEA 97 and Section 504 federal laws that apply to children with disabilities in public institutions.
4. "Effort" will be defined as the amount of time (measured in minutes per week) a teacher is willing to devote to implementing the intervention presented.

CHAPTER II

REVIEW OF LITERATURE

Attention Deficit/Hyperactivity Disorder

History of ADHD

Goldstein and Goldstein, (1998) note that Attention Deficit/Hyperactivity Disorder "is a disorder that over the past eighty years has been referred to by at least thirty descriptive terms." Helsel and Fremer (1993) argue that this disorder is marked by confusion in its etiology, definition, evaluation, and treatment because it lacked a general theory to explain the disorder. The history of ADHD demonstrates the trend to find a biological or idiopathic origin for this disorder.

The Greek physician Galen was reported to prescribe opium for restless, colicky infants (Goodman & Gilman, 1975). William Shakespeare in his play, Henry VIII, described one of his characters as having a "malady of attention" (Shakespeare, 1623). In 1845, Hans Hoffman, a German physician, wrote "The Story of Fidgety Philip" (Papazian, 1995):

> Let me see if Philip can
>
> Be a little gentleman;
>
> Let me see, if he is able
>
> To sit still for once at table;
>
> Thus Papa bade Phil behave;

And Mamma look'd very grave.

But fidgety Phil,

He still won't sit still;

He wriggles,

And giggles,

And then, I declare,

Swings backwards and forwards

And tilts up his chair,

Just like my rocking horse;-

"Philip! I am getting cross!"

See the naughty, restless child

Growing still more rude and wild,

Till his chair falls over quite.

Philip screams with all his might,

Catches at the cloth, but then

That makes matters worse again.

Down upon the ground they fall,

Glasses, plates, knives, forks and all.

How Mamma did fret and frown,

When she saw them tumbling down!

And Papa made such a face!

Philip is in sad disgrace.

Where is Philip, where is he?

Fairly cover'd up, you see!

Cloth and all are lying on him;

He has pull'd down all upon him.

What a terrible to-do!

Dishes, glasses, snapt in two!

Here a knife, and there a fork!

Philip, this is cruel work.

Table all so bare, and ah!

Poor Papa, and poor Mamma

Look quite cross, and wonder how

They shall make their dinner now.

This poem illustrates the perception that hyperactive children have a deficit in the ability to control themselves. A short time later Still (1902) described what is known as Still's Disease, a problem characterized by a lack of "moral control," which he defined as "the control of action and conformity with the idea of the good of all" (p. 1008). Just before his discovery, the common belief was that inattention, restless, and overaroused behavior was a result of a brain injury. He hypothesized that children who presented with these symptoms must have had some type of brain injury or brain dysfunction. He related these deficits in moral control with deficits in cognitive functioning. However, Still did not rule out the possibility that these deficits could have resulted from inherited factors or environmental experience. He also found a gender difference in the disorder with males having a higher prevalence. Sadly, Still believed that there was no chance for

improvement and that these children should be institutionalized as early as possible (Still, 1902).

In 1917 and 1918, following an outbreak of encephalitis, a group of children who had been diagnosed and treated for encephalitis, but no longer displayed the disease, began showing a pattern of restlessness, inattention, overarousal, impulsivity, and hyperactivity (Hohman, 1922). It was thought that this pattern of behavior resulted from some type of brain injury caused by the disease process and was described as postencephalitic (Bender, 1942). Bender's description of the disorder suggested that the site of damage was in the brain stem.

Kahn and Cohen (1934) agreed with Bender when they observed similar patterns of behavior. They suggested that individuals who had behavioral excesses that appeared to be out of their control were a result of brain stem damage. Yet, the population they studied had all experienced excessive motor responses only after known brain stem damage had occurred. Nevertheless, this theory of ADHD symptomology prevailed for the next forty years.

During the 1930's, observations of this theory led to research involving the medicating of brain-injured individuals. Bradley, at the Emma Pendleton Bradley Home in Providence, Rhode Island, began studying children who had been identified with cerebral dysfunction or organic brain syndrome. His work continued for over forty years and was considered the first systematic studies in the field of ADHD. Bradley and colleagues used dextroamphetamine to treat children with syndromes of cerebral dysfunction or organic brain syndrome (Bradley, 1937). These children had been diagnosed with behavioral symptoms attributed either to encephalopathy or to difficulties

at birth. Improvements were documented in 60% to 75% of these children (Bradley, 1937, 1950; Bradley & Bowen, 1940, 1941). He noted the lack of relationship among specific diagnosis, level of intellectual functioning, and improvement in general functioning in the classroom. Bradley considered the drug treatment as the primary reason for these improvements. Other researchers found similar results with different pharmacological treatments. Molitch and Eccles (1937) examined the effects of Benzedrine on intelligence scores in children. They noted that general behavior, compliance, and learning improved while intelligence did not.

World War II provided researchers the opportunity to study trauma to the head by various means (Goldstein, 1942). Findings supported the previous studies that brain trauma frequently resulted in a pattern of inattentive, restless, impulsive, and overaroused behavior. Strauss and his colleagues hypothesized that the underlying symptom of concern was distractibility (Strauss & Kephart, 1947; Strauss & Lehtinen, 1947). Strauss believed that if distractions were decreased, these children would demonstrate higher rates of compliance and learning (Strauss & Kephart, 1955). Researchers developed the minimal stimulation classroom in which teachers wore drab colors, the room remained undecorated, and windows were frosted; a special curriculum was also developed. The research literature, however, has never supported this type of intervention as significantly benefiting distractible, impulsive, or inattentive children (Sarasone, 1949).

Laufer and Denhoff (1957), a psychiatrist and a pediatrician working at the same facility as Bradley, were credited with the first behavioral description of the hyperactivity syndrome, although Rosenfeld and Bradley (1948) first described the syndrome with an identified cause nine years earlier. Bradley defined the primary characteristics of

hyperactive syndrome as involving short attention span, dyscalculia, mood labiality, hyperactivity, impulsiveness, and poor memory. Rosenfield and Bradley (1948) attributed these symptoms to the effects of asphyxia in infancy, anoxia, or hypoxia at birth. They also believed that late onset of these symptoms could be the result of illnesses such as pneumonia.

Laufer (1979) and Laufer and Denhoff (1957) described a disorder, which they termed "Hyperkinetic Impulse Disorder." Short attention span, poor concentration, variability of behavior, behavioral impulsiveness, and inability to delay gratification were considered characteristic symptoms of the disorder. In addition, irritability, low frustration tolerance, fits of anger, explosiveness, and poor school performance were also characteristic descriptors. Males were found to have a higher prevalence than females. The condition was apparent in infancy or early childhood. The authors also believed that family instability could worsen the prognosis for these children. This prevailing school of thought led to the creation of such terms as "minimal brain damage" and "minimal brain dysfunction" to describe this class of symptoms based on hyperactivity (Clements & Peters, 1962).

The American Psychiatric Association (APA) in the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II) defined these symptoms as Hyperkinetic Reaction of Childhood (APA, 1968). However, there was never any concrete evidence to support the theory that hyperactivity was the defining characteristic and by the late 1970's, overactivity in motor behavior lost its place as the primary symptom used to describe this disorder. Douglas (1972) identified the key symptoms as attentional deficits and impulse control. In 1980, when the third edition of the DSM was

published, the term Hyperkinetic Reaction of Childhood was replaced with Attention Deficit Disorder (ADD) with or without Hyperactivity (APA, 1980). Three symptoms, inattention, impulsivity, and overactivity, were identified as characteristic of this disorder.

The DSM-III altered the description of this disorder by emphasizing the attentional component. Individuals diagnosed with this disorder were divided into those with ADD without Hyperactivity if that symptom was not present, and ADD with Hyperactivity when all three symptoms were present (APA, 1980). The APA revised the name once again during the publication of the DSM-III-R changing it to Attention Deficit Hyperactivity Disorder, thereby marking the importance of overactivity to its defining qualities (APA, 1987). Instead of dividing the symptoms into three separate categories for each of the defining characteristics, the DSM-III-R offered a single list including all three characteristics. However, an individual who only had trouble with attention could be diagnosed as Undifferentiated ADHD.

In 1994, the publication of the DSM-IV found a punctuation change in the name to Attention-Deficit/Hyperactivity Disorder (AD/HD) and the typical symptoms were divided into two groupings: (1) inattention and (2) impulsivity and hyperactivity. Children exhibiting only problems in attention would be diagnosed with AD/HD Predominately Inattentive Type. Those exhibiting problems in hyperactivity and impulsivity would be diagnosed with AD/HD Predominately Hyperactive-Impulsive Type. And children who exhibit characteristics of all three symptoms would be diagnosed as AD/HD Combined Type (APA, 1994). Recently, the APA has updated the descriptive text of the DSM and presented it in the DSM-IV-Text Revision (TR). No

changes to the diagnosis of AD/HD were made in this revision (APA, 2000). Since the distinction between the three types was articulated, several researchers have speculated over whether AD/HD Predominately Inattentive Type is a distinctly separate disorder with a different pattern of comorbid psychiatric disorders and psychological impairments (Barkley, 1990b; Barkley, DuPaul, & McMurray, 1990). The evolutionary change in criteria may also reflect a cultural component to how the disorder is perceived.

There appears to be a cultural perspective in not only the definition of ADHD, but also in its etiology and course. Italian psychiatrists believe that ADHD can be traced to mother-child relationships, especially when there is mental illness identified with the mother. According to this viewpoint, which is highly linked to psychoanalytic representations, children identified as ADHD do not advance beyond "a depressive phase and maintain schizophrenic type mental mechanisms" (Polacco, Casella, & Condini, 1992, p. 15). The prognosis for these children appears poor.

In a study by Mann, Ikeda, and Mueller (1992), may also reflect a cultural component to how the disorder is perceived. Chinese parents reported that they value obedience in their children. When children fall outside of the mold, particularly those who are hyperactive or disruptive, they are not accepted by the culture. Chinese and Indonesian practitioners provided significantly higher scores for severity of hyperactive-disruptive behaviors than did Japanese or American practitioners in response to videotaped vignettes of four 8-year-old boys participating in individual and group activities. The Chinese viewpoint seems to illustrate the traditional "moral control" etiology.

The British Psychological Society (1996) has finally acknowledged the validity of the disorder. Great Britain tends to embrace the position that ADHD results from biology rather than from the environment. Recently, the British Broadcasting Company showed a documentary about children who have ADHD. It was entitled *Little Monsters* (Kewley, Facer, & Scott, 1994, in Goldstein & Goldstein, 1998). Presenting the disorder in such a light reinforces the belief that it must also be treated pharmacologically because it emphasizes the biological, organic component to the disorder. A large study done in Great Britain (Gray & Sime, 1989) found the most commonly reported student problems related to impulsivity (talking out, poor problem solving) hyperactivity (out of seat, disrupting others), and inattention (poorly completed school work). These problems are consistent with the difficulties identified in the United States, though the prevalence rates in Great Britain are still lower than in the U.S.

Other than the duration for which each country has recognized the disorder, different classification systems are used to define the disorder. A study by Bird, Jensen, and Cooper (2002) found that most countries other than the U.S. rely on the International Classification of Diseases and Related Health Problems- 10th Edition (ICD-10). According to the ICD-10 (World Health Organization [WHO], 1992), the diagnoses found in the ICD-10 meeting similar diagnostic criteria are labeled Hyperkinetic Disorders. These include Disturbance of Activity and Attention and Hyperkinetic Conduct Disorder. The cardinal features are impaired attention and overactivity: both are necessary for the diagnosis and should be evident in more than one situation (e.g. home, classroom, and clinic). Prematurely breaking off from tasks and leaving activities unfinished manifest impaired attention. The children change frequently from one activity

to another, seemingly losing interest in one task because they become diverted to another (although laboratory studies do not generally show an unusual degree of sensory or perceptual distractibility). These deficits in persistence and attention should be diagnosed only if they are excessive for the child's age and IQ.

Overactivity implies excessive restlessness, especially in situations requiring relative calm. It may, depending upon the situation, involve the child running and jumping around, getting up from a seat when he or she is supposed to remain seated, excessive talkativeness and noisiness, or fidgeting and wriggling. The standard for judgment should be that the activity is excessive in the context of what is expected in the situation and by comparison with other children of the same age and IQ. This behavioral feature is most evident in structured, organized situations that require a high degree of behavioral self-control. The associated features are not necessary or sufficient for the diagnosis, but help to sustain it. Disinhibition in social relationships, recklessness in situations involving some danger, and impulsive flouting of social rules (as shown by intruding on or interrupting others' activities, prematurely answering questions before they have been completed, or difficulty in waiting turns) are all characteristic of children with this disorder. The characteristic behavior problems should be of early onset (before age 6 years) and long duration. However, before the age of school entry, hyperactivity is difficult to recognize because of the wide normal variation: only extreme levels should lead to a diagnosis in preschool children (World Health Organization, 1992).

According to the WHO, a diagnosis of Hyperkinetic disorder can also be made in adulthood. The grounds are the same, but attention and activity must be judged with reference to developmentally appropriate norms. When hyperkinesis was present in

childhood, but has disappeared or manifested in another condition such as dissocial personality disorder or substance abuse, the current condition rather than the earlier one is coded (1992). In the U.S. the traditional classification-system is the DSM-IV-TR. Though many changes have been made to the diagnosis of ADHD over the years, the primary symptomology has remained relatively intact.

Diagnostic Criteria

The DSM-IV-TR diagnostic criteria focus on the symptoms of inattention, hyperactivity/impulsivity in children. Though parents usually first observe excessive motor activity, poor sleeping patterns, impulsivity, and short attention spans in toddlers, the APA cautions against diagnosing in children younger than age 4 or 5 years because of the wide variability in developmental activity compared to older children. It is common for these behavioral excesses and deficits to be present in young children. However, as children age these patterns become less common, which should make the children truly manifesting the disorder easier to identify (APA, 2000). The following criteria must be present for a diagnosis of Attention Deficit/Hyperactivity Disorder to be provided:

A. Either (1) or (2):

(1) six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

(b) often has difficulty sustaining attention in tasks or play activities

(c) often does not seem to listen when spoken to directly

(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

(e) often has difficulty organizing tasks and activities

(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)

(h) is often easily distracted by extraneous stimuli

(i) is often forgetful in daily activities

(2) six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat

(b) often leaves seat in classroom or in other situations in which remaining seated is expected

(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

(d) often has difficulty playing or engaging in leisure activities quietly

(e) is often "on the go" or often acts as if "driven by a motor"

(f) often talks excessively

Impulsivity

(g) often blurts out answers before questions have been completed

(h) often has difficulty awaiting turn

(i) often interrupts or intrudes on others (e.g., butts into conversations or games

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

(American Psychiatric Association, 2000, p. 85-93)

According to the DSM-IV-TR, individuals who are diagnosed with Predominately Inattentive Type while still relatively young may go on to develop Combined Type later. Also, when clinically significant symptoms are present but specific subtype criteria are

not met, an individual may be diagnosed with AD/HD in Partial Remission. Associated features may include low frustration tolerance, temper outbursts, bossiness, stubbornness, excessive and frequent insistence that requests be met, mood labiality, demoralization, dysphoria, rejection by peers, and poor self-esteem (APA, 2000). These associated features usually result in stressful family interactions, poor teacher and peer relationships, and difficulties in academic performance.

Problems in childhood

Children with Attention Deficit/Hyperactivity Disorder (ADHD) face many challenges at home with their families and at school with their teachers and peers. Although children younger than five are not usually diagnosed with ADHD, the difficulties that occur because of ADHD can begin as early as birth. An earlier study on the interactions of mothers and children with hyperactivity (Knobloch & Pasamanick, 1959) looked at correlates of maternal and child motor activity from infants and mothers in the Fels longitudinal study. They found that mothers of "hyperactive" boys felt negative about their babies, interacted less, and were less affectionate. Another early study of 16 families with hyperactive children (mean age 5 years) found that the mothers of the younger hyperactive children reported significantly higher stress than mothers of normal children (Pasamanick, Rogers, & Lilienfeld, 1956). These children tend to be at greater risk of accidental injuries and poisonings so parents must work harder to "childproof" their homes (Hartsough & Lambert, 1985; Mitchell, Aman, Turbott, & Manku, 1987; Taylor, Sandberg, Thorley, & Giles, 1991). Preschool teachers frequently complain about these children's restlessness, inattention, and oppositional behavior, which add more stress on the family (Campbell & Ewing, 1990). By 6 years of age, over

90% of children with ADHD will be labeled as problematic by parents or teachers (Barkley, in Mash & Terdal, 1997). Campbell and Ewing (1990) found that 67% of preschoolers with both hyperactivity and aggression at age 3 years continued to have behavior problems 6 years later when they were 9 years old.

Murphy and Barkley (1996c) suggested that parental depression may increase during early childhood. Parents tend to show dissatisfaction with their children's lack of responsibility with chores and activities (Barkley, DuPaul, & McMurray, 1990). This dissatisfaction trickles into the social world as these children try to develop relationships outside the home.

Peers tend to reject these children because of children with ADHD's selfishness, immaturity, heightened emotionality, conduct problems, and general lack of age-appropriate social skills (Pelham & Bender, 1982; Tyler, 1998). These results are found for girls as well as for boys. Robison, Sclar, and Galin (2002) studied office-based physician visits (OBPVs) resulting in a diagnosis of attention deficit hyperactivity disorder (ADHD) among girls and trends in the prescribing of stimulant pharmacotherapy (including methylphenidate) and found that the estimated number of OBPVs documenting a diagnosis of ADHD increased 3-fold from 1990 to 1998. Thurber, Heller, and Hinshaw (2002) found that girls with ADHD generally respond more aggressively and demonstrate less negotiating skills than non-ADHD girls do. Children with ADHD in general tend to associate with less desirable children because neighborhood children are apt to label them as undesirable (Barkley, in Mash & Terdal, 1997).

According to Miller-Johnson, Coie, Maumary-Gremaud, and Bierman (2002), being rejected by peers subsequent to 1st grade marginally added to the prediction of

early onset conduct problems in 3rd and 4th grades when 1st-grade Attention Deficit/Hyperactivity Disorder (ADHD) symptoms and aggression were controlled. Longitudinal research has documented that kindergartners who were rejected in kindergarten and in the second grade received more negative nominations, more fight nominations, less positive nominations, and higher teacher ratings of hyperactivity and aggression in kindergarten than kindergarteners who were rejected in kindergarten but not in second grade (Vitaro, Tremblay, Gagnon, & Boivin, 1992). Similar research has found that children with high ratings in kindergarten on hyperactivity and aggression were more likely than those initially rated average or low on hyperactivity and aggression to have third and fourth grade outcomes of peer-rated aggression and self-reported delinquency (Vitaro, Tremblay, Gagnon, & Pelletier, 1994). These researchers found that 46% of the rejected kindergarteners were rated high on hyperactivity and aggression. Furthermore, peer rejection partially mediated the predictive relationship between early ADHD symptoms and subsequent conduct problems.

Additionally, research has found that children with hyperactivity were more likely than comparisons to be aggressive for no clear purpose except to inflict harm on someone else (i.e., hostile) and were more likely to be aggressive to gain something of instrumental value, such as to win a game (Atkins & Stoff, 1993). These results support the hypothesis that the experience of peer rejection in the early school years adds to the risk for early onset conduct problems.

Children with ADHD tend to rate themselves more negatively than their peers do. Stewart, Mendelson, and Johnson (1973) found in a descriptive analysis that 56% of youth with hyperactivity self-reported more overtalkativeness, 63% reported quick

tempers, and 48% reported more recklessness than their non-hyperactive peers. There appeared to be a relationship between academic self-concept, academic attributional style (how much control they feel over their academic success) and academic self-efficacy in children with learning disabilities (LD), ADHD, and LD/ADHD combined. Results showed that children with LD and with LD/ADHD reported significantly lower scores on academic self-concept, academic attributional style and academic self-efficacy beliefs than typically achieving peers. No significant differences were found between children with LD and with LD/ADHD on these variables. However, the LD/ADHD group reported significantly lower scores on peer-relation self-concept than the other two groups (Tabassam & Grainger, 2002). Child ADHD referrals constitute a significant proportion of child referrals for mental health services (Goldman, Genel, Bezman, & Slanetz, 1998). ADHD significantly affects the child's emotional, family, school, and social functioning (Barkley, 1998b).

Problems in adulthood

Numerous researchers have all revealed that ADHD symtomatology persists into early adulthood (Mannuzza, Klein, Bessler, & Malloy, 1993; Taylor et al., 1996; & Weiss, Hechtman, Milroy, & Perlman, 1985). Weiss and colleagues (1985) found that two-thirds of hyperactive children followed-up in adulthood (at 25 years) retained at least one disabling ADHD symptom, compared with 7% of a normal control group. Children with ADHD tended to have difficulty with listening, reading, math, time management, memory, and written expression. As adults, they had similar problems in college because of an inability to focus on assignments, impaired concentration, and distractibility. They had frequent job changes because of poor performance, forgetfulness, and lack of

organization. Mannuzza, Klein, Bessler, Malloy, and LaPadula (1998) found that only four percent of hyperactive boys with ADHD who were referred at an average age of seven years, were treated, and were re-evaluated again at age 24 years, continued to have significant hyperactivity symptoms in adulthood. However, they were more likely to develop Antisocial Personality Disorder and nonalcoholic substance abuse (primarily marijuana use). Taylor et al. (1996) independently controlled for childhood conduct disorder in a four group design (hyperactive [HA], conduct disordered [CD], comorbid HA/CD and normal control groups) in their London epidemiological study and found that antisocial behavior in adolescent boys was not necessarily determined by childhood conduct problems. Thus, ADHD was a risk factor in its own right. The prognosis does not have to seem so bleak. Biederman, Wilens, Mick, Spencer, and Faraone (1999) demonstrated that treatment of ADHD during childhood dramatically decreased the risk of substance abuse in adolescence.

When an individual makes a request to a physician for an increased dose of the drug for the treatment of ADHD, it immediately arouses the suspicion of abuse or the fear of adverse consequences. The problem is particularly acute in adolescents and adults because the validity of the diagnosis for these populations is not well studied (Wilens, Biederman, Spencer, & Frances, 1994). Another reason that physicians are alarmed is because the empirical basis for treatment is less well established in adolescents and adults than for children (Sachdev, 1999; Wilens, Biederman, Spencer, & Frances, 1994). In addition, the co-occurrence of drug abuse is common, and many patients have the additional diagnosis of personality disorder (Biederman, Faraone, & Spencer, 1993).

In summary, individuals diagnosed with ADHD experience significant social/emotional difficulties that begin during early childhood and may continue throughout adulthood. Many times the treatment selected for these children can influence the prognosis. Understanding to what extent these deficits contribute to the overall functioning of children with ADHD may also influence the intensity of the classroom interventions and the educational placement.

Treatment/Eligibility Options

Medication

Historically, the most favored treatment option for children with ADHD has been stimulant medication. Stimulants have been shown to have beneficial effects including improved attention, reductions in disruptive and impulsive behavior, and increased compliance with instructions from adults (Brown & Sawyer, 1998). According to data from the United States Drug Enforcement Agency (USDEA, 2002), there had been nearly a 900% increase in methylphenidate (Ritalin) production over the period from 1990 to 2001. Ninety percent of the methylphenidate was being consumed in the United States for 'treatment of ADHD. From 1997 to 1999, the production of methylphenidate leveled off, only increasing by about five percent. However, from 1993 to 1999 the production of amphetamine (Dexedrine and later Adderall) increased by more than 3750%. By 1999, amphetamine production accounted for nearly 40% of the stimulants produced in the United States, the vast majority of which are used to treat ADHD. However, medications are not without side effects, some of which include insomnia, irritability, and loss of appetite (Zito et al., 2000). Many parents do not want their children to take such invasive treatments because the long-term effects are still unknown.

Due to the difficulty of working with children with ADHD who aren't treated pharmacologically and the training needed to effectively implement behavioral interventions in the classroom, teachers may be resistant to providing services for these children in the general education classroom. Hindered by time demands, lack of training, and low perceived or real parent involvement in managing their children's behavior, many teachers may opt to refer the child for special education services rather than intervene (Gage, 2002; Higgins, 2000; Pisecco, 2001; Power, 1995). Therefore, if a treatment, such as an intervention in the classroom is suggested, particularly without the aid of medication, teachers may demonstrate a lack of acceptability for that treatment.

When children suspected of having ADHD or those diagnosed with the disorder are referred, providing these students the most appropriate educational opportunities should be the utmost concern. There are several options available where service delivery can take place. Used most frequently is placement through special education under the Individuals with Disabilities Education Act (IDEA), a federal program that mandates that these children are provided with the most appropriate education in the least restrictive environment.

Individuals with Disabilities Education Act (IDEA)

The 1975 Education for All Handicapped Children Act (EHA), and its reauthorizations as the Education of the Handicapped Amendment of 1990 and the Individuals with Disabilities Education Act 1991 (IDEA), mandated that public schools make available to all eligible children with disabilities a free appropriate public education in the least restrictive environment appropriate to their individual needs (Federal Register, 1977, 1990, 1991). IDEA requires public school systems to develop

appropriate Individualized Education Programs (IEP's) for each child with an identifiable disability. The specific special education and related services outlined in each IEP reflect the individualized needs of each student. IDEA also mandates that particular procedures be followed in the development of the IEP. Each student's IEP must be developed by a team of knowledgeable persons and must be reviewed at least annually. The team includes the child's teacher; the parents, subject to certain limited exceptions; the child, if determined appropriate; an agency representative who is qualified to provide or supervise the provision of special education; and other individuals at the parents' or agency's discretion [20 U.S.C. 1401(11)].

Other health impairment, one of 13 disabling conditions under IDEA, is defined as having limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that (1) is due to chronic or acute health problems such as asthma, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and (2) adversely affects a child's educational performance. Congress conducted a special investigation in 1990 to hear arguments to consider new legislation that would make ADHD its own disability classification under IDEA. Congress did not pass this legislation, but they, along with the Department of Education Ethics Council, did recognize that children with ADHD were not being fully considered for special services (U.S. Dept. of Ed., 1991). Because ADHD does not have its own classification, many children are provided services under existing categories of IDEA, specifically Other Health Impaired (OHI), which has recently added ADHD to the list of possible medical disorders that qualify for service delivery [Section 300.7(c)(9)].

Children with ADHD and a comorbid condition may be served under the categories of Learning Disability (LD) and Emotional Disturbance (ED).

To qualify under OHI, a medical diagnosis is necessary from a physician and students need to demonstrate adverse academic performance because of the medical condition. Davila, Williams, and MacDonald (1991) found that the federal definition of OHI includes a "limited alertness that adversely affects educational performance." It was not until the 1991-1992 school year that students with ADHD could be considered OHI eligible. The U.S. Department of Education, however, does not report separate data to show how much the OHI category is being utilized for ADHD students. In an effort to gather this information, Forness and Kavale (2001) examined data from the U.S. Department of Education from the 1988-1992 school years (baseline) and compared it to the 1992-1996 school years. They found that there was a 7.3% increase in OHI placement during the first four years. However, during the last four years, there was a 23.3% increase in OHI placement. This suggests "68.7% of new children entering the OHI category during the last four years under review are children with ADHD" (2001).

Forness and Kavale (1997) state for a child to qualify as Learning Disabled under IDEA, average intellectual ability must be demonstrated, no emotional disturbance, hearing or visual impairment that would interfere with their performance can be present, an opportunity to learn the necessary material has to have been provided, and still academic performance is significantly below average. And finally, a diagnosis of ED is identified when a child exhibits one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance: (A) an inability to learn which cannot be explained by intellectual, sensory, or health

factors; (B) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (C) inappropriate types of behavior or feelings under normal circumstances; (D) a general pervasive mood of unhappiness or depression; or (E) a tendency to develop physical symptoms or fears associated with personal or school problems. The term includes children who have schizophrenia. The term does not include children who are socially maladjusted, unless it is determined that they have a serious emotional disturbance. These difficulties must adversely affect the educational performance of the child. To further differentiate an ED diagnosis under IDEA, the child's difficulties cannot be defined as "social maladjustment" (1997). These authors later suggested that none of these criteria for ED truly address ADHD symptoms (Forness & Kavale, 2001). In an effort to provide any services for children with ADHD, school personnel either classify them as either having a learning disability without any programming for difficulties related to their ADHD symptoms or as emotionally disturbed, which may not be an appropriate classification for most children with ADHD.

Bussing and colleagues (1998) screened for ADHD in 499 children in both LD and ED classrooms in grades two and four and found that 59 of those in LD programs were confirmed as ADHD and 58 in ED programs were confirmed as ADHD. McConaughy, Mattison and Peterson (1994) used the Child Behavior Checklist (CBCL) to screen for ADHD in 366 children in LD programs and 366 children in ED programs in three different states. Their results revealed 28.1% of children with presumed ADHD in LD programs. They also found that the average percent of children with ADHD in ED programs was about 44%. Other researchers have found similar results with percents ranging from 24 to 68% of children with ADHD in ED programs (Cullwood-Brathwaite,

1998; Duncan, Forness, & Hatsough, 1995). Even when these children are placed in Special Education programs, many remain in the general education classroom for a large portion of their day.

Lopez et al. (1996) studied special education eligibility decisions of 150 children and found that 33% of the children who met the criteria for ADHD were placed under the Learning Disability (LD) category, which does not necessarily meet their needs for their behavioral concerns. Only a small percentage of these children were placed under the Emotional Disturbance category. The more alarming statistic is that 25% of these children did not qualify for services at all. Reid, Vasa, and Maag (1994) estimate approximately 50% of students with ADHD do not qualify for special education services under IDEA. If the concerns of the teachers were great enough to refer these children for special services, it would seem logical that they need some intervention in order to be successful academically or socially. According to IDEA '97, "special classes, separate schooling or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily" (Federal Register, March 12, 1999, p. 12406). Other federally mandated services are available for children who are diagnosed with ADHD and may satisfy this requirement. These services are provided under Section 504.

Section 504

Section 504 of the Vocational Rehabilitation Act of 1973 (Public Law 93-112) prohibits discrimination based on disabling conditions by programs and activities receiving or benefiting from federal financial assistance; this protection was extended to

all citizens with disabilities through the Americans with Disabilities Act of 1990 (Public Law 100-336). This mandate provided noncategorical service delivery for qualified children without an Individualized Education Program (IEP), but it offers the same safeguards as IDEA for a free and appropriate public education (FAPE) (NASDSE, 1991).

In order for students to be protected under Section 504 they must meet one of hree criteria: (1) have a physical or mental impairment that substantially limits one or e major life activities (MLAs), (2) have a record or history of such an impairment, or are regarded as having such an impairment. MLAs specifically mentioned in Section include walking, seeing, hearing, speaking, breathing, working, caring for oneself, forming manual tasks, and learning. The MLA most frequently cited in the case of DHD is that of learning. Because the law makes no mention of specific categories of sabilities or conditions considered as disabling, evaluation for Section 504 eligibility oes not require the school to ascertain whether ADHD is present, make a diagnosis of DHD, or to attach that label (ADHD) to a child; neither does it require that a child reviously be medically diagnosed. Section 504 only requires the presence of a disability hat substantially limits an MLA. However, there are no operational criteria to define what constitutes a "substantial" limitation, so this determination is not objective. The Office of Civil Rights suggests that any child who has been diagnosed by a health or education professional as having ADHD should be considered for evaluation for eligibility for services under Section 504 (1991). However, Reid, Vasa, and Maag (1994) mention that ADHD is very much a general education problem as opposed to a special education problem, since most students with ADHD will spend the majority of

their time in the general education classroom. Reid and Katsiyannis (1995) suggest that further research needs to be conducted to determine how general education teachers will be accountable for accommodating students in their classrooms without additional training and close collaboration with parents and special educators to implement intervention programs and assess their efficacy.

Comparison

The evaluation procedures for qualifying under Section 504 are similar to IDEA. Both are the result of a team decision regarding placement based on a nondiscriminatory evaluation including a medical evaluation if deemed necessary to make a decision about eligibility. They also include the establishment of due process procedures that allow parents and guardians to be informed about their children's placement, review their children's records, and challenge decisions made by the school regarding their children. One large and controversial difference between IDEA and Section 504 is that services provided under Section 504 are non-funded federal mandates. School districts provide these services under Section 504 without receiving any compensation for doing so.

State and local school boards have demonstrated resistance to incorporating such an idea into the way they interpret federal policy. This may be partly because of the ambiguity of the issues, but also partly out of monetary concerns (Duncan et al, 1995). Because of this resistance, Reid and Katsiyannis (1995) have suggested that general educators may require additional training and experience with the mandate to implement appropriate interventions for students with ADHD who are being served under Section 504. If general education teachers or school administrators do not recognize 504

services as a legitimate eligibility option, it may influence their acceptability of suggested regular classroom interventions for students listed as 504.

Teachers' Treatment Acceptability

History of Treatment Acceptability

According to Kazdin (1980a) treatment acceptability refers to "judgments by lay persons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client." Treatment acceptability is important because it is presumed to be related to client behavior and satisfaction with treatment. Specifically, acceptable treatments are expected to be associated with greater client compliance and motivation, lower attrition rates, more positive behavioral outcomes, and greater satisfaction with treatment (Cross, Calvert, & Johnston, 1990). Thus, it is not only important to assess the intervention's effectiveness, but also its acceptability.

One area in which treatment acceptability is important is the treatment of child behavior problems in the classroom. Teachers are often confronted with behavior problems ranging in severity from daydreaming to destruction of property and aggression. Some behavior problems are difficult for teachers to manage without the aid of behavior consultants such as school psychologists. In many cases teachers are provided with treatment recommendations and asked to implement an intervention and rate its effectiveness. The effectiveness of these procedures depends a great deal on the teacher's commitment to the intervention and their willingness to carry out the procedures properly. Teachers who are not fully committed to a procedure may not take the time or effort to implement it properly or consistently. As a result, behavior problems may continue or even worsen. On the other hand, teachers who believe a procedure is

appropriate and likely to be effective are more apt to carry it out properly until desired results are achieved. Therefore, it is important to assess teacher acceptability of classroom interventions.

Beginning with Kazdin's research in the early 1980's (Kazdin, 1980a, 1980b, 1981), the primary approach to studying treatment acceptability has involved the use of analogue ratings. Using this approach, participants (teachers, parents) are presented with a description of a child who exhibits behavior problems. These descriptions, or vignettes, may differ on a number of variables including the age or gender of the child, or the severity of the behavior problem. Following the vignette, the participants are presented with a description of a proposed treatment for the problem behavior. In many cases, participants are presented with descriptions of several different interventions. After reading each treatment description, participants rate each treatment using any of several different questionnaires.

In these studies, vignettes are most frequently presented in written format, but Kazdin's earliest studies (Kazdin, 1980a, 1980b, 1981) included scenarios presented on audiocassette tapes. Although there have been no studies comparing written and audio presentation of case descriptions, Martens, Witt, Elliott, and Darveaux (1985) compared written versus videotaped case presentations. They found that the presentation mode did not affect acceptability ratings. Hyatt and Tingstrom (1993) evaluated the differences in rated treatment acceptability between written and videotaped presentations of proposed classroom interventions. One group of teachers watched a video presentation depicting a school psychologist describing the intervention to a teacher, while another group read written descriptions of the same intervention. Acceptability of the two modalities

depended on the type of treatment and whether or not the treatments were described using technical jargon. When technical jargon was used, the written description of timeout was found more acceptable than the video presentation. There were no differences in modalities for differential reinforcement (reinforcement of positive behaviors while ignoring negative behaviors). It would appear that more research needs to be conducted to determine if mode of presentation influences teacher acceptability ratings.

Many questionnaires have been created to measure treatment acceptability. Kazdin (1980a) developed one of the earliest measures called the Treatment Evaluation Inventory (TEI). This questionnaire is a 15-item instrument in which items are rated on a Likert scale ranging from 1 (not at all acceptable) to 7 (very acceptable). The item content covers a number of areas including how acceptable a treatment is, how willing the participant is to carry out the procedure, how cruel and unfair the procedure is, and how much the participant likes the procedure. The initial studies with the TEI examined college undergraduates' ratings of interventions designed to manage child behavior problems. The TEI was found to discriminate between the different interventions (Kazdin, 1980a, 1980b, 1981). The TEI has since been used to assess actual teachers' opinions of classroom behavior management techniques (Cavell, Frentz, & Kelley, 1986; Epstein, Matson, Repp, & Helsel, 1986; Hyatt & Tingstrom, 1993). Kelley, Heffer, Gresham, and Elliott (1989) developed a shortened version of the TEI (TEI-SF). The TEI-SF consists of nine items, which are rated on a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

Witt and Martens (1983) developed the Intervention Rating Profile (IRP) to assess the acceptability of behavioral interventions in the classroom. The IRP is a 20-item

questionnaire in which items are rated on a six-point Likert scale ranging from "strongly disagree" to "strongly agree." The items assess several factors including whether the intervention is appropriate for a given problem, whether it requires too much time to implement, whether it adversely affects other children, and whether it poses any undue risks to the child. The IRP was also found to discriminate between different interventions. Martens et al. (1985) modified and shortened the original IRP to 15-items (IRP-15). The IRP-15 was designed to yield a unitary measure of acceptability called "general acceptability."

Concerns about the time intensiveness of the IRP-15 prompted Tarnowski and Simonian (1992) to develop an abbreviated and simplified version of the IRP-15. This new scale is known as the Abbreviated Acceptability Rating Profile (AARP). This instrument consists of eight items, which are rated on a six-point Likert scale ranging from "strongly disagree" to "strongly agree." Tarnowski and Simonian found that the AARP retained the psychometric properties of the IRP-15 and could be completed in half the time. These and other measures of treatment acceptability can be used to assess how acceptable interventions are rated by others. These measures are based on the perception of treatment effectiveness. They do not assess whether the intervention is effective. Research has explored the efficacy of treatments for ADHD. The most widespread study of children with ADHD is the Multimodal Treatment Study of Children with ADHD.

Acceptable Treatments for Teachers

The Multimodal Treatment Study of Children with ADHD (MTA Cooperative Group, 1999a) is a comprehensive study of six independent research teams in cooperation with the Division of Clinical and Treatment Research of the National Institute of Mental

Health (NIMH) and the Office of Special Education Programs (OSEP) of the U.S. Department of Education (DOE). The overall purpose of the study was to determine what treatment was the most successful for children with ADHD (combined type) over a 14-month period. The four treatments under review were: medication, behavioral treatment, which consisted of parent training, school-based intervention, and a summer treatment program, combined treatment (medication and behavioral treatment), and routine community care (control group of "treatment-as-usual" which turned out to be medication for approximately 67% of the children).

Combined treatment and medication management were statistically significantly superior to the control. Combined treatment was superior to behavioral treatment on many measures and medication was not significant to behavioral treatment on most measures. The combined treatment group was superior to the medication group on most of the 19 measures. Children in the combined treatment group required lower doses of medication on average than the medication group. Families seemed to prefer the combined treatment and behavioral treatment groups to the medication group. Overall, treatment that included family and school involvement, behavior management, and medication was the most beneficial and preferred treatment for children with ADHD combined type, particularly for children ages 7 to 10 years old.

In Glass and Wegar (2000), found that 213 out of the 225 teachers reported that a combination of medication and behavior modification would most effectively control ADHD symptoms. Out of the teachers who believed that ADHD is a result of exogenous sources or just normal behavior (21.8%), almost 78% still included medication as part of their desired treatment for these children. Jensen et al. (1999) found that when parents

asked their doctors for medication, regardless of whether the children met the diagnostic criteria for ADHD, they were successful 90% of the time.

The American Academy of Pediatrics (AAP, 1987) noted that the use of medication should not be the first approach for ADHD; further, the AAP recommended that medication should not be considered a complete treatment program (AAP, 1996). Likewise, in their position statement on ADHD, the National Association of School Psychologists (NASP, 1995) strongly recommended that when medication is a consideration: (a) instructional and behavioral interventions should be used before beginning medication trials, (b) behavioral data should be collected for baseline conditions and during medication trials to evaluate medication effects, and (c) communication among school, home, and medical personnel should stress mutual problem solving and cooperation. Also, the AAP (1996; 2001) noted that in terms of treatment, pediatricians must work with parents and school personnel to manage the child's environment and curriculum appropriately. Thus, both national organizations (NASP and AAP) emphasize the need for collaboration between school psychologists and pediatricians to provide effective treatment for students with this condition.

Gage (2002) suggested that providing a rationale for a specific treatment did not affect teachers' acceptability of the treatment. Pisecco (2001) asked teachers of elementary children to rate the acceptability of four interventions: a daily report card (DRC), a response cost technique, a classroom lottery, and medication management. Then teachers rated their levels of agreement to the items of the Behavioral Intervention Rating Scale (BIRS). They found that teachers preferred the DRC to all other forms of treatment, and DRC was the only intervention that required parent involvement. Higgins

(2000) found that middle and high school teachers gave significantly higher ratings for School-home Notes than for Self-monitoring. School-home Notes were rated higher than Contingency Contracting but this difference was not significant. Teachers recognized the difference in severity of problem behaviors described in the student vignettes. The interaction between severity and order of students was significant. Type of teacher, i.e., general education versus special education, had a significant affect on acceptability ratings. Special education teachers report using Contingency Contracting more than other teachers do and they evaluate it higher.

Power (1995) had 147 elementary and junior high school teachers read vignettes depicting the use of behavioral interventions (BIs) of daily report (DR) and a response cost (RC) procedure and the use of psychostimulant medication in the treatment of Attention Deficit/Hyperactivity Disorder (ADHD). Teachers rated the acceptability of each. Teachers' ratings of acceptability were examined as a function of knowledge of ADHD and level of teaching experience. Results showed that elementary and middle school teachers rated DR as more acceptable than RC and stimulant medication. In addition, teachers rated medication as more acceptable when used in combination with BIs than when used in isolation. Knowledge of ADHD and years of teaching experience generally were unrelated to ratings of acceptability. Teachers typically do not perceive general classroom interventions as acceptable. However, when teachers are legally mandated to provide these interventions, acceptability does not necessarily increase, but compliance may increase.

It is important to explore how competent general education teachers feel in carrying out such an enormous task of educating students with special needs in their classrooms. Soodak, Podell, and Lehman (1998) examined general education teachers' attitudes about inclusion of students with disabilities in their classes. They surveyed 188 general education teachers who varied in teaching experience. The authors asked the participants to complete the Response to Inclusion Survey after reading a hypothetical scenario discussing the principal's plan to include a student with a disability in their class. The students in the scenario were identical except for their disability. The teachers also completed the Teacher Efficacy Scale, the Differentiated Teaching Survey, and the School Climate Survey.

Factor analysis of the Response to Inclusion Survey found a two-factor loading, hostility/receptivity and anxiety/calmness. Regression analyses were then conducted to determine how much student disability, school climate variables, teachers' self-reported engagement in differentiated teaching, teachers' personal efficacy (their beliefs about their own effectiveness as teachers) and teaching efficacy (the ability of teaching to overcome external influences on students), and participants' years of teaching experience and current number of integrated students in their classes related to their response to inclusion. Results of this study suggested that the interaction of student disability by years of teaching experience accounted for the most variance. Teachers were more hostile toward including students with mental retardation, learning disabilities, and behavior disorders than they are toward students with hearing impairments or physical disabilities. They also showed more anxiety towards working with students with mental

retardation. They tended to be fearful working with students with physical handicaps. The authors suggested that this fear and anxiety may result from lack of training and experience working with low-achieving and relatively immobile students. In regards to teaching efficacy, teachers with a low sense of teaching efficacy were hostile to the suggestion of inclusion regardless of their use of differentiated instructional practices. Personal efficacy was related to anxiety and hostility toward inclusion. Teachers with a high sense of personal efficacy were less anxious about inclusion. Also, teachers with low personal efficacy were more receptive to inclusion if they have opportunities to collaborate with other teachers or professionals. The only other school factor that mediated teachers' perception of inclusion was class size. Anxiety about inclusion increased as class size increased. The authors suggest that areas of future research need to focus on addressing those variables found to relate to teachers' hostility and anxiety about inclusion. They suggest that training opportunities should be provided to general education teachers and the effects of more support and collaboration with other teachers or school professionals should be evaluated systematically (1998).

General education teachers may have a larger challenge when providing services for students with ADHD. Whether they have the necessary training and support to provide those services is not well established. One group of researchers explored the perceived level of confidence general education teachers have in educating children with ADHD in their classrooms. Most teachers had read at least one article, and about 60% had read a book about ADHD. Half of the teachers had received some preservice ADHD training during their education, and three fourths had received inservice training after graduation, mostly of a brief nature. Of the teachers surveyed, 94% wanted more ADHD

training. Teachers expressed the lowest confidence in their ability to manage stress related to instructing students with ADHD. Class size and time requirements of special interventions were rated as the greatest barriers. Given these constraints, it would seem to suggest that teachers who have less training in the management of children with ADHD would support interventions that require less effort to implement. The authors suggested that general education teachers should receive preservice and inservice ADHD training, including skill-based teaching, and stress management. Smaller class size and the allocation of resources were identified as essential to ensure high-quality student education (Bussing, Gary, Leon, Wilson-Garvan, & Reid, 2002). Another study explored the attitudes and knowledge regarding ADHD of general education teachers. Results indicated that teachers had very little pre-service training in the area of ADHD and 90% of the teachers stated they could benefit from such training (Piccolo-Torsky & Waishwell, 1998).

Miranda, Presentacion, and Soriano (2002) measured general education teachers' knowledge and management skills with the Questionnaire of Knowledge and Management Procedures instrument before and after training. The authors found that the training program increased teachers' knowledge about how to respond to the educational needs of children with ADHD. They also suggested that the efficacy of any classroom intervention depends on the level of training of general education teachers about ADHD and appropriate management strategies. General education teachers who volunteered to participate in the program were assigned third and fourth grade students who had been previously diagnosed with ADHD. Differences between general education teachers who were trained using this treatment program (experimental group) and those who received

no such training (control group) were evaluated. Results in the posttest phase found significant differences between the two groups in their knowledge about the application of cognitive/behavioral techniques favoring the teachers who participated in the training program. No significant differences were identified on the behavior modification techniques or instructional management. Intragroup analysis of the teachers in the experimental group found that the teachers' knowledge about the application of behavior modification techniques, cognitive/behavioral techniques, and about the strategies and organization of schooling increased significantly after the training program. These findings suggest that this instrument could also be used as a needs-assessment for training and support, though no psychometric information has been collected to validate its use.

Teachers' Knowledge of and Experience with Disability Law

Compliance to school placement decisions and specific federal mandates have been studied in terms of legal cases filed when districts were not complying with appropriate service delivery. Section 504 has had the greatest attention drawn to it over failure to comply. Stoner and Carey (1992) argue that the vagueness of the evaluation procedures under Section 504 as well as financial concerns may contribute to the system's constraints limiting compliance with this mandate. There appears to be a significant lack of research to determine what if any teacher constraints may influence general education teachers to not comply with mandated service delivery.

In the area of teacher training and preparation, IDEA 97' created a new system of grants to improve results for students with disabilities through system reform, emphasizing personnel training and training for regular education teachers of early grades. Nevertheless, little data exist to support the effectiveness of any such training

(Knoblauch, 1998). A survey conducted by Conroy and colleagues (2002) revealed that states across the nation are developing disciplinary policies and monitoring procedures based on the provisions outlined in IDEA. Training and technical assistance are offered to school districts, but most often these are not mandated and are limited. Goetz (2002) studied the impact of three professional development training formats (i.e., inservice training only, collaborative consultation only, and a combination of inservice training and collaborative consultation) on teacher outcomes related to (a) knowledge of terminology regarding accommodating children with challenging behaviors, (b) beliefs about accommodating children with challenging behaviors, (c) decision-making skills regarding challenging behaviors, and (d) teacher satisfaction with training. Twenty-five elementary school classroom teachers participated in the study. Results indicated that teacher knowledge of terminology increased over the training period. In addition, teacher beliefs about accommodating children with challenging behaviors in the classroom became more positive because of participation in a training program. However, the type of training format did not appear to influence teacher knowledge, beliefs, decision-making skills, or satisfaction with these accommodations. Whether knowledge of and experience with school law influence general education teachers' treatment acceptability needs to be evaluated further.

Summary

The condition of ADHD is not new. Historically, there have been documented incidences of the behaviors usually associated with this disorder for several hundred years. Children with ADHD face extraordinary challenges in the areas of school, self-concept, and interpersonal relationships. Parents and other family members experience

frustration and stress related to raising children with ADHD. Peers often reject them. Teachers report hostility at educating them. Overall, the functioning of these children is poor. This pattern of maladjustment tends to continue into adulthood, creating difficulties for these individuals in relationships, college, and the workplace. Early intervention, though, has shown to be effective in treating this population. However, elementary school teachers do not feel confident providing the multidimensional treatment interventions necessary to meet the social, emotional, and behavioral difficulties of these children because of the time and effort these interventions require (Bussing, Gary, Leon, Wilson-Garvan, & Reid, 2002).

Furthermore, these children may require modified curricula to be successful. Educational services for children with ADHD can be provided through IDEA under the category of either Other Health Impaired or Emotional Disturbance, which addresses the behavioral and social/emotional difficulties of these children. However, many children do not qualify for services under these categories, forcing multidisciplinary teams to offer services under a comorbid classification, such as a Learning Disability. Many times, these children do not qualify under IDEA at all.

Services can also be provided to these children under Section 504. Whether a child qualifies for IDEA or not, this federal mandate provides children, who either have ADHD or are suspected of having it or are treated as someone with the disorder, with specialized services that meet their educational and behavioral needs. These services can be provided in the special education classroom, but more frequently are made available in the general education classroom. School districts have been slow to respond to Section 504 considerations even at the cost of legal ramifications. This stall may be in part

because of the lack of specificity in the law and the lack of funding it provides to school districts. However, children with ADHD do not require the federal mandates in order to receive services. Nonetheless, research on general education teachers' compliance in providing effective interventions that address children with ADHD's academic and behavioral concerns has not been promising.

Research has demonstrated that the most effective treatment is a combination of positive behavioral interventions, including a parent component, and medication management (MTA Cooperative Group, 1999a). Children who participate in these treatments demonstrate the best long-term outcome. Providing these interventions tends to fall heavily on the general education teacher's shoulders. However, studies have shown that teachers perceive a lack of preparation and efficacy in treating this population (Soodak, Podell, & Lehman, 1998). If teachers do not believe in the treatment, its effectiveness tends to be poor. Treatment acceptability by general education teachers may be critical to the outcome of classroom interventions and the ultimate success of children with ADHD.

CHAPTER III

METHODOLOGY

Participants

Participants for the study were elementary school teachers in Arkansas and Oklahoma who attended various scheduled inservice trainings at their respective schools. Teachers who taught kindergarten through sixth grade were targeted. Three-hundred-eighty-seven teachers were presented with one of three inservice training topics; one hundred-sixty-three participants agreed to participate in the study and completed the battery of pretest instruments, and out of whom 81 completed both pre-and-post measures.

Procedure

Principals and superintendents were contacted at various school districts throughout Arkansas and Oklahoma soliciting their participation to collect data in their schools. These administrators were asked to allow the researcher to collect data while conducting free inservice trainings on knowledge and management of ADHD students and disability laws related to working with children with ADHD in the general education classroom. If they wanted their teachers to participate, the principals were asked to sign a consent informing them of the nature of the study and their right to withdraw at any time without penalty (Appendix A-1). They were told that the study concerned teachers' perceptions of treatment acceptability and time to implement interventions for children

with ADHD. The school principals who completed the consent form were assured that their names and the schools' names would not be connected with their participation.

Once permission from a school was obtained and the dates for the inservice training were established (Appendix A-1), the principal investigator contacted the general education teachers who would be given the opportunity to participate in the inservice trainings at that site. Written consent to participate in the study was obtained from each participant (Appendix A-2). Schools that agreed to participate were divided randomly into three groups (ADHD training only, Disability training only, and Combination training). All teachers from a specific school who agreed to participate were provided with one of the trainings mentioned above. To ensure confidentiality, participants were provided numbered folders with the pre-test materials inside. Upon completion of these forms, participants could confidentially turn in the folder without identifying themselves or their responses. Participants were assured that their names would not be connected with their questionnaire responses except by the researcher, who had to ensure that each participant received the same vignette at posttest evaluation.

Participating teachers were then provided the pretreatment packet during a regularly scheduled staff meeting at their school that included: the consent form (Appendix A-2), demographic sheet (Appendix B), a vignette (Appendix C), the *Abbreviated Acceptability Rating Profile* (AARP; Tarnowski & Simonian, 1992) (Appendix D), the *Questionnaire of Knowledge and Management Procedures* (QKMP; Miranda, Presentacion, & Soriano, 2002) (Appendix E), the *IDEA '97 Training Quiz* (Dielmann, 2003) (Appendix F), and the *Section 504 Training Quiz* (Dielmann, 2003) (Appendix G). Completion of the pretreatment packet took about 20 minutes.

Approximately two weeks (Median = 2 weeks, 1 day) after completing the pretreatment packet, the general education teachers attended the previously agreed upon inservice training.

After all the data were collected, the inservice training concluded with a debriefing session to discuss the complete purpose of the study and to discuss the literature about children with ADHD and effective treatment interventions as well as a question and answer session for the participants. Not all participants chose to stay for the debriefing session. Incentives for participation were provided. Teachers who completed both pre-and-post measures had their names placed in a drawing for cash prizes.

Instruments

Independent Measures

Vignette

There were three different vignettes. Complete random assignment was used in the presentation of the vignettes to the participants. The vignettes differed according to the child's eligibility for services [IDEA, Section 504 or general education with no eligibility (control)]. See appendix C.

The child in the vignette was identified as male. After mentioning that the child either qualified for services under IDEA Other Health Impaired or Section 504, or he did not qualify for either service, an intervention in the classroom was recommended. Demographic information about the child and the suggested intervention remained constant across vignettes. A low dose of stimulant medication was included for the child across vignettes to control for the variability in teachers' responses. The intervention recommended was designed from current research that suggested the most effective

moderately time-intensive intervention for successfully treating ADHD in the classroom (MTA Cooperative Group, 1999a). A question, "Do you agree with the multidisciplinary team's decision?" was asked at the end of the vignette as a validity check of the vignette.

Inservice trainings

Three inservice trainings were conducted in randomly assigned order. Teachers in experimental group 1 (ADHD) were provided a one-hour training on the definition, etiology, prognosis, learning strategies, and classroom management of children with ADHD. The training included information about the history, symptoms, and types of ADHD, behavior management techniques that are research-based and found to be effective with this population, effective learning strategies, classroom structure and instructional modifications, and teacher efficacy issues in the instruction of these children.

Teachers in experimental group 2 (Disability Laws) received training on IDEA and Section 504 laws related to serving children with ADHD. Specifically, definitions of the laws (OHI under IDEA and Section 504) and how they relate to students with ADHD were discussed. Also, a comparisons of the two laws, such as information about IDEA Other Health Impaired, the development of IEPs, IDEA being a federally funded mandate, the categorical nature of the law, free and concepts such as free appropriate education (FAPE). Issues related to Section 504, such as it being a non-funded mandate, the noncategorical nature of the law, the fact that it is a regular education mandate, how it plays a role in the least restrictive environment, local policies about meetings and how they differ from IDEA meetings, the referral process, and evaluations, were discussed.

Included in the inservice were effective general education classroom accommodations, and general education teachers' role in the treatment of this population.

Experimental group 3 (Combination) received a two-hour training covering the information provided in both previous trainings. Following the training, participants were provided the post-treatment packet, which included the same vignette they received during pretreatment phase, the *AARP*, the *QKMP*, the *IDEA 97' Training Quiz*, and the *Section 504 Training Quiz*. Completion of the post-treatment packet took 15-20 minutes.

Sixty evaluation forms were randomly distributed to the participants directly following the training (twenty to each training topic). These forms were used to assess the participants' perception of the training format, presentation, and content. Out of the participants of the inservice trainings who completed the evaluation form, only 33% of them completed both pre-and-post test measures. There were 10 questions that addressed the teachers' acceptability of the training itself. The evaluation was scored using a Likert format were 0 = Not Helpful to 5 = Very Helpful. The median value for each of 10 questions ranged from four to five. Qualitative comments included, "Great presentation. Very informative," "Very entertaining. Thanks for the humor. Got a lot from the presentation" and "Need a bathroom and snack break if teachers are expected to sit for longer than one-hour of training." The last comment occurred on twelve evaluation forms. Overall, teachers (even those who chose not to complete both pre-test and post-test measures) positively perceived the trainings.

Dependent Measures

A four-part paper-and-pencil questionnaire was administered during both pre- and post-inservice training, consisting of the (a) Abbreviated Acceptability Rating Profile (AARP; Tarnowski and Simonian, 1992), (b) Questionnaire of Knowledge and Management Procedures (QKMP) (modified from Miranda, Presentacion, & Soriano, 2002), (c) IDEA 97' Training Quiz (developed for the purpose of this study), and (d) Section 504 Training Quiz (developed for the purpose of this study). Copies of these measures are found in Appendices D - G. Instructions for completion were written at the top of each instrument.

Abbreviated Acceptability Rating Profile (AARP)

The AARP is a rating scale that assesses how acceptable an individual working with children finds a given treatment. The instrument consists of eight items, which are rated on a six-point Likert scale ranging from 1= strongly disagree to 6 = strongly agree, that yield a possible range of scores from 8 to 48. It was normed using 60 mothers whose children were seen for routine pediatric outpatient visits. It was cross-validated using 80 mothers of similar demographics. Subjects in the initial sample rated five behavioral and pharmacological interventions commonly used to treat childhood depression. For the cross-validation sample, mothers rated all treatment variations of the three behavioral and one pharmacological intervention used to treat child externalizing symptomology. Principal components analysis revealed that all items loaded on a unitary factor (Acceptability) that accounted for 84% of the variance. Item loadings ranged from .89 to .96. Reliability of the instrument using split-half and Cronbach alpha revealed coefficients of .95 and .97, respectfully. Internal consistency correlations were positive

and ranged from .89-.98 for all item-total scale score comparisons. Tarnowski and Simonian found that the AARP retained the psychometric properties of the widely accepted Intervention Rating Profile-15 and could be completed in half the time. Also, using the Harris-Jacobson Wide Range Readability Formula (Harris & Sipay, 1975), the authors found readability indices of 5.0 for the AARP and 7.9 for the IRP-15, making the AARP adaptable for individuals with low reading levels. Tarnowski and Simonian suggest using this instrument with any consumer group who needs to evaluate the acceptability of a given treatment.

Questionnaire of Knowledge and Management Procedures (QKMP)

The QKMP was designed by Miranda, Presentacion, and Soriano (2002) to identify teachers' level of knowledge about ADHD. It also gathers information about the management procedures used by teachers before and after instruction programs. This questionnaire was developed at the University of Valencia, Spain to identify teachers' levels of knowledge about ADHD. It was used as a pre-post measure evaluating the effectiveness of an instruction program.

The original scale was in Spanish and was subsequently translated into English for this study. It was formerly presented in dichotomous format. After translation it was revised using a Likert scale. Items were added to address the specific needs of the present study, with a total of 79 items in a seven-part questionnaire format. The first five parts have a range from 1 = strongly disagree to 5 = strongly agree. Part six has a range from 1 = not important to 5 = absolutely important. Part seven has a range from 1 = no confidence to 5 = absolute confidence. Part A of the original questionnaire included 13 items and assesses teachers' knowledge of aspects of ADHD, such as etiology, role of the

teacher, and prognosis (e.g., "It is uncommon to see this student involved in conflicts"). The 14 items in Part B addressed the use of contingency management techniques (e.g., "It is effective to provide him/her with verbal reinforcement for things that the rest of the class does routinely"). Part C was composed of seven items that assess teachers' knowledge about the application of self-monitoring techniques (e.g., "To teach a student with ADHD complicated activities, I should do the activity first, giving verbal instructions for each of the steps"). The 11 items in Part D assessed the physical arrangement of the classroom as well as specific instructional aspects (e.g., "I should assign five minutes daily for the students with ADHD to organize their school supplies, tables, chairs, etc."). Part E had 11 items and assessed the teachers' efficacy in managing children with ADHD (e.g., "I am effective in decreasing the behavioral problems of students with ADHD"). The 13 items in Part F assessed possible barriers teachers may encounter when working with children with ADHD (time to administer specialized interventions, lack of communication with parents). Finally, Part G had 10 items and assessed the level of confidence teachers have in their ability to facilitate working with children with ADHD ("Make accommodations to lectures and worksheets for students with ADHD").

Pilot Study

A pilot study was conducted to evaluate the psychometric properties of the *Questionnaire of Knowledge and Management Procedures* (modified from Miranda, Presentacion, & Soriano, 2002). Participants were 251 teacher preparation students at a mid-south university. There were 169 females and 89 males. Most of the sample was Caucasian (85.3%), with 0.8% African American, 1.6% Asian American, 2.8% Hispanic,

and 9.2% Native Americans. This sample included 147 junior level students (58.6%), 60 senior level students (23.9%), 31 sophomores (12.4%), 11 freshman (4.4%) and two graduate students (.8%). The median in the education field was two years accounting for 31.9% of the sample. Majors included 112 elementary education (44.6%), 67 secondary education (26.7%), 36 education non-certification (14.3%), 26 agricultural education (10.4%), and two special education students (.8%). The majority of the sample reported having read no books on the topic of ADHD (76.5%). Yet, 53% had reported taking at least one course that explored the topic of ADHD. Over half of the sample had worked with at least one student who was diagnosed as having ADHD (53.4%).

The participants were currently enrolled in a child development course. They were solicited during their regularly scheduled class time. Participants were volunteers who were not provided any compensation for their participation. They were given a consent form to sign and return if they chose to participate (Appendix A-3).

Coefficients of internal consistency (Cronbach's alpha) were calculated for each of the seven subscales of the questionnaire. Initially, items were analyzed based on no particular selection criteria. Part A internal consistency coefficients ranged from .24 to .33. Part B ranged from .20 to .38. Part C ranged from .51 to .66. Part D ranged from .39 to .52. Part E ranged from .41 to .54. Part F ranged from .83 to .84. Part G ranged from .91 to .92. Alpha was then calculated using students' major as the selection criteria. Coefficients for the 112 elementary education students were as follows: Part A- .63 (increased to .74 when three items were deleted), Part B- .60 (increased to .84 with the deletion of five items), Part C- .60 (increased to .66 when two items were deleted), Part D- .61 (increased to .78 with the deletion of three items), Part E- .63 (increased to .81

with five items deleted), Part F- .82 (increased to .85 with the deletion of one item), Part G- .94 (with no deletions).

The 67 secondary education students were not as consistent in their responses. Part A- .56 (with two items deleted), Part B- .57 (with six items deleted), Part C- .80 (with two items deleted), Part D- .54 (with six items deleted), Part E- .72 (with four items deleted), Part F- .88 (with one item deleted), Part G- .90 (with no items deleted). The other major classifications, which were not assessed in the full study, produced lower internal consistency coefficients. The final instrument consists of 60 items with alphas ranging from .54 to .90. The seven parts of the QKMP corresponded to the inservice training provided to the teachers on the topic of knowledge and management of ADHD.

IDEA '97 Training Quiz

The *IDEA 97' Training Quiz* was developed by the researcher for use in this study. The items were selected and modified from questions on the IDEA Training Package from The Office of Special Education Programs (OSEP) at the U.S. Department of Education, the National Information Center for Children and Youth with Disabilities (NICHCY), and the Federal Resource Center for Special Education (FRC) (2000). Ten items were selected from the total IDEA '97 Training Package, which is comprised of 14 modules or chapters, plus a collection of 145 overheads in English. Items were presented in dichotomous format of yes/no. Internal consistency coefficients were obtained using Cronbach's alpha analyses. The items ranged from .89 to .90 on the pretest measure. Principal components analysis revealed that 8 of the 10 items loaded on a unitary factor that accounted for 55% of the variance. Two items loaded on another factor accounting for an additional 10% of the variance. Item loadings ranged from .56 to .82 on the factor.

The final instrument assessed information that was provided during the inservice training on disability laws. Questions included information such as, whether a medical diagnosis of ADHD is necessary to qualify, if students are classified as OHI under IDEA 97', whether students who qualify must receive modifications in the special education classroom, and whether the parent must be a member of the committee (See Appendix F).

Section 504 Training Quiz

Currently, the Office of Civil Rights or the U.S. Department of Education does not have a training package for Section 504. However, most State Departments of Education provide information for educators about the law and how it relates to children with ADHD. Information from the states included in this study and OSEP was used in the development of a training module. The *Section 504 Training Quiz* followed the same format as the *IDEA '97 Training Package*. A quiz to assess the teachers' knowledge before and after presenting this training package was developed with 10 items in dichotomous format. Cronbach's alpha was calculated during the pretest phase of the study. Overall alpha for this quiz was .87. The items ranged from .86 to .87. Principal component analysis revealed one factor accounting for 47% of the variance. Item loadings ranged from .60 to .75. Questions included in the quiz assess information such as, whether Section 504 is a federally funded mandate; if a student with ADHD could qualify for 504 services when they have an impairment in learning; if parents must participate in the eligibility team meeting; if Section 504 requires the development of an IEP; and whether the school must conduct a reevaluation to determine if the behavior was caused by the disability before implementing a suspension or expulsion constituting a significant change in the child's placement (See Appendix H).

Effort

At the end of the vignette, one question, "how many minutes per week would you be willing to devote to implementing this intervention", was asked to assess the variable of effort. This question was included to evaluate the amount of minutes per week general education teachers would report putting into intervening with the child in the vignette given the specified eligibility for services. The purpose of this question was exploratory to assess it's possible relationship between treatment acceptability and effort with the belief that effort may be more closely linked to treatment integrity than acceptability has been found.

Data Analysis

The research questions in this study related to (1) general education teachers' acceptability of interventions for children with ADHD, and (2) the amount of effort teachers are willing to devote to intervening with this population. Specific questions are as follows:

1. Are teachers' knowledge of ADHD, management skills, learning strategies, classroom management strategies, efficacy, confidence, and knowledge of IDEA and Section 504 improved after inservice training on this topic? Question 1 utilized repeated-measures MANOVA to examine the effect of training on knowledge of: ADHD, management skills, learning strategies, and classroom arrangement, teacher efficacy and confidence, and knowledge of IDEA and Section 504. Teachers' years of educational experience were covaried because of the wide variability in teachers' experience levels.

2. Does eligibility for services (IDEA, Section 504, Not Eligible) influence treatment acceptability and amount of effort when teachers were provided with different inservice trainings (ADHD, disability laws, and Combination)? The data for question 2 were analyzed using a doubly-multivariate repeated measure ANOVA. This type of analysis is considered to be one of the more sophisticated within-subject analyses. When using typical repeated-measures MANOVA, one dependent variable is measured multiple times. With the doubly multivariate repeated-measures MANOVA, two or more dependent variables can be measured at two or more points in time. In this study, two dependent variables- treatment acceptability and effort- are measured two times- pretest and posttest. The between subjects variables for this analysis are group (ADHD, Disability Laws, and Combination) and eligibility (IDEA, Section 504, Not Eligible). The within-subjects repeated measures were acceptability (pre-post on the AARP) and effort (pre-post on the question, "How many minutes per week would you be willing to devote to implementing this intervention?" from vignette). Years of educational teaching experience were covaried for this analysis as well.

The data for all of the research questions were initially examined for homoscedasticity and any outliers. Logarithmic transformations were not needed to address outliers, skew, and kurtosis. The dependent measures for question 1 are: knowledge of ADHD (pre-post), knowledge of management skills (pre-post), knowledge of learning strategies (pre-post), knowledge of classroom arrangement (pre-post), teacher efficacy (pre-post), and teacher confidence (pre-post). The repeated measures for

question 2 are the pre-post measures on the IDEA training quiz and the Section 504 training quiz. Assumptions for these analyses were similarly assessed. Box's Test of Equality of Covariance Matrices (Box, 1949) was used to evaluate the homogeneity of variance/covariance assumption. No major violations were found for any of the analyses.

Sphericity was also assessed for the multivariate analyses. Using Mauchly's Test of Sphericity, the sphericity assumption was tested for the within-subjects variables. When this assumption was violated, adjustments to the degrees of freedom were made by evaluating the F ratio using Huynh and Feldt correction (Huynh & Feldt, 1976).

CHAPTER IV

RESULTS

Of the 81 participants who completed the pre-and-post test packets, 95% were female, with almost 93% identifying themselves as Caucasian. Thirty-four teachers participated in the ADHD inservice trainings and completed the pre-and-post test measures. Twenty teachers participated in the Disability Laws inservice training and completed the pre-and-post test measures. Twenty-seven teachers participated in the Combination inservice training and completed the pre-and-post test measures.

Participants were randomly assigned to an eligibility group. Thirty teachers were assigned to Group A (IDEA eligible), twenty-seven teachers were assigned to Group B (Section 504 eligible); and twenty-four teachers were assigned to Group C (Not eligible). The random assignment for vignettes was based on complete counterbalancing at pretest completion. However, attrition at post-test influenced the unbalanced size of the groups. Participants reported a median of 13.5 years of teaching, with a range of one to 39 years. Because of the wide range of experiences in teaching, years of teaching was covaried on all analyses. Out of all of the participants, 82.9% reported no special education training or experience. Almost 37% of the participants had read only one book or article related to ADHD, and almost 27% had read none. Only 23% of the participants had received more than seven hours of inservice training on ADHD. Over 39% of the participants had received no inservice training on IDEA or Section 504. Forty-six percent of the

participants reported having no current students in their classes who are diagnosed with ADHD. Seventy-four percent of the sample had two or fewer students currently diagnosed with ADHD. The median class size for the participants was 20. Table 1 presents relevant descriptive data for the sample.

Table 1 *Characteristics of the Sample: N = 82*

Categorical Variables		
Characteristic	Frequency	Percent
Gender		
Female	78	95.1
Male	4	4.9
Race/Ethnicity		
Caucasian	76	92.7
African American	4	4.9
Asian	1	1.2
Native American	1	1.2
Grades		
Kindergarten	25	30.5
First	13	15.9
Second	10	12.2
Third	18	22.0
Fourth	5	6.1
Fifth	10	12.2
Six	1	1.2

Continuous Variables

Characteristics	Median	Standard Deviation
Years of Experience	13.5	9.7
Years of Special Education Experience.	0	4.6

Table 2 provides a descriptive summary of the pre-post mean information and range information for each instrument included in the study.

Table 2 *Obtained score mean and range for each instrument*

	Mean		
Instrument	Pre	Post	Range
Effort: Minutes per week To Implement	81.64 (n = 79)	124.67 (n = 76)	0-2100
Abbreviated Acceptability Rating Profile	33.37 (n = 81)	35.24 (n = 82)	8-48
Questionnaire of Knowledge and Management Procedures			
Knowledge	29.39 (n = 82)	31.40 (n = 82)	10-50
Management	24.91 (n = 81)	25.37 (n = 82)	9-45
Learning Strategies	19.81 (n = 81)	20.52 (n = 82)	5-25
Classroom Arrangement	30.44 (n = 81)	32.26 (n = 82)	8-40
Teacher Efficacy	15.79 (n = 81)	17.75 (n = 82)	6-30
Teacher Confidence	34.44 (n = 81)	37.98 (n = 82)	10-50
IDEA Training Quiz	4.38 (n = 81)	5.78 (n = 82)	0-10
Section 504 Training Quiz	5.41 (n = 81)	6.81 (n = 82)	0-10

To examine the correlations between the variables on the demographic survey, a correlational matrix was developed (see Table 3).

Table 3 *Correlations between demographic variables*

	Educ.	Class	ADHD	Perceived	Accept1	Accept2	Effort1	Effort2
Years of Edu. Exper.	-----							
Class size	.180							
Current students	.080	.206						
Perceived # of ADHD	.005	.062	.212					
Pretest Acceptability	-.013	.046	-.290**	-.261*				
Posttest Acceptability	-.177	.219	-.164	-.142	.443**			
Pretest Effort	-.021	.182	-.166	-.013	.281*	.172		
Post-test Effort	-.186	.130	-.128	-.038	.157	.087	.480**	-----

**Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Analysis of the correlations revealed that pretest acceptability ratings showed moderate, but significant, negative correlations with the number of students currently diagnosed with ADHD in teachers' classrooms ($\underline{r} = -.290$). The number of students perceived to have ADHD was also negatively correlated with pretest acceptability ratings ($\underline{r} = -.261$). Though none of the demographic variables listed were correlated with effort, treatment acceptability showed a moderate positive correlation with effort at pretest. Class size alone was not correlated with treatment acceptability ($\underline{r} = .046$, pretest) or effort ($\underline{r} = .182$) in conducting individualized interventions for this population. For these

reasons, only years of education experience was used as a covariate in the analysis of the specific research questions.

Research Question 1

Are teachers' knowledge of ADHD, management of ADHD, learning strategies, classroom management, teacher efficacy, teacher confidence, and knowledge of IDEA and Section 504 improved after inservice trainings on these topics?

It was hypothesized that inservice trainings on ADHD and IDEA/Section 504 increases their knowledge base for these topics. Estimated marginal means are reported because of the unequal n design (see Table 4).

Table 4 *Pre-post X Group estimated marginal means, standard errors, and number of cases*

Variable	Est. Marginal Mean		Std. Error		n
	Pretest	Posttest	Pre	Post	
Knowledge of ADHD					
ADHD	29.714	33.439	.530	.544	34
Disability	28.753	28.385	.733	.752	20
Combination	29.308	30.986	.606	.621	27
Management of ADHD					
ADHD	25.037	26.255	.506	.604	34
Disability	24.509	24.473	.699	.835	20
Combination	25.105	25.136	.578	.690	27

Learning Strategies					
ADHD	20.232	21.242	.378	.361	34
Disability	19.623	20.930	.522	.499	20
Combination	19.358	19.453	.432	.412	27
Classroom Arrangement					
ADHD	30.605	32.850	.612	.530	34
Disability	30.616	31.566	.846	.732	20
Combination	30.250	32.777	.699	.605	27
Teacher Efficacy					
ADHD	15.979	18.251	.512	.442	34
Disability	16.265	17.587	.707	.611	20
Combination	14.959	17.362	.585	.505	27
Teacher Confidence					
ADHD	33.893	38.740	1.191	1.145	34
Disability	35.893	41.003	1.647	1.583	20
Combination	34.336	34.778	1.361	1.308	27
IDEA Knowledge					
ADHD	5.085	4.663	.475	.389	34
Disability	3.740	6.983	.656	.538	20
Combination	4.006	6.324	.542	.444	27
Section 504 Knowledge					
ADHD	6.992	6.725	.415	.404	34
Disability	4.463	6.770	.573	.559	20

Combination	4.328	7.112	.474	.462	27

Using SPSS 12.0 statistical software, repeated-measures MANOVA was used to examine the multivariate main effects for the independent variable, group (ADHD, Disability, and Combination). Results of the repeated measures analysis indicated a significant Pre-post X Group interaction, $F(16, 128) = 3.697$, $p < .001$. The differences after training were dependent on the type of inservice provided. This interaction accounted for 31.6 % of the proportion of variance that is attributable to the effect, constituting a medium effect according to Cohen (1988). See Table 5 for coefficients.

Table 5 *Pre-post X Group MANOVA Within-Subjects Coefficients*

Source	Type III SS	*df*	*MS*	*F*	*p*	Partial *Eta*^{2}	Obv. *Powr*
Pre-post X Group							
Knowledge of ADHD	98.685	2	49.343	8.834	.000**	.199	.966
Management Skills	13.793	2	6.896	1.600	.209	.043	.328
Learning Strategies	9.363	2	4.682	1.751	.181	.047	.355
Classroom Arrangement	14.105	2	7.053	.829	.441	.023	.187
Teacher Efficacy	6.937	2	3.468	1.843	.166	.049	.372
Teacher Confidence	173.268	2	86.634	5.007	.009**	.124	.798
IDEA Knowledge	94.928	2	47.464	10.087	.000**	.221	.982
Section 504 Knowledge	77.573	2	38.786	9.370	.000**	.209	.974

Error (Time)			
Knowledge of ADHD	396.560	71	5.585
Management Skills	305.964	71	4.309
Learning Strategies	189.879	71	2.674
Classroom Arrangement	603.862	71	8.505
Teacher Efficacy	133.624	71	1.882
Teacher Confidence	1228.454	71	17.302
IDEA Knowledge	334.096	71	4.706
Section 504 Knowledge	293.892	71	4.139

**Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Univariate follow-up tests revealed a significant difference for this interaction within knowledge of ADHD, $F(2, 71) = 8.834$, $p < .001$, with an association by partial eta squared (η_p^2) accounting for 19 % of the proportion of variance that is attributable to knowledge of ADHD, teacher confidence, $F(2, 71) = 5.007$, $p = .009$, ($\eta_p^2 = .124$), knowledge of IDEA, $F(2, 71) = 10.087$, $p < .001$, ($\eta_p^2 = .221$), and knowledge of Section 504, $F(2, 71) = 9.370$, $p < .001$, ($\eta_p^2 = .209$). There was a posttest change in knowledge of ADHD, teacher confidence, knowledge of IDEA and Section 504, and it can be attributed to the teachers' participation in the different inservice trainings.

Tukey HSD pairwise comparisons revealed that knowledge of ADHD increases more when teachers are presented with the ADHD inservice training than when they are presented with the Combination training. As predicted, Disability inservice training had no effect on knowledge of ADHD. Pairwise comparisons also reveal that teacher

confidence increased significantly when teachers were presented with the Disability inservice training compared to the Combination inservice training. Teacher confidence was not affected by the ADHD or Combination inservice trainings. Pairwise comparisons reveal that knowledge of IDEA increased significantly when teachers were presented with the Disability inservice training, followed by the Combination training. Knowledge of IDEA did not increase after the ADHD training. Knowledge of Section 504 increased significantly after the Combination training, followed closely by the Disability training. Presentation of the ADHD inservice training did not affect Section 504 knowledge. Figures 1- 4 graphically represent these interactions.

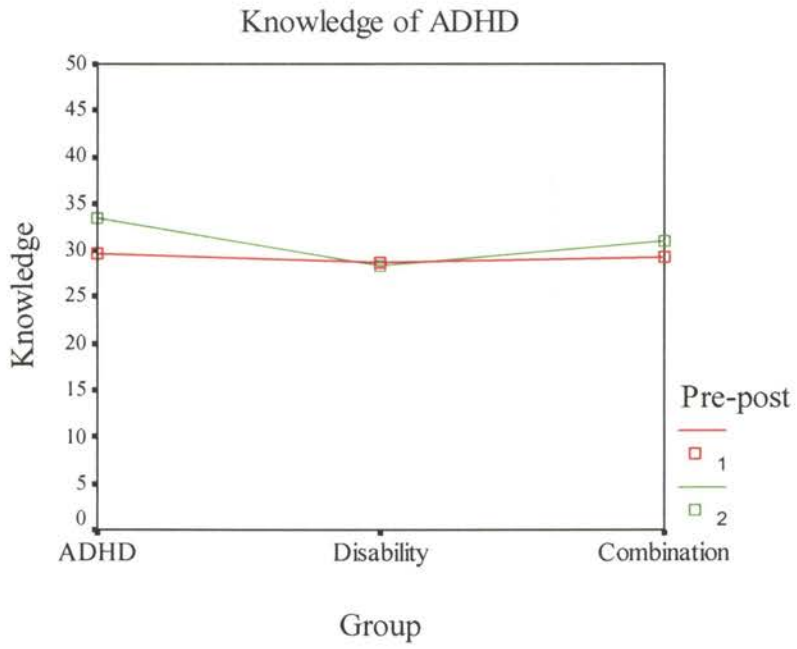

Figure 1. *Pre-post X Group interaction of knowledge of ADHD.*

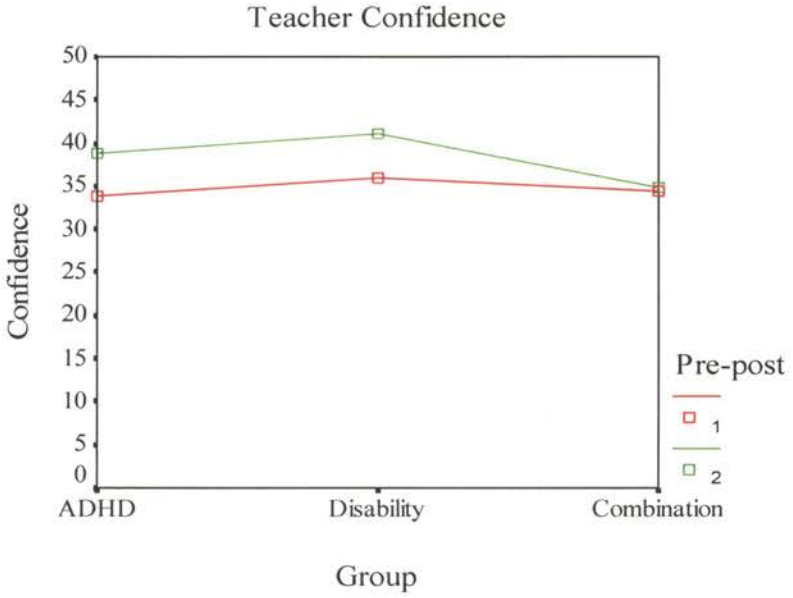

Figure 2. *Pre-post X Group interaction of teacher confidence.*

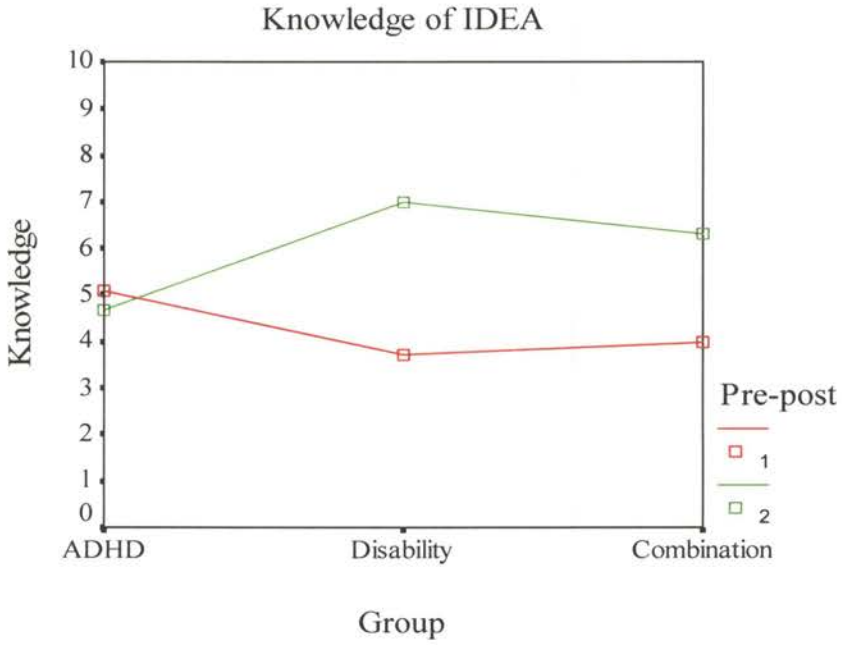

Figure 3. *Pre-post X Group interaction of IDEA knowledge.*

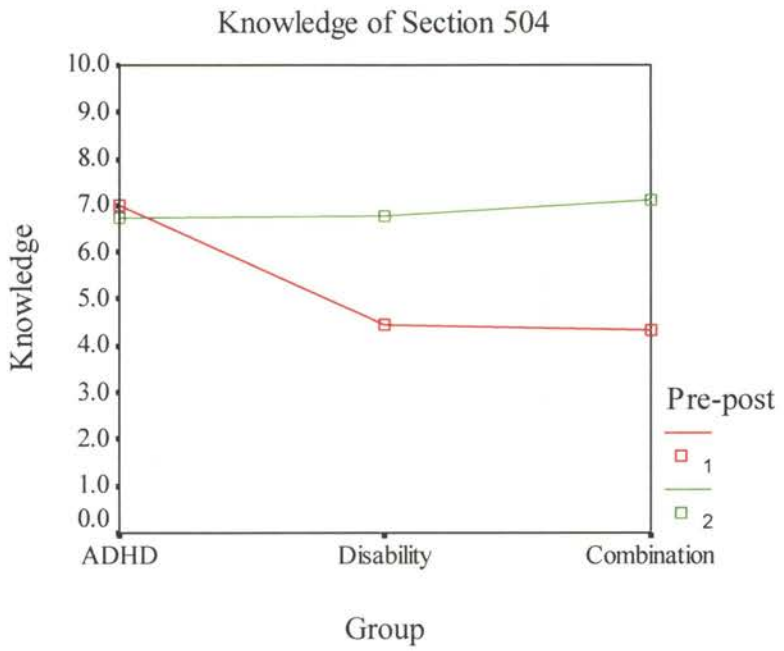

Figure 4. *Pre-post X Group interaction of Section 504 knowledge.*

Results also identified significant main effects of learning styles [F (1, 71) = 6.048, p = .016, η_p^2=.079], classroom arrangement [F (1, 71) = 14.037, p < .001, η_p^2=.165], and teacher efficacy [F (1, 71) = 39.724, p < .001, η_p^2=.359], indicating there were significant increases before and after training on knowledge of learning styles, classroom arrangement, and teacher efficacy. It should be noted that all inservice trainings included information about learning strategies, classroom arrangement, and teacher efficacy.

Research Question 2

Does eligibility for services (IDEA, Section 504, Not Eligible) influence treatment acceptability and amount of effort when teachers are provided with different inservice trainings (ADHD, disability laws, and Combination)?

It was hypothesized that the mean acceptability score and the mean minutes per week devoted to intervening with children with ADHD by teachers who were provided

the Combination or ADHD inservice training would increase more than the mean acceptability score and the mean minutes per week devoted to intervening by teachers who were provided the disability laws inservice training when eligibility changes.

A repeated measures multivariate analysis of variance design was used to examine the interaction between teacher inservice training (ADHD, Disability Laws, and Combination) and eligibility for services (IDEA, Section 504, and Non-Eligible) on the dependent variables: treatment acceptability (AARP total score) and effort (amount of minutes per week willing to spend on interventions for the child in the vignette). See Table 6 for estimated marginal means. See Table 7 for MANOVA coefficients.

Table 6 *Pre-post Group X Eligibility estimated marginal means, standard errors, and number of cases*

Variable			Est. Marginal Mean		Std. Error	
			Pretest	Posttest	Pre	Post
	Eligibility	Group				
AARP	IDEA	ADHD	36.014	36.892	2.046	2.421
		Disability	37.747	37.598	2.567	3.037
		Combination	30.517	33.946	1.974	2.336
	Section 504	ADHD	35.390	36.210	2.271	2.686
		Disability	31.831	38.449	2.149	2.542
		Combination	33.666	32.925	2.780	2.844
	Non-Eligible	ADHD	33.498	34.350	2.272	2.688
		Disability	23.469	21.256	3.950	4.673
		Combination	36.064	34.659	2.780	3.289
Effort	IDEA	ADHD	68.898	91.404	23.207	30.894
		Disability	77.393	89.680	29.116	32.441

	Combination	80.947	116.900	22.393	29.810
Section 504	ADHD	74.106	121.957	25.753	34.283
	Disability	65.551	92.930	24.369	32.441
	Combination	59.418	97.268	27.260	36.289
Non-Eligible	ADHD	130.825	178.982	25.767	34.302
	Disability	38.072	66.804	44.799	59.637
	Combination	149.925	293.781	31.531	41.974

Table 7 *Repeated Measures MANOVA Coefficients*

Dependent Variables: Treatment Acceptability and Effort						Partial	Obv.
Between-Subjects Source	Type III SS	*df*	*MS*	*F*	*p*	Eta^2	*Powr*
Group							
Acceptability	270.646	2	135.323	1.742	.183	.051	.353
Effort	70594.002	2	35297.001	3.144	.050**	.088	.584
Eligibility							
Acceptability	492.841	2	246.420	3.172	.048**	.089	.588
Effort	74197.335	2	37098.667	3.304	.043**	.092	.607
Group X Eligibility							
Acceptability	969.184	4	242.296	3.119	.021**	.161	.787
Effort	91337.585	4	22834.396	2.034	.100	.111	.577
Error							
Acceptability	5049.560	65	77.686				
Effort	729840.786	65	11228.320				

**Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Results of the MANOVA revealed a significant interaction between group and eligibility for treatment acceptability [F (4, 65) = 3.119, p = .021, η_p^2=.161]. The mean treatment acceptability score was higher in the Disability inservice training group when the child in the vignette was found eligible for IDEA OHI services (M = 37.672) or Section 504 (M = 35.140) compared to the child found non-eligible (M = 22.362). Acceptability was higher in the Combination training group when the child was found non-eligible for services (M = 35.361) compared to IDEA OHI services (M = 33.295) or Section 504 services (M = 32.231). See Figure 5 for a graphical depiction.

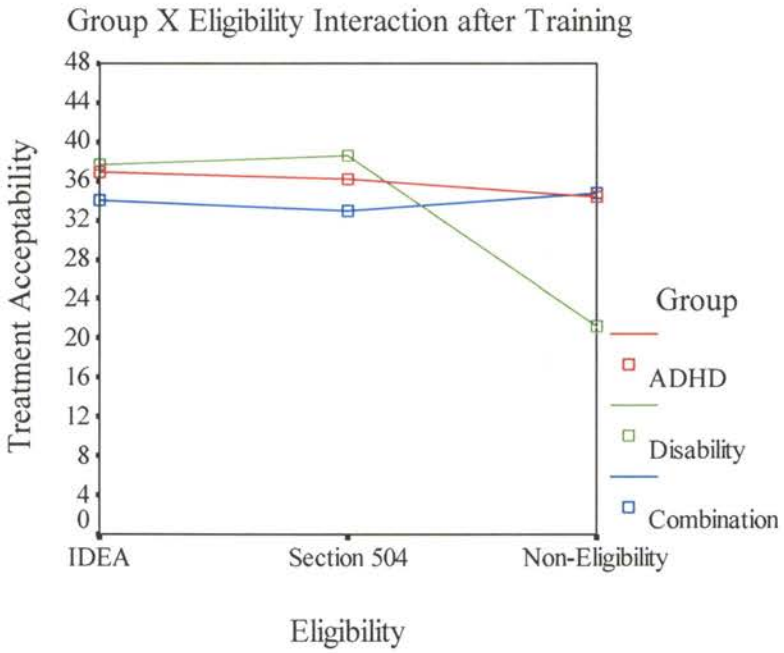

Figure 5. Group X Eligibility interaction after training.

Results of the MANOVA revealed a significant interaction between group and eligibility for effort [F (4, 65) = 2.034, p = .100, η_p^2=.111]. The mean minutes per week was higher in the Combination inservice training group when the child in the vignette was found to be non-eligible for services (M = 293.781) than the ADHD inservice group (M = 178.982). The mean minutes per week for the Disability inservice group was

significantly lower than the other two training groups when the child was found to be non-eligible (M = 66.804). See Figure 6 for a graph of this analysis.

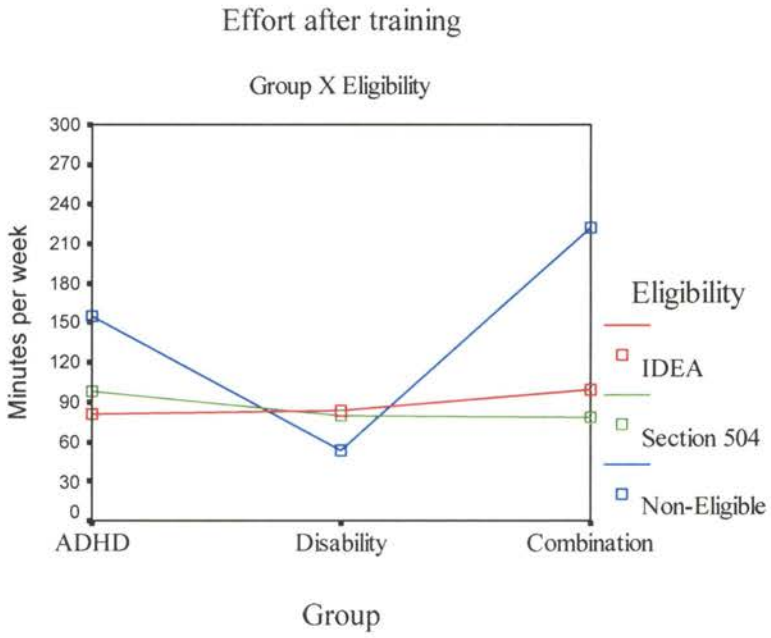

Figure 6. *Group X Eligibility interaction for effort.*

CHAPTER V

CONCLUSION

The current study sought out to examine the effectiveness of inservice trainings on topics related to the treatment of children with ADHD in the general education classroom. The first objective was to determine if training on the knowledge of the disorder or of the disability laws governing the programming for children with this disorder influenced teacher efficacy or their confidence in intervening with this population. The second objective was to establish if treatment acceptability and/or perceived effort in classroom interventions were different following inservice trainings on ADHD, disability laws, or a combination of the two trainings when eligibility status (IDEA OHI, Section 504, or non-eligible) was changed.

Results of the first hypothesis supported the value of inservice trainings given to general education teachers on issues related to ADHD. Predictably, after the teachers were provided with training on ADHD, they were more proficient at answering questions about the disorder. After they were provided with training on disability laws, teachers were better able to answer questions about IDEA and Section 504. Even when the trainings were combined, teachers still acquired knowledge about their topics. These findings support previous research about the efficacy for teacher inservice trainings (Miranda, Presentacion, & Soriano, 2002; Goetz, 2002). With knowledge being a definitive objective, providing any inservice training is beneficial as a continuing education strategy. However, a bigger purpose is usually anticipated from these

trainings. Arguably, it would be expected for teachers to incorporate the information into their classroom. That said results of this study also found that teachers' confidence in managing children with ADHD improved when disability laws' training was presented. Surprisingly, providing the training on ADHD did nothing to improve the teachers' feelings of confidence, yet these trainings are more common than trainings on disability laws. This discovery suggests that the novelty of the information may have contributed to the increases in self-assurance.

Additionally, the study identified significant increases in the knowledge of learning styles, classroom arrangement, and teacher efficacy across all groups after training. These findings are not surprising since information about each of these topics was presented in all trainings. First, teachers gained proficiency in teaching children with ADHD to be better learners. Research has demonstrated the importance of providing children with ADHD opportunities to personally involve them into the learning process. For instance, Lloyd, Hallahan, Kaufman, and Keller (1998) found that self-monitoring strategies are effective at increasing on-task behavior in inattentive elementary students. Therefore, improving teachers' ability to communicate these strategies to their students may translate into better academic success and less disruptive behavior.

Secondly, after training, teachers have a better sense of how children with ADHD physically fit in their classrooms to increase their learning and to decrease behavior disruptions in the classroom. According to Carbone (2001), general education teachers are more likely to address the needs of the classroom environment after a behavioral disruption has occurred. This author suggests that teachers are more likely to provide posthoc arrangements when they do not have the necessary training to understand the

specific needs of students with ADHD in the classroom setting. This study demonstrated that training can improve teachers' knowledge of appropriate classroom arrangements. Finally, teacher efficacy was demonstrated to improve after training, but was not related to the type of training or the eligibility of the student.

Results of the second hypothesis support the idea that training alone may not be sufficient to influence treatment acceptability and effort. Specifically, treatment acceptability increased after the Combination training was presented when the child was found non-eligible for services by the multidisciplinary team. However, treatment acceptability decreased after the Disability training was presented when the child was found non-eligible for services. After the same training, teachers rated the intervention as more acceptable when the child was found eligible for services under IDEA's OHI category or Section 504. Treatment acceptability did not differ for the ADHD group under any eligibility condition. Therefore, teachers who learn solely about the laws governing the management of children with ADHD are less accepting of interventions for this population if these children are not receiving protection under either IDEA or Section 504. These findings suggest that teachers may be less accepting when the child is not found eligible for services because they now recognize after learning about the disability laws what services the child should receive. The teachers may be responding more to the fact that they are legally mandated to provide this intervention, but do not have the necessary information about how the behavior would be improved if the intervention was performed in the classroom. Case in point, when teachers are simultaneously provided with information about the knowledge and management of the disorder (how the intervention would improve the child's behavior) in the general education classroom,

acceptability increases specifically when the child is not found eligible for special services. Teachers in this condition may have a greater sense of what they can do in their classrooms and how this information can help the child's behavior as well as what they must do according to the laws. Eligibility for services would not necessarily influence treatment acceptability in the ADHD training because the teachers would not know what services would be available to the child. These findings support the need to include both facets of training, knowledge and management of the disorder and the laws that govern it in an educational setting, to effectively influence treatment acceptability particularly when eligibility for services varies.

The evaluation of effort found similar results. When the child was found non-eligible for services, effort declined after the Disability Laws training. Teachers again may not want to put effort into an intervention with which they do not accept if they are not legally mandated to do so. However, after receiving information about the knowledge and management of ADHD, effort increased even when the child was found non-eligible. Effort increased even more after the teachers were training on both knowledge and management of ADHD and the disability laws that govern it when the child is not found eligible for services. Therefore, it appears that effort is more influenced by the knowledge and management of ADHD; whereas acceptability is more influenced by the knowledge of disability laws.

Implications for this study

The primary goals of this study were to extend the knowledge of the effectiveness of inservice trainings on general education teachers' treatment acceptability and perceived amount of effort intervening with an ADHD population, and the effect of

eligibility for services on these variables. It focused on whether training demonstrated an increase in teachers' knowledge base; whether eligibility for services influence treatment acceptability and effort; and whether training combined with varying options for eligibility influence treatment acceptability and effort of the teachers. These factors have not previously been the focus of research into effects and interactions of treatment acceptability and amount of effort devoted to intervening with the ADHD population in the general education classroom, yet they are easily identifiable elements in the daily classroom.

As a way to improve the treatment acceptability of recommended research-based interventions for children with ADHD, teacher training on the topics of knowledge and management of ADHD and knowledge of disability laws (IDEA and Section 504) were examined and results were compared to previous research findings. The following practical implications can be gleaned from these data:

- Inservice trainings are effective for increasing the general knowledge base of teachers regarding ADHD.
- The variables, treatment acceptability and effort, are not correlated after teachers have been provided information about ADHD.
- Novel trainings, such as those related to the disability laws that govern children with ADHD in schools, lead to increases in teacher confidence.
- General education teachers are less accepting of interventions in the classroom when students with ADHD do not qualify for any special services, such as special education under IDEA or Section 504 accommodations when they have not been trained on the knowledge and management of ADHD.

- Teachers will report a willingness to devote more time to intervening when the child is found non-eligible for services after they have received training on the knowledge and management of ADHD.

The general implication of these findings is relevant to multidisciplinary teams who may be developing recommendations for specific interventions for children with ADHD. Educating general education teachers on how to work effectively with ADHD populations may cause them to be more accepting of the recommendations. This finding is particularly imperative for an ADHD child who the team finds ineligible for special services. If teachers do not know much about the laws that govern the service delivery for a child with ADHD, they may believe the intervention is acceptable. However, if they are astute in their knowledge about disability laws governing a child with ADHD, the teachers may regard the intervention as a poor attempt to address the child's needs. They may also feel overwhelmed with the new knowledge and additional responsibilities. On the other hand, if they have adequate knowledge about ADHD and how to manage a child with this disorder in the classroom, teachers are more willing to put effort into a recommended intervention in their classroom.

Limitations

Attrition at post-test was a limitation of this study. Almost half of the participants who agreed to participate in the study did not complete the post-test measures. Many of the participants who dropped out of the study wrote on their packet that their job was too stressful at the time of the inservice training for them to complete the post-test measures. Even with the possibility of a monetary prize, it was difficult to get teachers to remain in the room after the training and complete the post-test forms. Most of the principals

reported that their teachers are used to leaving for a long lunch after their inservice trainings. They added that their teachers get little "down time" to socialize informally with other teachers. Though the drop out rate is alarming and should be a consideration for future researchers who are collecting data with elementary school teachers, the random post-test evaluation forms suggest that the lack of completion was not related to the training, but rather a side-effect of conducting inservice trainings in schools. There is no reason to believe that the teachers who completed the pre-post measures were significantly different from those who only completed the pre-test measures.

Another limitation of the study was the increase in experiment-wise error rate resulting from multiple analyses on the same data set. According to Keppel (2004), the most accurate procedure for controlling familywise Type I error is Tukey's HSD. This procedure uses a single criterion for all pairwise and familywise comparisons. All subsequent analyses conducted in this study utilized Tukey's procedure for establishing error rate. Keppel also suggests using a stringent alpha level of .01 to maximize the error rate. All significance levels in this study were reported at $p < .01$ (2004).

Suggestions for Future Research

Besides adding to the research base on whether teacher inservice training is an effective means to increase treatment acceptability of interventions for children with ADHD, the results of the present study help to direct future research in the following ways:

1. Treatment acceptability's relationship to treatment integrity has been widely debated, but not fully established. It seems important to future researchers to continue studying the effects of specific inservice trainings on treatment

acceptability and effort implementing interventions because of the lack of correlation between the two variables and the relative effect of training and eligibility on both variables. Further analysis may reveal a relationship between effort and treatment integrity. This possible relationship may direct intervention development on a more functional level. Teachers may not have to like the intervention to carry it out, but they may need to be willing to devote adequate time implementing it for it to be successful.

2. Follow-up studies should further examine the non-eligibility status of children in the general education classroom who are currently identified as having ADHD, but are not receiving any services through special education or Section 504. It appears that non-eligible students for whatever reason are treated or perceived differently than their service receiving counterparts. Future research could center on the study of teacher hostility/anxiety for those students who are labeled, but found not eligible for services compared to students who are labeled and are classified under a specific federal category.

3. Like most research into treatment acceptability, this study relied on analogue ratings, which inherently has potential for social desirability bias. Teachers may report a liking or dislike for a specific intervention or a difference in the amount of time they would spend implementing a specific intervention, but with no real commitment to its actual implication. They may be reporting what they think you want to hear. Though this bias did not appear to be relevant in the present study, it would be ideal to conduct a large n study on the actual implementation of a research founded intervention and measure

treatment acceptability and effort before and after completion to determine what characteristics lead to treatment acceptability and actual effort implementing the intervention.

4. This study limited its presentation of ADHD to males. Because of this limitation, it is unknown whether the sex of the student described in the vignette would have influenced treatment acceptability or effort scores. Future research could replicate the study but manipulate sex in the scenario to determine if similar results could be ascertained.

Summary

The results of the present study indicate a discrepancy between treatment acceptability and effort to implement a specific intervention. Teacher inservice training that included multiple aspects of ADHD, such as the knowledge and management and disability laws that relate to the disorder, demonstrated the most significant effect on effort. Reported amounts of time to implement the specified intervention were much higher after the two-hour Combination training when the child in the vignette was not found eligible for services under either IDEA or Section 504. When training on disability laws was provided outside of any training on the knowledge and management of ADHD, effort declined for the child who was found non-eligible. Acceptability ratings were significantly lower after the Disability Law's training when the child was non-eligible, but the ratings increased when the knowledge and management of ADHD component was included in the training. In both scenarios a combination of knowledge and management of ADHD and disability laws were needed to improve acceptability ratings and effort.

Findings of this study add to the research base in the area of ADHD training for general education teachers. It also has implications for school districts providing these interventions in the length to achieve an increase in knowledge and content to improve confidence, treatment acceptability, and effort. The influence of service eligibility also adds to the research base by suggesting that general education teachers will vary in their reports of willingness to devote more time to interventions depending on eligibility status and type of training received. Future studies may benefit from the inclusion of females with ADHD into the scenarios to examine if gender further influences treatment acceptability or effort.

REFERENCES

American Academy of Pediatrics (1987). Medication for children with Attention Deficit Disorder. *Pediatrics, 80*, 758-760.

American Academy of Pediatrics (1996). Medication for children with Attention Deficit Disorder. *Pediatrics, 95*, 301-304.

American Academy of Pediatrics (2001). Clinical practice guidelines: Treatment of the school-aged child with Attention-Deficit/Hyperactivity Disorder. *Pediatrics, 108*, 1033-1044.

American Psychiatric Association (1968). *Diagnostic and statistical manual of mental disorders* (2nd ed.). Washington, DC: Author.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed. rev.). Washington, DC: Author.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders- Text Revision*. Washington, DC: Author.

Atkins, M. S., & Stoff, D. M. (1993). Instrumental and hostile aggression in childhood disruptive behavior disorders. *Journal of Abnormal Child Psychology, 21*, 165-178.

Barbaresi, W. J., & Olsen, R. D. (1998). An ADHD educational intervention for elementary schoolteachers: A pilot study. *Journal of Developmental & Behavioral Pediatrics, 19* (2), 94-100.

Barkley, R. A. (1990b). A critique of current diagnostic criteria for Attention Deficit Hyperactivity Disorder: Clinical and research implications. *Journal of Developmental and Behavioral Pediatrics, 11,* 343-352.

Barkley, R. A. (1997). *Attention-Deficit/Hyperactivity Disorder.* In E. J. Mash & Terdal (Eds.), Assessment of Childhood Disorders, 3rd edition (pp. 85). New York, NY: Guilford.

Barkley, R. A. (1998b). Attention-Deficit/Hyperactivity Disorder. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 55-110). New York, NY: Guilford.

Barkley, R. A., Dupaul, G. J., & McMurray, M. B. (1990). Attention Deficit disorder with and without hyperactivity: Clinical response to three dose levels of methylphenidate. *Pediatrics, 87,* 519-531.

Barkley, R. A. (1990). Associated problems, subtyping, and etiology. In R.A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (pp. 74-105). New York: Guilford Press.

Bender, L. (1942). Post encephalitic behavior disorders in children. In J. B. Neal (Ed.), *Encephalitis: A clinical study.* New York: Grune and Stratton.

Biederman, J., Wilens, T., Mick, E., Spencer, T., & Faraone. S. V. (1999). Pharmacotherapy of attention deficit/hyperactivity disorder reduces risk for substance abuse disorder. *Pediatrics, 104*, 293-294.

Biederman, J., Faraone, S. V., & Spencer, T. (1993). Patterns of psychiatric comorbidity, cognition, and psychosocial functioning in adults with attention deficit hyperactivity disorder. *American Journal of Psychiatry, 150* (12), 1792-1798.

Bird, H. R., Jensen, P. S., & Cooper, J. R. (2002). *The diagnostic classification, epidemiology, and cross-cultural validity of ADHD. In:* Attention deficit hyperactivity disorder: State of the science-best practices, Kingston, NJ, US: Civic Research Institute, pp. 1-19.

Box, G. E. P. (1949). A general distribution theory for a class of likelihood criteria. *Biometrika, 36*, 317-346.

Bradley, C. & Bowen, M. (1940). School performance of children receiving amphetamine (Benzedrine) sulfate. *American Journal of Orthopsychiatry, 10*, 782-789.

Bradley, C. & Bowen, M. (1941). Behavior characteristics of schizophrenic children. *Psychiatric Quarterly, 15*, 296-315.

Bradley, C. (1937). The behavior of children receiving benzedrine. *American Journal of Psychiatry, 94,* 577-585.

Bradley, C. (1950). Benzedrine and dexedrine in the treatment of children's behavior disorders. *Pediatrics, 5*, 24-37.

British Psychological Society (1996). *Attention Deficit Hyperactivity Disorder (ADHD): A psychological response to an evolving concept* (Report by a Working Party). Leicester, England: The British Psychological Association.

Broughton, S. F., & Hester, J. R. (1993). Effects of administrative and community support on teacher acceptance of classroom interventions. *Journal of Educational and Psychological Consultation, 4* (2), 169-177.

Brown, R. T., & Sawyer. M. G. (1998). *Medications for school-age children: Effects on learning and behavior*. New York, NY: Guilford.

Bussing, R., Gary, F. A., Leon, C. E., Wilson-Garvan, C., & Reid, R. (2002). General classroom teachers' information and perceptions of attention deficit hyperactivity disorder. *Behavioral Disorders, 27* (4), 327-339.

Bussing, R., Zima, B. T., Belin, T. R., & Forness, S. R. (1998). Children who qualify for LD and SED programs: Do they differ in level of ADHD symptoms and comorbid psychiatric conditions? *Journal of Emotional and Behavioral Disorders, 22*, 85-97.

Calvert, S., & Johnston, C. (1990). Acceptability of treatments for child behavior problems and implications for future research. *Journal of Clinical Child Psychology, 19* (1), 61-74.

Campbell, S. B., & Ewing, L. J. (1990). Follow-up of hard to manage preschoolers: Adjustment at age 9 and predictors of continuing symptoms. *Journal of Child Psychology and Psychiatry, 31*, 871-889.

Carbone, E. (2001). Arranging the Classroom with an Eye (and Ear) to Students with ADHD. *Teaching Exceptional Children, 34* (2), 72-81.

Cavell, T. A., Frentz, C. E., & Kelley, M. L. (1986). Acceptability of paradoxical interventions: Some nonparadoxical findings. *Professional Psychology: Research & Practice, 17* (6), 519-523.

Clements, S. D., & Peters, J. E. (1962). Minimal brain dysfunctions in the school-aged child. *Archives of General Psychiatry, 6,* 185-197.

Cohen, J. (Ed.) (1988). *Statistical power analysis for the behavioral sciences,* 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 1988.

Cullwood-Brathwaite, D., & McKinney, J. D. (1998). *Co-occurrence of attention deficit hyperactivity disorder in a school identified sample of students with emotional or behavioral disorders: Implications for educational programming.* Paper presented at Southwest Regional Conference of Council for Children with Behavioral Disorders, Gulf Shores, Fl.

Davila, R. R., Williams, M. L., & Macdonald, J. T. (1991). *Verification of policy to address the needs of children with attention deficit disorder within general and/or special education* [Memorandum]. United States Dept. of Education, Office of Special Education and Rehabilitation Services.

Department of Justice Office of the Attorney General, 28 CFR Part 35 (1991). Nondiscrimination on the basis of disability in state and local government services; Final Rule. *Federal Register, 56* (144), 35694-35723.

Douglas, V. I. (1972). Stop, look and listen: The problem of sustained attention and impulse control in hyperactive and normal children. *Canadian Journal of Behavioral Science, 4,* 259-282.

Duncan, B., Forness, S.R., & Hartsough, C. (1995). Students identified as seriously emotionally disturbed in day treatment classrooms: Cognitive, psychiatric, and special education characteristics. *Behavioral Disorders, 20*, 238-252.

Eckert, T.L., & Hintze, J.M. (2000). Behavioral conceptions and applications of acceptability: Issues related to service delivery and research methodology. *School Psychology Quarterly, 15* (2), 123-148.

Epstein, M. H., Matson, J. L., Repp, A. & Helsel, W. J. (1986). Acceptability of treatment alternatives as a function of teacher status and student level. *School Psychology Review, 15* (1), 84-90.

Forness, S. R., & Kavale, K. A. (1997). Defining emotional and behavioral disorders in school and related services. In J. W. Lloyd, E. J. Kameenui, & D. Chard (Eds.). *Issues in educating students with disabilities* (pp. 45-61). Hillsdale, N.J.: Eribaum.

Forness, S. R., & Kavale, K. A. (2001). ADHD and a return to the medical model of special education. *Education & Treatment of Children, 24* (3), 224-247.

Gage. J. D. (2002). Parents' and teachers' acceptability of treatments for attention-deficit/hyperactivity disorder: The effects of presentation and information delivery. *Dissertations Abstract International: Section B: The Sciences and Engineering, 63* (1-B), pp. 524.

Glass, C. S. & Wegar, K. (2000). Teacher perceptions of the incidence and management of Attention Deficit Hyperactivity Disorder. *Education, 121* (2), 412-420.

Goetz, D. M. (2002). An evaluation of the effect of inservice training and collaborative consultation on classroom teachers' ability to accommodate children with

behavioral challenges in the regular education classroom. *Dissertations Abstracts International Section A: Humanities & Social Sciences, 62* (11-A), 3683.

Goldman, L. S., Genel, M., Bezman, R. J. & Slanetz, P. J. (1998). Diagnosis and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *JAMA: Journal of the American Medical Association, 279* (14), 1100-1107.

Goldstein, K. (1942). *After-effects of brain injuries in war.* New York: Grune and Stratton.

Goldstein, S. & Goldstein, M. (1998). *Managing Attention Deficit Hyperactivity Disorder in children: A guide for practitioners* (2 nd ed.). New York: John Wiley & Sons.

Goodman, L. S., & Gilman, A. (Eds.). (1975). *The pharmacological basis of therapeutics* (5th ed.). New York: Macmillan.

Gresham, F.M. (1989). Assessment of treatment integrity in school consultation and prereferral intervention. *School Psychology Review, 18* (1), 37-50.

Gray, W. S., & Sime, S. (1989). *Discipline in schools* (the Elton Report). London: HMSO.

Hartsough, C. S., & Lambert, N. M. (1985). Medical factors in hyperactive and normal children. *American Journal of Orthopsychiatry, 55,* 190-201.

Helsel, W. J., & Fremer, C. M. (1993). Theory and hyperactivity. In J. M. Matson (Ed.), *Handbook of hyperactivity in children.* Nedham Heights: Allyn & Bacon.

Higgins, M. M. (2000). Perceptions of 'reasonable' accommodations in general education for secondary school students with ADHD: Treatment acceptability ratings of teachers. *Dissertation Abstracts International Section A: Humanities & Social Sciences, 60* (10-A), pp. 3605.

Hohman, L. B. (1922). Post-encephalitic behavior disorder in children. *Johns Hopkins Hospital Bulletin, 33,* 372-375.

Huynh, H. and Feldt, L.S. (1976), "Estimation of the Box Correction for Degrees of Freedom from Sample Data in the Randomized Block and Split Plot Designs," *Journal of Educational Statistics,* 1, 69 -82.

Hyatt, S. P. & Tingstrom, D. H. (1993). Consultants' use of jargon during intervention presentation: An evaluation of presentation modality and type of intervention. *School Psychology Quarterly, 8* (2), 99-109.

Individuals with Disabilities Act of 1990 and 1997 (1999). 20 U.S.C. Chapter 33, Sections 1400-1491.

Jensen, P. S., Kettle, L. & Roper, M. T., et al. (1999). Are stimulants overprescribed? Treatment of ADHD in four US communities. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 797-804.

Kahn, E., & Cohen, L. H. (1934). Organic drivenness: A brain stem syndrome and an experience with case reports. *New England Journal of Medicine, 210,* 748-756.

Kazdin, A. E. (1980a). Acceptability of alternative treatments for deviant child behavior. *Journal of Applied Behavior Analysis, 13*, 259-273.

Kazdin, A. E. (1980b). Acceptability of timeout from reinforcement procedures for disruptive child behaviors. *Behavior Therapy, 11*, 329-344.

Kazdin, A. E. (1981). Acceptability of child treatment techniques: The influence of treatment efficacy and adverse side effects. *Behavior Therapy, 12*, 493-506.

Kelley, M. L., Heffer, R. W., Gresham, F. M., & Elliott, S. N. (1989). Development of a modified treatment evaluation inventory. *Journal of Psychopathology and Behavioral Assessment, 11*, 235-247.

Keppel, G., & Wickens, T.D. (2004). Design and Analysis: A researcher's handbook (4th ed.). New Jersey: Pearson.

Kewley, G. D., Facer, R., & Scott, M. (1994). *Awareness diagnosis and management of ADD amongst United Kingdom community pediatricians and child psychiatrists.* Unpublished manuscript.

Knoblauch, B. (1998). *An Overview of the Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-17).* (Report No. RR93002005). Reston, VA: Council for Exceptional Children. (ERIC Clearinghouse on Disabilities and Gifted Education No. ED430325).

Knobloch, H., & Pasamanick, B. (1959). The syndrome of minimal cerebral damage in infancy. *Journal of the American Medical Association, 70,* 1384-1386.

Laufer, M. W. (1979). Defining the minimal brain dysfunction syndrome. In E. Denhoff & L. Stern (Eds.), *Minimal brain dysfunction: A developmental approach.* New York: Mason.

Laufer, M. W., & Denhoff, E. (1957). Hyperkinetic behavior syndrome in children. *Journal of Pediatrics, 50,* 463-474.

Lopez, M. F., Forness, S. R., MacMillan, D. L., Bocian, J. R., & Gresham, F. M. (1996). Children with Attention Deficit Hyperactivity Disorder and emotional or behavioral disorders in primary grades: Inappropriate placement in the learning disability category. *Education and Treatment of Children, 19* (3), 286-290.

Mann, E. M., Ikeda, Y., & Mueller, C. W. (1992). Cross-cultural differences in rating hyperactive-disruptive behaviors in children. *American Journal of Psychiatry, 149* (11), 1539-1542.

Mannuzza, S., Klein, R. G., Bessler, A., & Malloy, P. (1993). Adult outcome of hyperactive boys. educational achievement, occupational rank and psychiatric status. *Archives of General Psychiatry, 50*, 565-576.

Mannuzza, S., Klein, R.G., Bessler, A., Malloy, P., & LaPadula, M. (1998). Adult psychiatric status of hyperactive boys grown up. American Journal of Psychiatry, 155 (4), 493-498.

Martens, B. K., Witt, J. C., Elliott, S. N. & Darveaux, D. X. (1985). Teacher judgments concerning the acceptability of school-based interventions. Professional Psychology: Research & Practice, 16 (2), 191-198.

McConaughy, S.H., Mattison, R.E., & Peterson, R.L. (1994). Behavioral/emotional problems of children with serious emotional disturbances and learning disabilities. *School Psychology Review, 23* (1), 81-98.

Miller-Johnson, S., Coie, J. D., Maumary-Gremaud, A., & Bierman, K. (2002). Peer rejection and aggression and early starter models of conduct disorder. Journal of Abnormal Child Psychology, 30 (3), 217-230.

Miranda, A., Presentacion, M. J., & Soriano, M. (2002). Effectiveness of a school-based multicomponent program for the treatment of children with ADHD. *Journal of Learning Disabilities, 35* (6), 546-562.

Mitchell, E. A., Aman, M. G., Turbott, S. H. & Manku, M. (1987). Clinical characteristics and serum essential fatty acid levels in hyperactive children. Clinical Pediatrics, 26 (8), 406-411.

Molitch, M., & Eccles, A. K. (1937). Effects of benzedrine sulphate on intelligence scores of children. *American Journal of Psychiatry, 94,* 587-590.

MTA Cooperative Group. (1999a). A 14-month randomized clinical trial of treatment strategies for Attention Deficit/Hyperactivity Disorder. *Archives of General Psychiatry, 56*, 1088-1096.

Murphy, K. R. & Barkley, R. A. (1996c). Parents of children with attention-deficit/hyperactivity disorders: Psychological and attentional impairment. American Journal of Orthopsychiatry, 66 (1), 93-102.

NASDSE Report: Due Process Hearing Update from Quick Turn Around Forum (1991). Retrieved from the web August 7, 2003. http://www.directionservice.org/cadre/nasdse2.cfm.

National Association of School Psychologists (1995). Students with attention deficits. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology-III, p. 1218. Washington, DC: Author.

National Dissemination Center for Children with Disabilities. (2000). *Federal Resource Center for Special Education.* Retrieved from the web, September 16, 2003. http://www.nichcy.org/ideatrai.htm

Office of the Federal Register, National Archives and Records Service, General Services Administration (2000, December 21). Electronic and information technology accessibility standards. The Federal Register, 65 (246), 80499-80528.

Office of the Federal Register (March 12, 1999). Regulations, 34 CFR Parts 300 & 303: Assistance to states for the education for children with disabilities and the early intervention program for infants and toddlers with disabilities; Final regulations. *Department of Education, 64* (48), 12406.

Office of the Federal Register (March 12, 1999). Rules and Regulations. *Department of Education, 64* (48), 3-50.

Office of the Federal Register (1990). Amendment Section 504 Regulations, 34 CFR Part 104: Enforcement of nondiscrimination on the basis of handicap in federally assisted programs; final rule. *Department of Education, 55* (244), 52141.

Office of the Federal Register (September 16, 1991). 34 CFR 300.505(a) (1)-(4): Clarification of Policy to Address the Needs of Children with Attention Deficit Disorders within General and/or Special Education. Department of Education.

Office of the Federal Register (1980). Establishment of Title 34, Part II, Section 504 Rehabilitation Act of 1973. *Department of Education, 45* (92), 30936-30955.

Office of the Federal Register. (August 23, 1977). 20 USC 1401 et seq. *Department of Education, 42* (163), 42474-42518.

Papazian, O. (1995). The story of fidgety Philip. *International Pediatrics, 10*, 188-190.

Pasamanick, B., Rogers, M.E. & Lilienfeld, A.M. (1956). Pregnancy experience and the development of behavior disorder in children. American Journal of Psychiatry, 112, 613-617.

Pelham, W. E., & Bender, M. E. (1982). Peer relationships in hyperactive children. In K. D. Gadow & I. Bialer (Eds.), *Advances in learning and behavioral disabilities.* Greenwich, CT: JAI Press. (Vol. 1, pp. 365-436).

Piccolo-Torsky, J., & Waishwell, L. (1998). Teachers' knowledge and attitudes regarding attention deficit disorder. ERS Spectrum, 16, 36-40.

Pisecco, S. (2001). The effect of child characteristics on teachers' acceptability of classroom-based behavioral strategies and psychostimulant medication for the treatment of ADHD. Journal of Clinical Child & Adolescent Psychology, 30 (3), 413-421.

Polacco, M., Casella, S., & Condini, A. (1992). Clinical aspects of the rehabilitation of hyperactive children. *Giornale di Neuropsichiatria dell' eta Evolutiva, 12,* 15-23.

Power, T. J. (1995). The acceptability of interventions for attention-deficit hyperactivity disorder among elementary and middle school teachers. Journal of Developmental & Behavioral *Pediatrics, 16* (4), 238-243.

Reid, R. & Katsiyannis, A. (1995). Attention-Deficit/Hyperactivity Disorder and Section 504. *Remedial & Special Education, 16* (1), 44-53.

Reid, R., Vasa, S. F., Maag, J. W., & Wright, G. (1994). An analysis of teachers' perceptions of ADHD. *Journal of Research and Development in Education, 27,* 195-202.

Robison, L. M., Sclar, D. A., & Galin, R. S. (2002). Is Attention Deficit Hyperactivity Disorder increasing among girls in the US? Trends in diagnosis and the prescribing of stimulants. *CNS Drugs, 16* (2), 129-137.

Rosenfeld, G. B., & Bradley, C. (1948). Childhood behavior sequelae of asphyxia in infancy. *Pediatrics, 2,* 74-78.

Sachdev, P. (1999). Attention deficit hyperactivity disorder in adults. Psychological Medicine, 29 (3), 507-514.

Sarasone, S. B. (1949). *Psychological problems in mental deficiency.* New York: Harper & Row.

Shakespeare, W. (1623). *Henry VIII.* (In Harrison, G.B., Ed. 1952 version. Shakespeare: The Complete Works.) New York, NY: Harcourt Brace & World.

Soodak, L. C., Podell, D. M., & Lehman, L. R. (1998). Teacher, student, and school attributes as predictors of teachers' responses to inclusion. *Journal of Special Education, 31* (4), 480-497.

Soodak, L. C., Podell, D. M., & Lehman, L. R. (1998). Teacher, student, and school attributes as predictors of teachers' responses to inclusion. *Journal of Special Education, 31* (4), 480-497.

Sterling-Turner, H.E., Watson, T. S. (2002). An analogue investigation of the relationship between treatment acceptability and treatment integrity. *Journal of Behavioral Education, 11* (1), 39-50.

Stewart, M. A., Mendelson, W. B., & Johnson, N. E. (1973). Hyperactive children as adolescents: How they describe themselves. *Child Psychiatry and Human Development, 4,* 3-11.

Still, G. F. (1902). The Coulstonian lectures on some abnormal physical conditions in children. *Lancet, 1,* 1008-1012.

Stoner, G., & Carey, S. P. (1992). Serving students diagnosed with ADD: Avoiding deficits in professional attention. *School Psychology Quarterly, 7* (4), 302-307.

Strauss, A. A., & Kephart, N. C. (1947). *Psychopathology and education of the brain injured child* (Vol. 2). New York: Grune and Stratton.

Strauss, A. A., & Kephart, N. C. (1955). *Psychopathology and education of the brain injured child: Vol. 2. Progress in theory and clinic.* New York: Grune and Stratton.

Strauss, A. A., & Lehtinen, L. E. (1947). *Psychopathology and education of the brain injured child.* New York: Grune and Stratton.

Tabassam, W., Grainger, J. (2002). Self-concept, attributional style and self-efficacy beliefs of students with learning disabilities with and without Attention Deficit Hyperactivity Disorder. *Learning Disability Quarterly, 25* (2), 141-151.

Tarnowski, K. J. & Simonian, S. J. (1992). Assessing treatment acceptance: The abbreviated acceptability rating profile. *Journal of Behavior Therapy and Experimental Psychiatry, 23* (2), 101-106.

Taylor, E., Chadwick, O., Heptinstall, E., & Danckaerts, M. (1996). Hyperactivity and conduct problems as risk factors for adolescent development. *Journal of the American Academy of Child and Adolescent Psychiatry, 39* (9), 1213-1226.

Taylor, E., Sandgerg, S., Thorley, G., & Giles, S. (1991). *The epidemiology of childhood hyperactivity.* New York: Oxford University Press.

Thurber, J. R., Heller, T. L., Hinshaw, S. P. (2002). The social behaviors and peer expectation of girls with attention deficit hyperactivity disorder and comparison girls. *Journal of Clinical Child & Adolescent Psychology, 31* (4), 443-452.

Tyler, A. (1998). The contributions of hyperactivity-impulsivity, inattention, and aggression-oppositionality to children's peer and friendship relations. *Dissertation Abstracts International: Section B: The Sciences & Engineering, 59* (1-B), pp. 0430.

U. S. Department of Education Office for Civil Rights (1995). *The Civil Rights of students with hidden disabilities under Section 504 of the Rehabilitation Act of 1973.* Washington, DC.

U. S. Department of Education Office for Civil Rights (1998). *Student placement in elementary and secondary schools and Section 504 and Title II of the Americans with Disabilities Act.* Washington, DC.

U. S. Department of Education Office for Civil Rights, 29 U.S.C. 794 (1999). *Free appropriate public education for students with disabilities: Requirements under Section 504 of the Rehabilitation Act of 1973.* Washington, DC.

U.S. Department of Education (1991). *Joint policy memorandum, 18* IDELR 116. Washington, DC. U.S. Government Printing Office.

U.S. Department of Education. (1996). *18th annual report to Congress on the implementation of the Individuals with Disabilities Education Act.* Washington, DC: Office of Special Education. (ERIC Document Reproduction Service No. ED 400 673).

USDEA (2002). *Yearly Aggregate Production Quotas (1990-2001).* Office of Public Affairs, Drug Enforcement Administration, Washington, DC.

Vitaro, F., Tremblay, R. E., Gagnon, C., & Biovin, M. (1992). Peer rejection from kindergarten to grade 2: Outcomes, correlates, and prediction. *Merrill-Palmer Quarterly, 38,* 382-400.

Vitaro, F., Tremblay, R. E., Gagnon, C., & Pelletier, D. (1994). Predictive accuracy of behavioral and sociometric assessments of high-risk kindergarten children. *Journal of Clinical Child Psychology, 23,* 272-282.

Weiss, G., Hechtman, L., Milroy, T., & Perlman, T. (1985). Psychiatric status of hyperactives as adults: a controlled perspective 15-year follow-up of 63 hyperactive children. *Journal of the American Academy of Child Psychiatry, 24* (2), 211-220.

Wilens, T. E., Biederman, J., Spencer, T. J., & Frances, R. J. (1994). Comorbidity of attention-deficit hyperactivity and psychoactive substance use disorders. *Hospital & Community Psychiatry, 45* (5), 421-423, 435.

Witt, J. C. & Martens, B. K. (1983). Assessing the acceptability of behavioral interventions used in classrooms. *Psychology in the Schools, 20* (4), 510-517.

World Health Organization (1992). International Classification of Diseases (10^{th} ed.) [ICD-10]. Office of Publications: Geneva, Switzerland.

Zito, J. M., Safer, D. J., dosReis, S., Gardner, J. F., Boles, M., & Lynch, F. (2000). Trends in the prescribing of psychotropic medications to preschoolers. *Journal of the American Medical Assocation, 283,* 1025-1030.

APPENDICES

APPENDIX A

CONSENT FORMS

APPENDIX A-1

SCHOOL DISTRICT CONSENT

Dear Researcher:

The _____ School agrees to participate in your study entitled, *Treatment acceptability and perceived time to implement interventions for children with ADHD moderated by general education teachers' training in ADHD and disability law, and eligibility for disabling conditions*.

We understand that the purpose of the study is to determine if certain teacher, student, and eligibility characteristics contribute to general education teachers' treatment acceptability of interventions for children with ADHD and the amount of time they are willing to expend implementing interventions to treat children with ADHD.

The _____ School understands that the issue of education for children with Attention Deficit/Hyperactivity Disorder can be confusing, especially when those students are in the general education classroom for most of the school day. In this study, the researcher will leave a packet for each teacher who agrees to participate in the study. The teachers will be instructed where to return the completed survey.

For this study, our teachers will each be provided with a consent form that explains the purpose of the study and what they are being asked to do. They will also be asked to complete a demographic sheet. The participating teachers will be given a scenario of a child with ADHD who has been evaluated by a multidisciplinary team and an intervention that has been agreed upon by the committee. The teachers will be asked to complete a treatment acceptability instrument, a Knowledge and Management of ADHD instrument, and two brief instruments that assess their understanding of IDEA and Section 504 in regards to ADHD children. We understand that after participating in the inservice training, our teachers will be asked to complete a second packet to assess the knowledge and attitude change after the training.

We understand that our teachers will not be provided with any type of incentive to participate in this study, other than contributing to the professional literature regarding how to successfully manage the behaviors and educational needs of children with ADHD.

We have been asked to contact the lead researcher, Kim Dielmann, at Oklahoma State University (405-744-4802, dielmann_kim@yahoo.com), if we have any questions or concerns about the process of this study. Our school retains the option to withdraw from participating if we are not satisfied with the manner in which the study is being conducted. Our school contact person that you can call with questions is _____ _____, who can be reached by phone at_____.

Sincerely,

_____
Date

(Principal's name and address)

APPENDIX A-2

TEACHER CONSENT

OSU INSTITUTIONAL REVIEW BOARD
CONSENT FORM

Dear Participant:

We appreciate your participation in this study. In this package of materials you will find a demographic sheet, a vignette, the Abbreviated Acceptability Rating Profile, the Questionnaire of Knowledge and Management Procedures, the IDEA 97' Training Quiz, and the Knowledge and Use of Section 504 Training Quiz. We are interested in determining what information teachers need to rate specific behavior interventions as acceptable. Please complete all the items on the instruments.

I, _____ hereby authorize or direct Kim Dielmann and/or her research assistants, to perform the following treatment or procedure:

Present me with a demographic information sheet that will ask me to report my race, gender, age, years in the education field, number of courses covering ADHD, and hours of training/workshops on Disability Laws and working with children with ADHD. The remainder of the packet will consist of the following: a vignette that provides a case study describing a child with ADHD and a proposed treatment for the general education classroom. I will be asked to read the vignette and report on the amount of time I would be willing to spend intervening with this child on the proposed treatment and whether I agree with the decision discussed on the vignette. Then I will be asked to complete the AARP, a treatment acceptability form with eight questions that rate my acceptability of the intervention proposed on the vignette. I will then be asked to complete the Questionnaire of Knowledge and Management Procedures, the IDEA '97 Training Quiz and the Knowledge and Use of Section 504 for Educators Training Quiz. These instruments are designed to evaluate my knowledge of ADHD and disability laws before and after the inservice training.

Approximately two weeks later, I will be asked to participate in a one to two hour inservice training on the Knowledge and Management of ADHD students and Disability Laws relavent to ADHD students. After completion of the training, I will be asked to complete the posttest packet which includes the same information as the pretest except for the demographic form (which would have been completed during the pretest). My participation should take approximately 15 to 20 minutes for the pretest packet, two-three hours for the in-service training, and 15 to 20 minutes for the posttest packet, for a total participation time of around three hours over the course of two weeks.

I understand that my participation in the study is completely voluntary; there is no penalty for not choosing to participate, that I may withdraw from the study at any time with no penalty to me, and that my participation and responses will be completely confidential. I understand that my participation in the in-service training is voluntary and I am in no way obligated to participate in the study. There is minimal risk or possible discomfort to me for participating. I understand that the researchers will assign me an identification number to be used only for the purposes of this study and only the researchers will have access to it. My responses will be kept confidential under lock and key in the primary investigator's office. All of my responses and my ID number will be

destroyed at the completion of the project. I understand that this study may help educators and other professionals who work with teachers understand what information regarding managing students with ADHD needs to be addressed in in-service trainings or how to assess the effectiveness of these trainings.

This is done as part of an investigation entitled:

Treatment acceptability and perceived time to implement interventions for children with ADHD moderated by general education teachers' training in ADHD and disability law, and eligibility for disabling conditions.

I may contact Kim Dielmann at 405 744-4802 or at dielman@okstate.edu. I may also contact Dr. Stinnett, Advisor at 405 744-9456 or Dr. Carol Olson, IRB Chair, 415 Whitehurst Hall, Stillwater, OK 74078. Phone: 405-744-1676.

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

Date: _____ Time: _____ (a.m / p.m.)

Signed: _____

I certify that I have personally explained all elements of this form to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: _____
Project director or her authorized representative

APPENDIX A-3

PILOT CONSENT

OSU INSTITUTIONAL REVIEW BOARD
CONSENT FORM

Dear Participant:

We appreciate your participation in this study. In this package of materials you will find two instruments assessing information about working with students with Attention Deficit Hyperactivity Disorder. We are interested in determining the usefulness of these instruments for teachers. Please complete all the items on the instruments.

I, _____ hereby authorize or direct Kim Dielmann and/or her research assistants, to perform the following treatment or procedure:

Present me with a personal information sheet and two questionnaires to complete based on my knowledge that I have gained about ADHD. My participation should take approximately 15 to 20 minutes. I understand that my participation is completely voluntary; there is no penalty for not choosing to participate, that I may withdraw from the study at any time with no penalty to me, and that my participation and responses will be completely confidential. If I chose not to participate, an alternative activity has been developed for me to receive any extra credit that my instructor may offer. Instead I can review an article provided on the topic of ADHD and summarize its findings during the class period when students who are participating are completing the surveys. There is minimal risk or possible discomfort to me for participating. I understand that the researchers will assign me an identification number to be used only for the purposes of this study and only the researchers will have access to it. My responses will be kept confidential under lock and key in the primary investigator's office. All of my responses and my ID number will be destroyed at the completion of the project. I understand that this study may help educators and other professionals who work with teachers understand what information regarding managing students with ADHD needs to be addressed in inservice trainings or how to assess the effectiveness of these trainings.

This is done as part of an investigation entitled:

The psychometric analysis of the Questionnaire of Knowledge and Management Procedures, a test to measure teacher-knowledge and management skills of children with attention deficit hyperactivity disorder.

I may contact Kim Dielmann at 405 744-4802 or at dielman@okstate.edu. I may also contact either Dr. Stinnett, Advisor at 405 744-9456 or Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 415 Whitehurst, Stillwater, OK 74078. Phone: 405 744-5700.

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

Date: _____ Time: _____ (a.m / p.m.)

Signed: _____

I certify that I have personally explained all elements of this form to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: _____
Project director or her authorized representative

APPENDIX B

DEMOGRAPHIC FORM

Demographic Form

1. Gender:	Male _____	Female _____
2. Race:	Caucasian _____	African American _____
Asian _____	Hispanic _____	Native American _____
Other (please specify) _____		

3. What grades do you teach? (please circle all that apply)	K 1 2 3 4 5 6 7 8 9 Other _____
4. Years of General Education Teaching Experience:	_____
5. Years of Special Education Teaching Experience:	_____
6. How many books have you read on ADHD?	None 1-2 3-4 5-6 More than 7
7. How many hours of inservice have you received on ADHD?	None 1-2 3-4 5-6 More than 7
8. How many hours of inservice have you received on IDEA/Section 504?	_____
8. How many students do you currently have in your class who are diagnosed with ADHD?	_____
9. How many students do you currently have in your class who you believe have ADHD?	_____
10. How many students do you have in your class?	_____
11. How many minutes per day do you typically spend on classroom interventions for students with ADHD?	_____

APPENDIX C

VIGNETTES

IDEA Eligible Vignette

Danny is an 8 year old child who has been having significant difficulty at school. His teacher reports that he has difficulty paying attention and is easily distracted. The teacher states that Danny is out of his seat frequently and she spends a large amount of time "keeping him in his seat" and "on task." He seems to never complete all his class work and takes much of it home. His mother reports that she is having similar difficulties with Danny at home. She has to stay right beside him while he completes his homework. She also states that they review a concept, then the next day Danny has to relearn it. The teacher feels that Danny's behavior is excessive and something needs to be done. Danny currently has 3 "B's," 2 "C's," and one "D." Most of his grades have always been good, but his behavior gets in the way of him reaching his full potential. Danny does not appear to have any friends. The students in the class do not seem to like him. They feel that he is "weird" and does not play well with the rest of the students. The girls state that Danny pulls their hair and takes their toys from them. The other boys report that Danny just does not know how to play right. If something is not done to help this behavior, Danny is apt to fall behind.

Danny's mother took him to their family doctor who evaluated him. According to the assessment results, Danny meets the criteria for ADHD Combined Type. This means that he shows significant impairments in social, behavioral, and academic functioning. The assessment, which was completed by a school psychologist, demonstrated consistent results across cognitive functioning, academic functioning, and social/emotional functioning. Danny, however, did not meet the criteria for a Specific Learning Disability. Danny's doctor started him on a low dose of a psychostimulant medication to see if it would improve his overall functioning.

After four weeks on the medication, Danny's behavior had improved slightly, but he still demonstrated difficulties socially, academically, and behaviorally. The multidisciplinary team met to determine if Danny qualified for services under IDEA or Section 504. After careful review of the data, the committee decided that he qualified for IDEA services under Other Health Impaired. They agreed that the least restrictive environment for Danny was to remain in the general education classroom and they would develop a classroom intervention plan that would address his specific behavioral and academic needs.

The following intervention to address Danny's behavior concerns was developed:

Medication management will continue as prescribed. The teacher will monitor the effects of the medication (or any change to the prescription as requested by the doctor). A school-based treatment will be implemented that has 2 components: 10 to 16 sessions of biweekly teacher consultation with the student focused on classroom behavior management strategies, and 12 weeks of a part-time aide who will work directly in the classroom with the Danny. Throughout the school year, a Daily Report Card will be used to link the child's behavior at school to consequences at home. A Daily Report Card, which is a one page teacher-completed rating of the child's success on specific behaviors,

will be brought home daily by the child to be reviewed by parents with rewards for a successful day provided as indicated.

How many minutes per week would you be willing to devote to implementing this intervention?

_____ (enter a number on the line)

Do you agree with the decision by the multidisciplinary team? Yes or No

504 Eligible Vignette

Danny is an 8 year old child who has been having significant difficulty at school. His teacher reports that he has difficulty paying attention and is easily distracted. The teacher states that Danny is out of his seat frequently and she spends a large amount of time "keeping him in his seat" and "on task." He seems to never complete all his class work and takes much of it home. His mother reports that she is having similar difficulties with Danny at home. She has to stay right beside him while he completes his homework. She also states that they review a concept, then the next day Danny has to relearn it. The teacher feels that Danny's behavior is excessive and something needs to be done. Danny currently has 3 "A's," 2 "B's," and one "C." Most of his grades have always been good, but his behavior gets in the way of him reaching his full potential. Danny does not appear to have any friends. The students in the class do not seem to like him. They feel that he is "weird" and does not play well with the rest of the students. The girls state that Danny pulls their hair and takes their toys from them. The other boys report that Danny just does not know how to play right. If something is not done, Danny is apt to fall behind.

Danny's mother took him to their family doctor who evaluated him. According to the assessment results, Danny meets the criteria for ADHD Combined Type. This means that he shows significant impairments in social, behavioral, and academic functioning. The assessment, which was completed by a school psychologist, demonstrated consistent results across cognitive functioning, academic functioning, and social/emotional functioning. Danny did not meet the criteria for a Specific Learning Disability. Danny's doctor started him on a low dose of a psychostimulant medication to see if it would improve his overall functioning.

After four weeks on the medication, Danny's behavior had improved slightly, but he still demonstrated difficulties socially, academically, and somewhat behaviorally. The multidisciplinary team met to determine if Danny qualified for services. After careful review of the data, the committee decided that he qualified for Section 504 services to address his behavior concerns. They agreed that Danny should remain in the general education classroom and they would develop a classroom intervention plan that would address his specific behavioral and academic needs.

The following intervention to address Danny's behavior concerns was developed:

Medication management will continue as prescribed. The teacher will monitor the effects of the medication (or any change to the prescription as requested by the doctor). A school-based treatment will be implemented that has 2 components: 10 to 16 sessions of biweekly teacher consultation with the student focused on classroom behavior management strategies, and 12 weeks of a part-time aide who will work directly in the classroom with the Danny. Throughout the school year, a Daily Report Card will be used to link the child's behavior at school to consequences at home. A Daily Report Card, which is a one page teacher-completed rating of the child's success on specific behaviors,

will be brought home daily by the child to be reviewed by parents with rewards for a successful day provided as indicated.

How many minutes per week would you be willing to devote to implementing this intervention?

_____ (enter a number on the line)

Do you agree with the decision by the multidisciplinary team? Yes or No

Non-Eligible Vignette

Danny is an 8 year old child who has been having significant difficulty at school. His teacher reports that he has difficulty paying attention and is easily distracted. The teacher states that Danny is out of his seat frequently and she spends a large amount of time "keeping him in his seat" and "on task." He seems to never complete all his class work and takes much of it home. His mother reports that she is having similar difficulties with Danny at home. She has to stay right beside him while he completes his homework. She also states that they review a concept, then the next day Danny has to relearn it. The teacher feels that Danny's behavior is excessive and something needs to be done. Danny currently has 3 "A's," 2 "B's," and one "C." Most of his grades have always been good, but his behavior gets in the way of him reaching his full potential. Danny does not appear to have any friends. The students in the class do not seem to like him. They feel that he is "weird" and does not play well with the rest of the students. The girls state that Danny pulls their hair and takes their toys from them. The other boys report that Danny just does not know how to play right. If something is not done, Danny is apt to fall behind.

Danny's mother took him to their family doctor who evaluated him. According to the assessment results, Danny meets the criteria for ADHD Combined Type. This means that he shows significant impairments in social, behavioral, and academic functioning. The assessment, which was completed by a school psychologist, demonstrated consistent results across cognitive functioning, academic functioning, and social/emotional functioning. Danny did not meet the criteria for a Specific Learning Disability. Danny's doctor started him on a low dose of a psychostimulant medication to see if it would improve his overall functioning.

After four weeks on the medication, Danny's behavior had improved slightly, but he still demonstrated difficulties socially, academically, and somewhat behaviorally. The multidisciplinary team met to determine if Danny qualified for services. After careful review of the data, the committee decided that he did not qualify for IDEA services under Other Health Impaired or Section 504. They agreed that Danny should remain in the general education classroom and they would develop a classroom intervention that would address his specific behavioral and academic needs.

The following intervention to address Danny's behavior concerns was developed:

Medication management will continue as prescribed. The teacher will monitor the effects of the medication (or any change to the prescription as requested by the doctor). A school-based treatment will be implemented that has 2 components: 10 to 16 sessions of biweekly teacher consultation with the student focused on classroom behavior management strategies, and 12 weeks of a part-time aide who will work directly in the classroom with the Danny. Throughout the school year, a Daily Report Card will be used to link the child's behavior at school to consequences at home. A Daily Report Card, which is a one page teacher-completed rating of the child's success on specific behaviors,

will be brought home daily by the child to be reviewed by parents with rewards for a successful day provided as indicated.

How many minutes per week would you be willing to devote to implementing this intervention?

_____ (enter a number on the line)

Do you agree with the decision by the multidisciplinary team? Yes or No

APPENDIX D

ABBREVIATED ACCEPTABILITY RATING PROFILE

Abbreviated Acceptability Rating Profile
(Tarnowski & Simonian, 1992)

Complete the items below by placing a checkmark on the line next to each question that best indicates how you feel about the treatment.

1. This is an acceptable treatment for the child's behavior.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

2. The treatment should be effective in changing the child's behavior.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

3. The child's behavior is severe enough to justify the use of this treatment.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

4. I would be willing to use this treatment with my child.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

5. This treatment would not have bad side effects for the child.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

6. I liked this treatment.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

7. The treatment was a good way to handle the child's problem.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

8. Overall, the treatment helped the child.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

APPENDIX E

QUESTIONNAIRE OF KNOWLEDGE AND MANAGEMENT PROCEDURES

Questionnaire of Knowledge and Management Procedures

Below are a series of questions that refer to the way you may describe a student with attention deficit-hyperactivity disorder (ADHD) in the classroom. They also address how you may modify your class instructions and manage the behavior of that student. Please be honest. The objective of administering this assessment tool is to evaluate the degree to which teachers possess knowledge to educate students with ADHD. All of these questions refer to students with ADHD. Circle the appropriate answer.

PART A

Based on my knowledge about students with ADHD, the following can be said of such a student:

Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	2	3	4	5

1	Seems incapable of finishing his/her homework.	1	2	3	4	5
2	He/she has superior academic achievement.	1	2	3	4	5
3	It is uncommon to see this student involved in conflicts.	1	2	3	4	5
4	The student's behavior problems are due primarily to the lack of discipline received at home.	1	2	3	4	5
5	The student is incapable of controlling his/her behavior.	1	2	3	4	5
6	It is impossible for a teacher to learn how to manage the problems of a student with ADHD.	1	2	3	4	5
7	It is my understanding that children with attention deficit disorder should not eat sweets, food coloring, or food preservatives, because these things could worsen their condition.	1	2	3	4	5
8	I don't think that this deficit requires a multidisciplinary intervention.	1	2	3	4	5
9	The teacher is the most qualified person to provide doctors with information regarding the students' response to medications prescribed by them.	1	2	3	4	5
10	The teachers' participation in the treatment of students with ADHD is less important than the parents and the psychologist.	1	2	3	4	5

PART B

To manage the behavior of a student with ADHD in the classroom, I should do the following:

Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	2	3	4	5

1	When the student is distracted, pay attention to him/her.	1	2	3	4	5
2	I can do very little to control the temper tantrums of a student with ADHD.	1	2	3	4	5
3	When the student becomes unbearable, separate him/her from the rest of the students by sending him/her to the corner of the classroom.	1	2	3	4	5
4	Until the student with ADHD finishes his/her homework, the student will not be allowed to do the things he/she likes or things that the rest of the class is allowed to do.	1	2	3	4	5
5	As a consequence for inappropriate behavior, punish the student by taking away his/her privileges.	1	2	3	4	5
6	Even though the student generally performs well on the class work that he/she completes, I should not give him/her a lot of reinforcement (prizes) because he/she did not complete all of his/her class work.	1	2	3	4	5
7	If during the course of a temper tantrum, the student damages something, the student should be held responsible for the damage that is done.	1	2	3	4	5
8	The use of criticism is an effective management tool to use with a student with ADHD.	1	2	3	4	5
9	The establishment of a contract with the student directed at improving his/her learning and behavior is useful with students with ADHD.	1	2	3	4	5

PART C

Based on my understanding of appropriate learning strategies for students with ADHD, I would do the following:

Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	2	3	4	5

1	After the student with ADHD finishes an activity, I should ask him/her to evaluate his/her work and give him/her information about the appropriate evaluation criteria for his/her work.	1	2	3	4	5
2	It is important for me to encourage a student with ADHD to express his/her learning through language.	1	2	3	4	5
3	After the student finishes his/her work, I should motivate him/her to evaluate the work.	1	2	3	4	5
4	I should provide clues in the assignments to remind the student to evaluate if he/she is concentrating or not on his/her work.	1	2	3	4	5
5	When the student is involved in a conflict with other people, I should help him/her to find possible alternative solutions and to evaluate the possible consequences for each solution.	1	2	3	4	5

PART D

With respect to a student with ADHD, the arrangement of the classroom and instructional aspects should be as follows:

Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	2	3	4	5

1	It is important to arrange the classroom in a way that will allow the teacher to easily access a student with ADHD.	1	2	3	4	5
2	I should place the student with ADHD in the back of the classroom to avoid the student disrupting the class during direct instruction.	1	2	3	4	5
3	It is ineffective to ask students with ADHD questions.	1	2	3	4	5

4	During long activities, if I reinforce a student with ADHD for each small step, the student's performance would not be any better than if I didn't provide that reinforcement.	1	2	3	4	5
5	During evaluations, I should make sure that the tests for a student with ADHD are shorter and more frequent (modifying, in his/her case, the evaluation system used for the rest of the class).	1	2	3	4	5
6	I should assign five minutes daily for the students with ADHD to organize their school supplies, tables, chairs, etc.	1	2	3	4	5
7	Everyday, I should dedicate a concrete time to go over the rules of the classroom with students with ADHD.	1	2	3	4	5
8	After giving instructions for class work to the class, I should approach the students with ADHD and ask them to explain those instructions back to me.	1	2	3	4	5

PART E

Please indicate to what degree you agree or disagree with each of the following statements. Circle the appropriate response. We ask you to respond to each question, even in cases of difficulties. Do not spend a lot of time thinking about your answer.

Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	2	3	4	5

1	I can manage a student with any learning problem well.	1	2	3	4	5
2	If I wanted to, I can control the most difficult student.	1	2	3	4	5
3	I am capable of successfully teaching students with a lack of motivation.	1	2	3	4	5
4	When a student with ADHD performs better than expected, it is due to my competence and knowledge about special education.	1	2	3	4	5
5	When a student with ADHD learns faster than expected, it is due to better preparation of my instructions.	1	2	3	4	5
6	I am effective in decreasing the behavioral problems of students with ADHD.	1	2	3	4	5

PART F

The following statements refer to possible barriers that can be encountered when working with students with ADHD. Indicate with a circle to which degree you consider that these factors constitute a problem:

1	2	3	4	5
Not important	Somewhat Not Important	Important	Very important	Absolutely Important

1	Lack of preparation	1	2	3	4	5
2	Time to administer specialized interventions	1	2	3	4	5
3	Class size	1	2	3	4	5
4	Severity of the students' problems	1	2	3	4	5
5	Absence of communication with the student's doctor about the student's needs.	1	2	3	4	5
6	Lack of communication with the parents	1	2	3	4	5
7	Inefficiencies of specialists' interventions, such as reading, math, and behavior	1	2	3	4	5
8	Level of comfort working with students with ADHD	1	2	3	4	5
9	Lack of support/communication with the special education specialists.	1	2	3	4	5
10	Demands of mandated performance standards and teaching obligations.	1	2	3	4	5
11	Lack of administrative support.	1	2	3	4	5
12	Lack of materials to be used with these students.	1	2	3	4	5

Please review the above statements again. Indicate with a circle in the left column, the three barriers you considered most important.

PART G

Below is a series of statements with reference to activities that you can do in the classroom that can facilitate working with ADHD students. Circle the level of confidence that reflects your ability to facilitate these tasks.

1	2	3	4	5
No confidence	Somewhat not confident	Confident	Very confident	Absolute confidence

1	Develop a classroom environment in which the students with ADHD feels accepted.	1	2	3	4	5
2	Prepare the class in a way that would minimize behavioral problems.	1	2	3	4	5
3	Encouraging peer acceptance and understanding of students with ADHD.	1	2	3	4	5
4	Teach in a way that would facilitate the learning of students with ADHD in the classroom.	1	2	3	4	5
5	Determine when a student with ADHD presents a behavior that requires attention.	1	2	3	4	5
6	Determine when there is progress in the behavior of students with ADHD.	1	2	3	4	5
7	Make accommodations to lectures and worksheets for students with ADHD.	1	2	3	4	5
8	Develop effective communication with the parents of students with ADHD.	1	2	3	4	5
9	Develop an effective behavioral approach for students with ADHD.	1	2	3	4	5
10	Manage the stress caused by students with ADHD in the classroom.	1	2	3	4	5

APPENDIX F

IDEA '97 TRAINING QUIZ

IDEA 97' Training Quiz

1.	ADHD students must have a medical diagnosis to qualify for services under IDEA.	Yes	No
2.	Students with ADHD tend to be categorized as Other Health Impaired.	Yes	No
3.	About half of all students with ADHD do not qualify for special education under IDEA.	Yes	No
4.	Students who qualify under IDEA must have an IEP.	Yes	No
5.	Students who are served under IDEA must receive modifications in special education courses.	Yes	No
6.	IDEA requires written notice of consent before initial evaluation is conducted.	Yes	No
7.	If a student is served under IDEA, then that student would not qualify for Section 504 services.	Yes	No
8.	To determine eligibility, the parent should be a member of the committee.	Yes	No
9.	Due process hearings are conducted by an attorney.	Yes	No
10.	Manifestation determination relates to IDEA discipline practices.	Yes	No

APPENDIX F

SECTION 504 TRAINING QUIZ

Section 504 Training Quiz

1.	Section 504 is a federally funded mandate.	Yes	No
2.	A person could qualify for 504 services if they have no physical or mental impairment, but is treated by the district as having such impairment.	Yes	No
3.	A student with ADHD could qualify for 504 services because they may have impairment in the major life activity of learning.	Yes	No
4.	Students receiving 504 services must remain in the general education classroom for all service delivery.	Yes	No
5.	Under Section 504, parents must participate in the eligibility team meeting.	Yes	No
6.	Under Section 504, parents can also receive special accommodations if needed.	Yes	No
7.	Section 504 does not require an IEP plan.	Yes	No
8.	Determination of eligibility is made informally by a group of persons knowledgeable about the student, evaluation data, and placement options.	Yes	No
9.	According to Section 504, before implementing a suspension or expulsion that constitutes a significant change in the child's placement, the school must conduct a reevaluation to determine if the behavior was caused by disability.	Yes	No
10.	Section 504 is a civil rights law that requires districts to provide access for students with a qualified handicapping condition to receive a free and appropriate education.	Yes	No

APPENDIX H

INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University
Institutional Review Board

Protocol Expires: 12/1/2004

Date: Tuesday, December 02, 2003 IRB Application No ED0460

Proposal Title: The Psychometric Analysis of the Questionnaire of Knowledge and Management Procedures, a Test to Measure Teacher-Knowledge and Management Skills of Children With Attention Deficit Hyperactivity Disorder: A Pilot Study

Principal Investigator(s):

Kim Dieimann
428 Willard
Stillwater, OK 74078

Terry Stinnett
445 Willard
Stillwater, OK 74078

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-5700, colson@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

VITA

Kim Bernice Dielmann

Candidate for the Degree of

Doctor of Philosophy

Dissertation: TREATMENT ACCEPTABILITY AND PERCEIVED TIME TO IMPLEMENT INTERVENTIONS FOR CHILDREN WITH ADHD MODERATED BY GENERAL EDUCATION TEACHERS' TRAINING IN ADHD AND DISABILITY LAW, AND ELIGIBILITY FOR DISABLING CONDITIONS

Major Field: Educational Psychology

Personal Data: Born in Auckland, New Zealand

Education: Graduated from the University of Central Arkansas, Conway, Arkansas, with a Bachelor of Arts degree in Psychology in May 1993. Graduated from the University of Central Arkansas, Conway, Arkansas, with a Master of Science degree in School Psychology in May 1996. Completed the requirements for the Doctor of Philosophy degree with a major in Educational Psychology, Specialty area of School Psychology, at Oklahoma State University in July, 2005.

Experience: Currently employed as an Assistant Professor at the University of Central Arkansas in the School Psychology department. Employed as a clinical instructor at the university since 1997. Worked as a School Psychology Specialist and Licensed Psychological Examiner in various schools and mental health facilities in central Arkansas since 1996.

Professional Membership: National Association of School Psychologists, American Psychological Association Division 16.

Licensure: Arkansas Psychological Examiners License (#97-02E)

Arkansas School Psychology Specialist