

1-1-2012

School psychologist training and diagnosis of attention deficit/hyperactivity disorder

Katharine M. Zwolinski

Eastern Illinois University

This research is a product of the graduate program in [Psychology](#) at Eastern Illinois University. [Find out more](#) about the program.

Recommended Citation

Zwolinski, Katharine M., "School psychologist training and diagnosis of attention deficit/hyperactivity disorder" (2012). *Masters Theses*. 911.

<http://thekeep.eiu.edu/theses/911>

This Thesis is brought to you for free and open access by the Student Theses & Publications at The Keep. It has been accepted for inclusion in Masters Theses by an authorized administrator of The Keep. For more information, please contact tabruns@eiu.edu.

*******US Copyright Notice*******

No further reproduction or distribution of this copy is permitted by electronic transmission or any other means.

The user should review the copyright notice on the following scanned image(s) contained in the original work from which this electronic copy was made.

Section 108: United States Copyright Law

The copyright law of the United States [Title 17, United States Code] governs the making of photocopies or other reproductions of copyrighted materials.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the reproduction is not to be used for any purpose other than private study, scholarship, or research. If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that use may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law. No further reproduction and distribution of this copy is permitted by transmission or any other means.

THESIS MAINTENANCE AND REPRODUCTION CERTIFICATE

TO: Graduate Degree Candidates (who have written formal theses)

SUBJECT: Permission to Reproduce Theses

An important part of Booth Library at Eastern Illinois University's ongoing mission is to preserve and provide access to works of scholarship. In order to further this goal, Booth Library makes all theses produced at Eastern Illinois University available for personal study, research, and other not-for-profit educational purposes. Under 17 U.S.C. § 108, the library may reproduce and distribute a copy without infringing on copyright; however, professional courtesy dictates that permission be requested from the author before doing so.

By signing this form:


- You confirm your authorship of the thesis.
- You retain the copyright and intellectual property rights associated with the original research, creative activity, and intellectual or artistic content of the thesis.
- You certify your compliance with federal copyright law (Title 17 of the U.S. Code) and your right to authorize reproduction and distribution of all copyrighted material included in your thesis.
- You grant Booth Library the non-exclusive, perpetual right to make copies of your thesis, freely and publicly available without restriction, by means of any current or successive technology, including but not limited to photocopying, microfilm, digitization, or Internet.
- You acknowledge that by depositing your thesis with Booth Library, your work is available for viewing by the public and may be borrowed through the library's circulation and interlibrary department or accessed electronically.
- You waive the confidentiality provisions of the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) with respect to the contents of the thesis, including your name and status as a student at Eastern Illinois University.

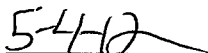
Petition to Delay:

I respectfully petition that Booth Library delay maintenance and reproduction of my thesis until the date specified and for the reasons below. I understand that my degree will not be conferred until the thesis is available for maintenance and reproduction.

Date:

Reasons:


 Author's Signature


 Date

This form must be submitted in duplicate.

School Psychologist Training and Diagnosis of
Attention Deficit/Hyperactivity Disorder

BY

Katharine M. Zwolinski

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in School Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

2012
YEAR

I HEREBY RECOMMEND THAT THIS THESIS WILL BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

Kristin N Johnson 5/4/12

Dr. Kristin N. Johnson
THESIS COMMITTEE CHAIR

DATE

J. H. Mace 5/4/12

Dr. John Mace
DEPARTMENT CHAIR

DATE

Margaret Floress

Dr. Margaret Floress
THESIS COMMITTEE MEMBER

DATE

Keith Wilson 5/4/12

Dr. Keith Wilson
THESIS COMMITTEE MEMBER

DATE

Abstract

Attention deficit hyperactive disorder (ADHD) is a developmental disorder that is characterized by inattention, impulsivity, and hyperactivity. ADHD is commonly diagnosed in childhood and one of the most frequent referral concerns brought to the attention of school psychologists, yet it is often misdiagnosed (Cotuono, 1993; Desgranges, Desgranges, & Karsky, 1995). The goal of this study is to explore ADHD training among specialist level school psychologists, assessment procedures they were exposed to during training, the information they rely on when determining if a child meets ADHD diagnostic criteria, and the accuracy of the diagnosis. It was hypothesized that the more intense the training received, the more accurate the school psychologist was in diagnosing the subject in the vignette. A questionnaire and vignettes were mailed out to practicing school psychologists to investigate the research questions. The data did not support the hypothesis as it showed that the level of didactic training, supervised applied experience, and independent ADHD assessments conducted is not significantly related to the intensity of training.

Table of Contents

Introduction

Definition of ADHD.....	4
How is ADHD assessed?.....	7
Parent Interviews.....	8
Teacher Interviews.....	10
Child Interviews.....	12
Rating Scales.....	12
Academic Assessment.....	15
Curriculum-Based Assessment.....	16
Observations.....	17
Functional Analysis.....	19
Training in ADHD.....	19
Appropriateness.....	22
Purpose.....	29
Research Questions.....	30
Methods.....	31
Results.....	35
Discussion.....	39
Limitations.....	41
References.....	43
Appendices.....	51
Tables.....	68

School Psychologist Training and Diagnosis of Attention Deficit Hyperactivity Disorder

Definition of ADHD

According to *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision* (2000; DSM-IV-TR), ADHD is a developmental disorder that is characterized by inattention, impulsivity, and hyperactivity that is present in approximately 3-7% of school-aged children (See Appendix A for DSM-IV-TR criteria). A frequent effect of this condition is academic underachievement, likely stemming from the difficulties sustaining attention (American Psychiatric Association, 2000). Common secondary factors associated with this disorder include low self-esteem, abrupt shifts in mood, high frustrational level, and temper-related outbursts (American Psychiatric Association, 2000). ADHD is frequently diagnosed in childhood upon entering school as diagnostic criteria require symptoms to be present prior to 7 years of age (American Psychiatric Association, 2000). ADHD may be more apparent once a child enters the school environment because when the child is surrounded by his or her same age typical peers, his or her ADHD behaviors are more salient (Sattler, 2006). Also, the school environment requires students to remain seated and sustain attention. A child with ADHD may have not been required to comply with these environmental demands in the past, which may highlight his or her ADHD symptoms. These demands may not be met because of the child's behavioral condition (Sattler, 2006).

The precise etiology of ADHD is still unknown (Barkley, 1998; Dryer, Kiernan, & Tyson, 2006; Goldman, Genel, Bezman, & Stanelz, 1998); however, there is no shortage of potential explanations. Dysfunction in the brain and central nervous system (i.e., underarousal of the central nervous system), delayed maturation of the central

nervous system, an existing genetic abnormality, metabolic interruptions, emotional disturbances, or allergies to certain foods (i.e., artificial coloring and additives) have all been hypothesized to either cause or play contributing roles (either individually or in conjunction with each other) in the manifestation of ADHD (Sattler, 2006).

Neul, Applegate, & Drabman (2003) assert that the behavioral symptoms of ADHD that a child displays cannot be accounted for by a neurological deficit, sensory/language/motor impairment, mental retardation, or an emotional disturbance. They hypothesized that ADHD is a heterogeneous group of disorders that have multiple etiologies. Barkley (1998) suggests that neurological and genetic factors are likely the greatest contributors to this disorder. Executive function deficits are also commonly thought to be a cause of ADHD. Executive function relates to the ability to self-monitor, focus, think flexibly, and organize (Roth & Saykin, 2004).

One of the problems with diagnosing ADHD is that ADHD-like symptoms are often present due to other issues or diagnoses (Neul, Applegate, & Drabman, 2003). This may be due to an increased public awareness of ADHD (Neul, Applegate, & Drabman, 2003). Teachers frequently suspect a student has ADHD when their inattentive symptoms are due to mental retardation or learning difficulties. Although it is possible for ADHD to be co-morbid with learning disabilities (Furman, 2003; Neul, Applegate, & Drabman, 2003). Other medical issues that cause ADHD-like symptoms include: (a) impaired vision and hearing, (b) seizures, (c) traumatic brain injury, (d) acute or chronic illness, (e) poor nutrition, and (f) sleep disorders. To lessen the likelihood of misdiagnoses, it is important for children to have a medical evaluation to rule out medical

conditions before conducting an ADHD assessment (Neul, Applegate, & Drabman, 2003).

Several emotional disorders that express characteristics similar to ADHD include: anxiety, depression, residual effects of abuse or neglect, bipolar disorder, conduct disorder, and oppositional defiant disorder (American Psychiatric Association, 2000). For example depression, anxiety, and ADHD all share similar characteristics in that sleep disturbances, decision making, and concentration issues are all hallmarks of these disorders (American Psychiatric Association, 2000). However, it is also important to acknowledge that many children with ADHD are also diagnosed with co-morbid disorders. It is estimated that up to 50% of children with ADHD also experience another psychological disorder (AACAP, 1997). Fifty percent of children with ADHD also meet the criteria for an oppositional defiant disorder diagnosis, 30-50% for conduct disorder, 15-20% for a mood disorder, and 20-25% for anxiety disorder diagnosis (Biederman, Newcorn, & Sprich, 1991; Loeber, Green, Lahey, Frick, & McBurnett, 2000). Common co-morbid disorders must be considered as the treatments for them vary greatly, and inappropriate stimulant medication has the potential to intensify the symptoms the child is experiencing. Stimulants administered to children with major affective disorders can cause dysphoria or harmful mood dysregulation (Furman, 2005).

Environmental factors may also attribute to ADHD-like symptoms. Factors in the classroom environment may teach a child to display off-task behaviors (i.e., playing with objects, fidgeting, staring at unrelated instructional tasks) in order to obtain attention or escape from tasks. For example, if a child has repeated or frequent failures, dislikes a task, or has difficulty with a task within the academic environment, then a child may

display these behaviors to obtain help or escape the work. These variables also need to be examined prior to an ADHD diagnosis or in conjunction with an ADHD evaluation.

How is ADHD assessed?

When assessing for ADHD, there are several important features to consider, such as age-appropriate behavioral norms, gathering information from various sources, and using a biopsychosocial model. When evaluating a child's actions, developmentally appropriate behavior must be stressed. This becomes particularly difficult with preschool children as the DSM-IV-TR offers no guidance as to how to delineate normal preschool inattention, hyperactivity, and impulsivity from the ADHD symptoms (Egger, Kondo, & Angold, 2006). Preschool-aged children's behavior is often much more variable than their school aged counter parts, making an ADHD diagnosis difficult to ascertain (Valera & Seidman, 2006). This could be the possible reason that only 48% of children that receive an ADHD diagnosis as a preschooler actually retain that diagnosis in later childhood or early adolescence (Barkley, 1998). Sometimes there is conflict between what a parent and a teacher deem as appropriate behavior. Therefore, educating the parent on typical child development to alert the parent as to the severity of the questionable behavior of the child becomes necessary. Also, when evaluating for ADHD, gathering information regarding the child from relevant sources such as parents, siblings, teachers, and peers provide a more accurate assessment (National Health and Medical Research Council, 1997). Should ADHD symptoms only be present in one environment (i.e., school) an ADHD diagnosis is not warranted as symptoms must be present in two environments (American Psychiatric Association, 2000).

Multimodal assessment practices have been suggested to be the most effective means of evaluating for ADHD (Sattler, 2006). Multimodal assessment is defined as gathering information from several different sources and using different techniques. This methodology of assessment aids in the accuracy of whether or not a diagnosis is warranted. Utilizing this method alleviates the problem of biased reporting of symptoms and gives the most accurate information regarding the symptomology experienced by the child (Crystal, Ostrander, Chen, & August, 2001).

The biopsychosocial model is suggested for use when assessing ADHD symptoms. This model states that assessment and treatment should recognize the importance of the constant interactions between biological, social, and psychological factors (McDaniel, 1995). Should impairment be found in one of these three factors, it will in turn affect the other two because of the degree of interconnectedness these factors have with each other (Barkley, 1998; Goldman, Genel, Bezman, & Stanelz, 1998; Thapar, Holmes, Poulton, & Harrington, 1999).

Parent interviews. Parent interviews are one of the multiple sources of information that add to a comprehensive ADHD evaluation (Power et al., 1998). The interview should begin with a thorough description of the problem behavior. It is suggested that commonly used rating scales, such as the Child Behavior Checklist (CBCL), be administered orally as opposed to the classic paper and pencil method (Tobin, Schneider, Reck, & Landau, 2008). This allows for more accurate collection of data as the parent can elaborate on the questions. For example, when parents are verbally asked test items that mention “poor schoolwork” this method provides parents an opportunity to elaborate on the child’s performance. The parent may indicate that the

child understands the concepts, but simply has poor penmanship. Further, the school psychologist may receive information from parents that may be a contributing factor to the problem that would have been missed if the parent individually completes the CBCL.

It is also important to assess the child's developmental and familial history during the parent interview. The school psychologist should delve into the child's medical, physical, social, and academic history to determine if the behaviors are novel or can be accounted for by an event in the past, as past traumatic experiences may manifest later in childhood presenting as inattentive behaviors (Neul, Applegate, & Drabman, 2003). First- and second-degree relatives should also be considered in the realms of behavioral, emotion, addictive, and educational domains as the behavior may have a genetic link (Neul, Applegate, & Drabman, 2003).

In addition to developmental and family history, the parent interview should also screen for sleep disturbances. The hallmark symptoms of ADHD (i.e., inattention, hyperactivity, and impulsivity) closely mimic symptoms due to sleep problems. Inattentive and hyperactive symptoms are often observed in children who are chronically over-tired, as well as children with more serious types of sleep disturbances such as sleep apnea, snoring, or periodic limb movements (Chervin et al., 1997).

The simplest way to assess sleep patterns is to inquire as to the child's bedtime and total number of hours asleep per 24 hours (Mindell & Owens, 2003). A child between the ages of four and eight should have eight to twelve hours of sleep a night (Mindell & Owens, 2003). A child's sleep hygiene should also be assessed, which refers to sleep behaviors (Mindell & Owens, 2003). Also, television viewing habits should be assessed. Research has suggested that as the number of children with televisions in their

bedrooms increase, so do the reported instances of sleep disturbances (Owens et al., 1999). If correctly assessed, treating the child's sleep problems will likely alleviate the ADHD-like symptoms caused by sleep disturbance.

Chronological age is a necessary factor to consider with a young child regarding ADHD diagnosis. It is seen that younger children are more frequently referred for assessment regarding behavioral problems (Tarnowski, et al., 1990). When a child is young for their grade, the lack of maturity may be more evident as they are not behaving as their older peers are, especially in early grades. It can be seen that a young child may be as much as 11 months younger than the older students in their class depending on when their birthday falls and may not display the same level of self-control (Tarnowski, et al., 1990). Determining age-appropriate behavior is necessary in these situations as an immature child may struggle with the demands of the classroom (Tarnowski, et al., 1990).

A child's relationship to his or her family and early life experiences should also be evaluated during the parent interview. A child may be displaying ADHD-like symptoms due to difficult relationships with parents and or siblings (Kaplan, Crawford, Fisher, & Dewey, 1998). For example, part of the interview process should assess what is maintaining the child's difficult or problematic behaviors. If a child has learned that his or her overactive behavior leads to attention from parents or peers, the interviewer needs to determine if this relationship alone is maintaining ADHD-like symptoms.

Teacher interviews. After completing a parent interview, it is important to also gather information from the child's teacher. A simple way to begin this assessment is with the Teacher Report Form (TRF), a form of the Child Behavior Checklist

(Achenbach & Edelbrock, 1983). As with the parent, this rating scale measure should be verbally administered to the teacher to obtain an accurate perception of the child's behavior. Areas to inquire about include: (a) testing behavior, (b) motivation and attention span, (c) academic strengths and weaknesses, and (d) the child's rate of progress in the realms of academic, social, and behavior. Teacher and parent information is combined to determine whether the child's problem behaviors are consistent across settings so that decisions can be made as to whether the child has motivational or discipline problems, if issues with peer relationships exist, or if there are any personality conflicts with the teacher (Neul, Applegate, & Drabman, 2003; Power et al., 1998).

Teachers can provide information regarding how the child acts within the school environment. A child with ADHD displays problematic and impairing behaviors across different settings. Therefore, if a child acts significantly differently at home and school, this may be an indication to the different environmental contingencies rather than support for an ADHD diagnosis.

The teacher is also able to provide information regarding how the child behaves in several different contexts at school and how he/she or other school personal respond to the child. Some teachers simply ignore or redirect problem behaviors while others may respond more severely with reprimands or detentions. Gathering information concerning teachers' reactions to ADHD-like behaviors allows the school psychologist to determine what may be maintaining the child's ADHD-like symptoms (O'Neill et al., 1997). In addition, classmate behavior can be assessed to determine whether ADHD-like symptoms are unique to the target child or if the many children in the classroom are poorly behaved. If many children in the classroom are poorly behaved, it may be an indication that the

target child's actions are not significantly different from his or her peers and poor classroom management can better explain classroom-wide disruptive behavior (Platzman et al., 1992). It is also important to remember that when assessing older children with multiple teachers, school psychologists should interview all of the child's teachers to determine if the problem behaviors are observed across different subjects and teachers. This information will also help determine if the problem behavior is more likely due to ADHD or environmental contingencies (Neul, Applegate, & Drabman, 2003).

Child interviews. The final interview to be conducted is with the referred child. If the child is old enough, the Youth Self-Report (YSR) from the CBCL (Achenbach & Edelbrock, 1983) is used. These can be administered verbally as opposed to the traditional pencil and paper method to allow for elaboration and to ensure students are accurately comprehending the questions (e.g. if a child does not read well, they may not be motivated to read all the questions independently); (Power et al., 1998). This is a vital time to build rapport with the child and discuss the child's problem behavior and their perception of that behavior. A common tactic to better understand the child is asking what the child does to make him or herself happy, mad, and sad, and inquire what they do to make others happy, mad, and sad (Haak, 2003).

Rating Scales

As described above, parents and teachers can provide in-depth information regarding a target child with problem behaviors. Many parents and teachers are the people who spend the most time with the target child and know him or her the best. It is not surprising that in addition to interviewing parents and teachers, they are also asked to

complete standardized rating scales in order to compare the referred child to his same-aged peers.

Rating scales are tools completed by teachers, parents, or the child him/herself which have good psychometric reliability and validity (Tripp, Schaughency, & Clarke, 2006). Either broadband scales, scales that measure a variety of behavior problems, or narrowband scales, scales that measure specific problematic behaviors (e.g., ADHD) provide information regarding the presenting symptoms. Narrowband scales are strongly recommended as they focus more on the problem behavior and provide more detailed information (Brown et al., 2001).

Child Behavior Checklist. The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) was described above and is one of the most popular rating scales. The CBCL includes the Parent, Teacher Report Form (TRF), and Child self-report. The CBCL is a 113 item broadband scale containing a narrowband subscales for the purpose of assessing ADHD symptoms in children and adolescents aged 4-18 (Achenbach & Edelbrock, 1983). The primary caregiver is often the person who completes the CBCL based on their perceptions of the child's behavior. The eight problem subscales on the CBCL include: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior. The broadband factors that are measured are Internalizing and Externalizing Behavior which are supported by confirmatory factor analysis. The CBCL has both high internal consistency and high test-retest reliability.

The accompanying TRF (Achenbach & Edelbrock, 1983) is completed by the referred child's teacher and assesses children and adolescents aged 5-18. The TRF

assesses the child's teacher's perception of the child's academic and behavioral issues. The TRF was formed based off the CBCL and has 93 items. High test-retest reliability, good construct validity, and satisfactory Discriminant validity had been found with the TRF (Tripp, Schaughency, & Clarke, 2006).

The Youth Self-Report (YSR) is another form of the CBCL and is designed for use by children aged 11 to 18 years old (Achenbach, 1991). A fifth-grade reading level is necessary to complete this form. The first seven items included deal with the child's interests, hobbies, peer and family relationships, and performance in school. The remaining items include 103 statements about problem behaviors and 16 statements about socially desirable items (Achenbach, 1991). The YSR has acceptable levels of test-retest reliability at one week intervals (Merrell, 2003).

Connors Rating Scales. The Connors Rating scale (Connors, 1997) is a commonly used narrowband scale which is administered to assess ADHD. The Connors includes both a parent and teacher form. The 48-item Connors Parent Rating Scale (CPRS-48) allows parents to rate their children aged 3-17 based on their presenting symptoms. After factor analysis was performed, five subscales were found: Conduct Problems, Learning Problems, Psychosomatic, Impulsive-Hyperactive, Anxiety, and a 10-item Hyperactivity Index. Decent psychometric properties have been found, although the CPRS-48 has low to moderate interrater reliability (Connors, 1997).

The Connors Teacher Rating Scale (CTRS-39) is a 39-item scale used to assess teacher's perceptions of children's problem behaviors aged 4-12 years. Six factors have been found via factor analysis: Hyperactivity, Conduct Problems, Emotional Overindulgent, Anxious-Passive, Asocial, Daydreams, and a 10-item Hyperactivity

Index. Psychometrically, adequate levels of reliability and validity have been found (Tripp, Schaugency, & Clarke, 2006).

Social Skills Rating System. The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) focuses on behaviors that interfere with parent relationships, teacher relationships, and peer acceptance and contains parent, teacher, and self report forms. Three developmental age groups are included on the SSRS, including preschool (ages 3 to 5), elementary (grades kindergarten to 6th), and secondary (grades 7th to 12th). A considerable amount of overlap exists between the three forms of the SSRS (Merrell, 2003). The SSRS contains three scales, Social Skills, Problem Behaviors, and Academic Competence. The respondent selects answers on a 3-point Likert scale how often a given behavior occurs or how important the skill is for success. Overall psychometric properties ranged from adequate to excellent (Merrell, 2003).

Academic Assessment

Assessing a child's academic performance is also an important part of the evaluation as it provides a more accurate picture of the child and provides insight to the child's performance. There are various ways to gather information regarding the child's academic performance including: a record review, review of permanent products, curriculum-based assessment, and standardized academic and intellectual assessments. Through a review of a child's school records information regarding the child's educational history will be revealed. It may be determined if the presenting behaviors in the child are novel or have been an existing issue for several years. Reviewing permanent products allows the school psychologist to examine that quality of work the student is producing, the level of student organization, and frustrational level.

A common example of a standardized academic achievement test is the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Woodcock, 1989). This test is based on the hierarchical Gf-Gc (fluid and crystallized intelligence) model of cognitive abilities from the Horn-Cattell-Carroll theory (Floyd et al., 2007). This model is among the most useful for conceptualizing cognitive processing (Woodcock, 1989). A commonly used intelligence exam is the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV; Wechsler, 2004). The combination of standardized achievement and intelligence testing yields information regarding comprehension-knowledge, fluid reasoning, visual processing, auditory processing, short-term/long-term memory, and processing speed (Neul, Applegate, & Drabman, 2003). Although these more standardized tests may aid in providing information as to where the child is currently functioning and rule out other issues such as mental retardation, they may not be as informative in aiding in the diagnosis of ADHD as several important contributing factors to ADHD are not assessed.

Curriculum-Based Assessment. Data gathered using curriculum-based assessment (CBA) can contribute to creating a more accurate picture of the child because CBA provides information on how the child is performing based on local curriculum as opposed to a standardized test, for the purpose of making educational decisions as standardized test do not provide information about instructional level (Shapiro, 2004). CBA is a means of determining if deficits exist in basic academic areas. Reading benchmarks and grade-level probes provide fast data regarding where the student in question is currently functioning. CBA data can be used when assessing a child referred for ADHD-like symptoms to rule out the possibility of inattentive behavior being caused

by material presented to the child above his or her skill level (Shapiro, 2004). Survey level assessment (SLA) may be performed wherein CBA is administered across successive grade levels of curriculum so that a child's level of performance may be identified as either at the frustrational, instructional, or mastery level (Dunlap, Kern, & Worcester, 2001). Should students be receiving instruction beyond their level (frustrational), ADHD-like behaviors may present as a response to the difficult material, when "true" ADHD is not present. In fact, ADHD-like symptoms may be alleviated when a curriculum is modified to an appropriate skill level for the student (Dunlap & Kern, 1996).

After gathering parent and teacher interviews, rating scale data, academic achievement data, the information is analyzed to determine if more data are needed. Further narrowband measures may be appropriate if a concern about anxiety or depression was identified in a parent or teacher interview. Also, if data gathered from parent and teacher interviews conflict, further observations by the school psychologist may be necessary. Home and classroom visits may be obligatory in addition to functional assessments to sort through discrepancies. A functional assessment is a type of direct observation which investigates the events that occurred prior to the onset of and following the target behavior. These data are used to formulate hypotheses regarding the purpose of the problem behavior (Dryer, Kiernan, & Tyson, 2006).

Observations

Observations are sometimes the best way to fully understand a child's behaviors, as the school psychologist uses the opportunity to monitor the child first hand in the environment that they commonly interact in. Observations can be purely anecdotal

recordings of the child's behavior or can be structured. A common classroom observation is the Behavioral Observation of Students in Schools (BOSS; Shapiro, 2004). The BOSS is an interval recording method that codes on- and off-task behaviors. When a student is observed to be on-task they are identified as either actively engaged (i.e., writing or reading aloud) or passively engaged (i.e., listening to a lecture or reading silently). When a child is determined to be off task they can be motorically (i.e., out of seat or fidgeting), verbally (i.e., humming or inappropriate talking), or passively (i.e., starrng out the window or looking around the room) off task. An average, typically developing comparison peer is also used in this observation to better understand the culture of the classroom and the type of behavior that is appropriate. This observation provides information reported as the percentage of observed intervals based on the type of coded behavior. Further, the BOSS shows which areas or off task are inflated and how often the problem behaviors occur in a given period of time (Shapiro, 2004). Information is provided about the student as to whether the child appears to be more inattentative or hyperactive.

Barkley observations. Barkley's (1990) system of observations provide a vehicle of making observations from natural settings that reveal information regarding frequency, severity, antecedents, and consequences of ADHD symptoms. During an observation, the observer marks whether or not the behaviors of being off task, fidgeting, vocalizing, playing with objects, or out of seat occurred. Barkley further provides operational definitions of the five behaviors. This allows the school psychologist to get an adequate picture as to the severity of the problem behaviors. Barkley's observation technique has intercoder agreement of .77 to .85 (Barkley, 1990).

Functional Analysis

Functional analysis may also be performed by the school psychologist.

Functional analysis is a tool to be utilized by the school psychologist that allows him or her to gather information regarding behavior in an effort to better understand the potential problem. Functional analysis allows for a more clear description of a problem behavior to be found. This includes finding the events that may precede a behavior and allow the adults to predict if the behavior will occur. The school psychologist can analyze the consequences of the behavior to determine if the consequences are maintaining the behavior. Following the process of gathering data, a testable hypothesis can be made regarding the function of the behavior (O'Neill et al., 1997). Thus far, the best practice of identifying ADHD has been highlighted. Best practice in rating scales, observations, interviews, and assessments have been discussed. However, best practice does not always align with practice. It is important to analyze how professionals who ultimately work with children are trained.

Training in ADHD

As reported by Reschly and McMaster-Beyer (1991), training programs at the specialist level require 12 hours of training in assessment and intervention. In regards to practicum hours spent actually in the schools, specialist programs state that on average students spend 391 hours in practicums. Further, the supervised internships are 1,101 hours of more direct training in practice.

A potential area lacking in the training of school psychologist is the area of consultation. Consultation can be defined as “collaborative problem-solving between a mental health specialist (the consultant) and one or more persons (the consultees) who are

responsible for providing some form of psychological assistance to another (the client)” (Medway, 1979, p. 276). In a survey by Costenbader, Swartz, and Petrix (1992), it was found 61% of responding school psychologists reported either no formal training or less than a semester in consultation. Fifty-three percent of the same respondents reported their training as inadequate or less than adequate. It is likely that trainers who report to be inadequately trained are not equipped to address problem behaviors appropriately.

Significant differences also exist between doctoral and specialist level training. When Reschley and McMaster-Beyer (1991) surveyed 203 school psychologists in the United States, they found that the number of practicum hours fulfilled at the master’s level, specialist level, and doctoral level were 272, 391, and 516 respectively while the number of internship hours were 421, 1,101, and 1,413 respectively. It is the consultation process that is pivotal when a school psychologist is working with a student with ADHD and it has been found that doctoral practitioners report that they have more confidence in their consultation skills (Costenbader, Swartz, & Petrix, 1992). Practitioners with more training in consultation are likely to be better able to consult with teachers regarding problematic ADHD behaviors, as well as developing appropriate interventions, and monitoring the progress of the interventions (Reschly & Wilson, 1997).

A study by Smith (2000) further probed practicing school psychologists as to their knowledge and training in the area of ADHD and their comfort level. Smith randomly selected 700 NASP members to participate in her study and 422 were returned for a response rate of 60.29%. Sixteen of those were determined to be illegible. The sample was 27% male and 73% female. When considering education, 30.5% had earned a Master’s degree, 43.8% had earned a Specialist’s degree and 22.2% had earned an Ed.D.

or Ph.D. The number of years employed as a school psychologist ranged from .75 to 34 years (Smith, 2000).

Smith's questionnaire asked participants where they received training on ADHD. Only 37% of respondents reported receiving ADHD training from formal course work. Only 39% of participants reported receiving ADHD training during their internship experiences. The most common method of attaining training related to ADHD came from workshops or in-services as 86% of respondents reported attending.

When Smith (2000) asked school psychologists to rank on a four-point scale (4 "very prepared") how prepared they feel on fulfilling their roles in the areas of consultation, assessment, and intervention in regard to students with ADHD, school psychologists reported feeling the most prepared for consultation, with a 3.51 rating. When considering assessment for students with ADHD, the respondents reported a rating of 3.39. The area with the lowest level of confidence (3.37) was the area of delivering interventions.

Smith (2000) further asked respondents to report changes they would like to see occur in the training of new school psychologists via an open-ended question. The area of interventions for ADHD was the category of responses that was reported the most frequently. Several areas lacking were: training in interventions that teachers may be inclined to use, developmentally appropriate interventions, interventions that aid in academic performance, behavioral strategies, interventions that target specific ADHD symptoms, and alternatives to medication.

The information provided by Smith (2000) draws attention to the perceived areas lacking in training programs. According to results reported by Smith (2000), school

psychologists receive the bulk of their information regarding ADHD from brief seminars and not an in-depth graduate school curriculum. It may be that many school psychologists' knowledge on ADHD comes from their individual research on the topic. This requires a strong knowledge base in determining what constitutes quality research, where to find appropriate material, and knowing how to appropriately apply knowledge gained through what has been read.

Appropriateness. Not only is there gray area in training but also in the perceived appropriate level of involvement in diagnosis. School psychologists are often confronted with the dilemma as to whether they are overstepping their boundaries by making a diagnosis of ADHD in a student, as some states recognize ADHD as a medical condition.

Shaw et al. (2002) conducted a survey on general practitioners (GP's) to assess the attitudes and practices employed regarding ADHD diagnosis and management. The survey was mailed to 525 GP's selected at random from the Royal Australian College of General Practitioners Directory of Members. Three hundred and ninety-nine GP's returned the survey (response rate of 76%).

GP's reported that ADHD was due to biological, developmental, and environmental causes; however, older GP's were more inclined to report factors such as poor parenting (77%) and consumption of junk food (12%) as contributing factors to the etiology of ADHD. Female GP's were more inclined to report video games (5%) and television viewing (7%) as significant issues contributing to ADHD as well (Shaw et al., 2002). Many of these factors were formerly thought to play significant roles in a diagnosis of ADHD; however, more recent developments in the field have widely discredited these above notions. This begs the question as to how well versed on current

research GP's are in order to make a clinical diagnosis if they are using these antiquated ideas.

The results of the survey by Shaw et al. (2002) were overwhelmingly unfavorable as one of the most startling results was that 91% of GP's reported that management of ADHD places significant time constraints on their practice, thus not allowing them sufficient time to see other patients. With an increasing number of children being referred for evaluations, GP's are feeling burdened by the inundating ADHD referrals to their offices. Further, 73.9% of GP's also reported an overall deficit of knowledge of behavioral problems, which likely contributes to the 72.9% of GP's admitting their lack of confidence in their ability to diagnose and manage ADHD (Shaw et al., 2002).

GP's perceived deficit of knowledge regarding behavioral problems and admitted lack of confidence in their ability to diagnose and manage ADHD, may explain the frequent misdiagnoses of ADHD by GP's when a diagnosis of oppositional defiant disorder or conduct disorder is warranted (Shaw et al., 2002).

Shaw et al. (2002) presented to their sample discussed above 16 different criteria for ADHD, oppositional defiant disorder, conduct disorder, anxiety, and depression and asked them to identify the criteria associated with each particular disorder. The results were as follows: All 16 correct, 1.3%; 13-15 correct, 8%; 9-12 correct, 34%; 5-8 correct, 32%; 0-4 correct, 26% (Shaw et al., 2002). Younger GP's in general were more accurate than older GP's, while females outperformed males. The majority of GPs performed poorly on recognizing co-morbid disorders. Considering these results, it is difficult to have faith in a GP's ADHD diagnosis. Although these behavior disorders may have some similarities, the ramifications of placing children on inappropriate stimulant

medication have the propensity of being dangerous as many GP's feel that they have the potential for abuse (86%) and are addictive (40%) (Shaw et al., 2002).

GP's seem to recognize that they may lack expertise when attempting to make a diagnosis, as 70.9% report difficulties without the assistance of a multidisciplinary team (Shaw et al., 2002). School psychologists frequently work in conjunction with various professionals before making an informed diagnosis of ADHD, including parents, classroom teachers, aides, special education teachers, principals, social workers, and various other parties. This multidisciplinary team paints a vivid picture of the child allowing him to be evaluated by several different people in multiple settings to assess whether the problem behavior is pervasive or situational. These resources may not be at the disposal of GP's, thus forcing the physician to diagnose and prescribe medication without full knowledge of the child's behavior.

GP's from the Shaw et al. study seem to know they are not well equipped to deal with the management of ADHD. There is a significant split among GP's as to what is the best option to treat ADHD. Fifty-one percent of respondents stated that the best treatment was behavior therapy while 43% felt stimulant medication was the most effective treatment (Shaw et al., 2002). The most surprising data collected showed that 17% of GP's found that treatment with stimulant medication was always an inappropriate means of treatment, despite several studies supporting its efficacy (Bernstein, Carroll, Crosby, et al., 1994; DuPaul, Barkley, & McMurray, 1991; Rappaport, Buchsbaum, Weingartner, et al., 1980; Rie, 1976). There seems to be a chasm among these professionals as to what type of treatment is best suited for children with ADHD, yet

again implying insufficient training on this disorder. In fact, combination treatment has been shown to be highly effective in managing ADHD (Sattler, 2006).

Once a diagnosis is made by a GP, the first action seems to be referring the child to another specialist. Most common procedures reported by this sample of GP's were educating the clients on ADHD (89%), collaborating with the child's school (79%), and referring the child to either family or behavioral therapy (45% Shaw et al., 2002). Referrals to other specialists also occurred in the vast majority of cases when medication was desired as only 4% of GP's reported that they initiated stimulant treatment. Problems then lie in the significant wait times before a visit can be made to a more specialized physician. GP's, however, do report that they aid in monitoring progress of stimulant treatment. Sixty percent stated that they reevaluate a child's height, weight, appetite, and sleeping patterns every three months to ensure proper dosage is being administered to the child (Shaw et al., 2002).

One of the more interesting findings in the study by Shaw et al. (2002) was that 55% of responding GP's reported that ADHD is over-diagnosed in the medical field. According to Barkley (1998), between 3% and 5% of the population has ADHD. GP's in this sample report seeing more than five children between the ages of 4 and 16 a week but only make between one and five diagnoses of ADHD in a year. This may be related to the lack of confidence GP's have in their knowledge of DSM-IV-TR criteria.

Shaw et al. (2002) contributes significantly to the body of research regarding diagnosing ADHD. Many families turn to their physician seeking answers regarding their child and this may not be the best place for them to find answers. GP's recognize that they have an insufficient knowledge base when it comes to ADHD diagnosis criteria.

As opposed to the beliefs that ADHD is over diagnosed, it is in fact under-diagnosed among this population. GP's see themselves playing a supporting role in management and diagnosis of ADHD and, rightfully so, make frequent referrals to outside specialists while acting as a liaison to monitor the child's health.

The American Academy of Pediatrics (AAP); (2000) published evidence-based practices for assessing and diagnosing ADHD. This has not alleviated the problem of misdiagnosis, unfortunately. In a study of family residency programs by Lanham (2006), it was found that a mere 22% of physicians are familiar with the AAP guidelines. These physicians were more inclined to use less reliable or more invasive means of diagnosing ADHD, such as the child's behavior in the office (70%) or response to stimulant medication (53%).

Differences can be seen among specialty, however. In a different study of practice guidelines with ADHD, Rushton, Fant, and Clark (2004) found that pediatricians (91.5%) were overwhelmingly more familiar with AAP guidelines than were family physicians (59.8%). Problems lie in the fact that only about half (53.1%) reported routine follow-up visits with children prescribed medication. Even though pediatricians are more inclined to be familiar with AAP guidelines, improper care is still preventing optimal management of ADHD symptoms in patients.

In a study by Demaray, Schaefer, and Delong (2003), data were collected regarding ADHD assessment practices in the schools. Demaray et al. asked National Association of School Psychologists (NASP) members questions regarding their overall confidence in practicing school psychologists' ability to diagnose ADHD. A survey was sent out at random to 1,000 school psychologists from NASP. Four hundred seven of the

surveys were returned (40.7% return rate). But after omitting school psychologists that did not meet inclusion criteria, the sample consisted of 316 participants. Education levels reported by the participants included masters, masters plus, specialists, and doctors of psychology of education. The sample was representative of 1999 NASP membership data, with the exception of 7.5% of male respondents was less than NASP's 27.7% of active male members.

The 244 nondoctoral school psychologists in this sample rated their confidence in their ability to provide a diagnosis as a 3.3 on a 5 point Likert-scale, with 5 being a highly confident rating. A likely contributing factor to this rating may stem from the confidence reported in their training related to providing a thorough assessment; a rating of 3.5 was reported in this area. When considering ADHD assessment training, a rating of 3.8 was reported when asked if their training was beneficial to their practice (Demary, Schaefer, & Delong, 2003).

Despite their perceived lack of confidence in their ability and training, 60.8% of school psychologists considered it appropriate for them to diagnose ADHD, but only 31.6% reported actually making a diagnosis. Even though the majority of both doctoral and nondoctoral school psychologists report their position as appropriate to make a diagnosis, there is little confidence to actually apply the training that they have undergone. The large discrepancy between the percentage of school psychologists considering their diagnosis appropriate versus the percentage that actually report making diagnoses has been hypothesized by Demary, Schaefer, and Delong (2003) to stem from district or state educational policies limiting the capacity to make a diagnosis. This is a potential reason that 52 (12.8%) of the original 407 participants reported that they do not

assess for ADHD. However, the methodologies employed by the researchers do not allow them to determine the reason for this finding.

Demary, Schaefer, and Delong's (2003) study contributes significantly to the body of research regarding practices of school psychologists in relationship to ADHD. The pitfalls exist in the survey that was used to gather this data. The survey was a four-page questionnaire consisting of 37 questions. Seven questions addressed participant characteristics, six questions regarding training, five questions about caseloads and referral patterns, and 17 attended to assessment. The questions regarding training included: "How beneficial has your overall training in the assessment of ADHD been for your practice?" "How well trained do you feel in providing a thorough assessment of ADHD?" "How well trained do you feel in providing a diagnosis of ADHD?" "How well trained do you feel in the assessment of ADHD for educational interventions or special education verification?" "How well trained do you feel in providing treatment for children with ADHD?" Answers were provided via a 5-point Likert scale. When Demary, Schaefer, and Delong further inquired as to assessment procedures, the respondents reported if they used a rating scale for assessment of ADHD from list of broad-band measures and narrow-band measures for ADHD. A list of additional measures for ADHD was included where participants reported if it was used. This list included intelligence tests, achievement tests, neuropsychological tests, continuous performance tests, projective measures, and personality measures. No vignettes were mailed to participants to assess for accuracy.

It is likely that if school psychologists are only making ADHD diagnoses 31.6% of the time (Demary, Schaefer, & Delong, 2003), the onus for the remaining ADHD

diagnoses has fallen on general practitioners. With such an increase in the demand for medication coupled with the relationships parents have already formed with their pediatrician, it is a likely place for them to seek advice. Unfortunately, it has been widely reported that these professionals have little or no training in the diagnosis and treatment of ADHD (Shaw, Mitchell, Wagner, & Eastwood, 2002).

Purpose

The purpose of this study was to determine if there were differences between the intensity of didactic training, supervised applied experiences, and independent ADHD assessment with minimal supervision in relation to ADHD assessment significantly contributed to the accuracy of diagnosis in specialist level school psychologists. It was hypothesized that the more intense the training received in the three areas, the more accurate the school psychologist was in diagnosing the subject in the vignette.

Research Questions

1. What was the type of training the school psychologist reported receiving at the specialist level?
2. Did the level of didactic training school psychologists received in graduate school relate to accuracy of diagnosis?
3. Did level of supervised applied assessments in graduate school relate to accuracy of diagnosis?
4. Did the level of independent assessments relate to accuracy of diagnosis?

Methods

Participants

Participants in this study were recruited from a purchased list of active members of the National Association of School Psychologists. One thousand members were randomly selected and mailed the study packet. Forty-three of those packets were returned as undeliverable. Two hundred forty-nine subjects returned the packets (return rate = 26%). Of the respondents, 146 reported receiving specialist level of training (Ed.S or S.S.P. degrees) and those were analyzed for this study. Of the specialist respondents, 76% were females and 24% males. Participants' ages ranged from 26 to 78 years, with a mean of 43.48 years. The ethnic distribution of the sample was 93.2% Caucasian, 2.7% African American, .7% Hispanic, 2.7% Asian/Pacific Islander, and .7% did not respond.

Materials

The study packets which were mailed to the participants consisted of one of four vignettes, a consent form, a questionnaire, and a self-addressed envelope for return. The questionnaire contained 32 questions. Two of the questions pertained to the included vignette, six regarding demographic information, and 23 related to training, experience, assessment methods, ADHD evaluations, and familiarity with assessment methods.

Vignette. Each vignette described a fictitious child who was experiencing difficulties with response control and sustaining attention. All four vignettes had the same referral question, a teacher interview, and a parent interview. Perceptions about the child were included as well as measurements by rating scales (Achenbach Child Behavior Checklist parent and teacher form, DSM-IV Disruptive Behavior Checklist, Conners' Parent and Teacher Rating Scale-Revised, and Social Skills Rating System). Further,

curriculum-based assessment in the realms of math and reading were given. An observation of the student was presented containing information regarding off-task behavior, fidgeting, vocalizing, out-of-seat, and playing with objects. Functional analysis (FA) information also was presented regarding the subject of the vignette on two of the four vignettes.

The only difference between the vignettes was a possible FA condition and a diagnostic condition. The different vignettes yielded four possible results: (1) no diagnosis with FA, (2) no diagnosis without FA, (3) ADHD with FA, and (4) ADHD without FA. The vignettes were reviewed by two graduate students, a clinical psychologist, and a school psychologist for appropriateness of evaluation and potential diagnosis (See Appendix B for vignettes).

Procedure

The data that were used was from an existing data set which was collected two years ago. The procedures outlined were the procedures which were done at the initiation of the original study. The participants were randomly assigned to one of the four vignettes. Participants were asked to determine whether the subject in the vignette had ADHD based on the provided information and the one piece of information which was the most convincing in their decision. The selections were: (1) ADHD-Combined Type, (2) ADHD-Hyperactive Type, (3) ADHD-Inattentive Type, (4) Learning Disability, (5) Learning Disability with ADHD, or (6) No diagnosis.

Subjects were then provided self-report responses on a questionnaire regarding their training, experience, assessment methods, and amount of ADHD evaluations they had conducted. Participants were asked to select the answer that was the most accurate

reflection of their own experiences. Choices included: intense (more than 90 hours), somewhat intense (90 hours), moderate (45-90 hours), somewhat minimal (45 hours), minimal (less than 45 hours), or not all.

Independent Variables

The independent variables in this study were the training variables with the respondents. The three questions on the questionnaire selected for analysis allowed the participants to select the response regarding their training which was the most applicable to themselves. Data were nominal and coded as 6 = intense, 5 = somewhat intense, 4 = moderate, 3 = somewhat minimal, 2 = minimal, or 1 = not at all.

The first item used in this study was: "I received didactic training regarding ADHD assessments as a component of my training." Participants were able to select intense (more than 90 hours), somewhat intense (90 hours), moderate (45-90 hours), somewhat minimal (45 hours), minimal (less than 45 hours), or not all.

Another item that was analyzed was: "I received supervised applied experiences regarding ADHD assessments as a component of my training." Participants were able to select intense (more than 90 hours), somewhat intense (90 hours), moderate (45-90 hours), somewhat minimal (45 hours), minimal (less than 45 hours), or not all.

The final statement that was posed was: "I conducted independent ADHD assessments within minimal supervision as a component of my training." Participants were able to select intense (more than 90 hours), somewhat intense (90 hours), moderate (45-90 hours), somewhat minimal (45 hours), minimal (less than 45 hours), or not all.

Dependent Variables

The dependent variables in this study were the accuracy of diagnosis of the respondent. The participants either were determined to be accurate or not. If they were deemed to be correct they were coded as a 1 and incorrect was a 0. This is nominal data.

Design and Data Analysis

As the data used in this experiment were categorical/nominal, a chi square for independent samples test was used to analyze data relating to accuracy of diagnosis, didactic training, supervised experience, and independent assessments. There were 6 categorical levels for the items regarding training. This test was appropriate as there were two or more groups being analyzed in relation to categorical diagnostic accuracy.

Results

Chi square for independent sample tests were used to analyze data relating to accuracy of diagnosis, didactic training, supervised experience, and independent assessments. It was hypothesized that the more intense the training, the more accurate the psychologists' diagnosis would be of the subject in the vignette. After participants reporting Ph.D. level of education were eliminated, 146 specialist level participants remained. Of those participants, 100 ($M = 68\%$) incorrectly diagnosed the subject in the vignette, while 46 ($M = 32\%$) correctly diagnosed the subject.

The first research question asked: "What is the type of training the school psychologist reports receiving at the specialist level?" Based on a frequency count ($N = 146$) as shown in Table 1, it was found that 9 (6.2%) participants did not receive didactic training, 45 (30.8%) participants received "minimal" training, 25 (17.1%) received "somewhat minimal" training, 42 (28.8%) received a "moderate" amount of training, 16 (11.0%) received "somewhat intense" training, and 9 (6.2%) participants received "intense" didactic training.

Participants were asked to report the level of supervised applied experiences regarding ADHD assessments as a component of their training. Based on a frequency count ($N = 146$) as shown in Table 2, it was found that 15 (10.3%) participants did not have supervised applied experience, 45 (30.8%) participants received "minimal" supervision, 27 (18.5%) received "somewhat minimal" supervision, 36 (24.7%) received a "moderate" amount of supervised experience, 18 (12.3%) received "somewhat intense" supervision, and 5 (3.4%) participants received "intense" supervised applied experiences regarding ADHD assessments while in training.

Participants also responded to: “I conducted independent ADHD assessments within minimal supervision as a component of my training.” Based on a frequency count ($N = 146$) as shown in Table 3, it was found that 2 (1.4%) participants did not conduct independent ADHD assessments, 68 (46.6%) participants had a “minimal” amount of assessments conducted, 21 (14.4%) conducted a “somewhat minimal” amount of assessments conducted, 32 (21.9%) conducted a “moderate” amount of assessments, 13 (8.9%) reported a “somewhat intense” amount of assessments, and 10 (6.8%) participants reported “intense” amount of independent ADHD assessments with minimal supervision as a component of training.

The second research question was: “Will level of didactic training school psychologists received in graduate school relate to accuracy of diagnosis?” A chi square test for independence was conducted on the amount of didactic training compared to the accuracy of diagnosis on the subject in the vignette. At an alpha level of .05, results indicate that the amount of training and accuracy were not significantly related, $\chi^2(5, N = 146) = 1.88, p = .87$, Cramer’s $V = .11$. Of those who incorrectly diagnosed the subject in the vignette as shown in Table 4, 5% did not receive didactic training, 31% had “minimal” training, 17% reported “somewhat minimal” training, 30% had “moderate” training, 12% reported “somewhat intense” training, and 5% had “intense” didactic training in the area of ADHD assessment. Of those who correctly diagnosed the subject described in the vignette as shown in Table 5, 8.7% did not receive didactic training, 30.4% had “minimal” training, 17.4% reported “somewhat minimal” training, 26.1% had “moderate” training, 8.7% reported “somewhat intense” training, and 8.7% had “intense” didactic training in the area of ADHD assessment.

Research question three was: “Will the level of supervised applied assessments in graduate school relate to accuracy of diagnosis?” A chi square test for independence was conducted on the amount of supervised applied assessments in graduate school compared to the accuracy of diagnosis on the subject in the vignette. At an alpha level of .05, results indicate that the level of supervised applied assessments and accuracy were not significantly related, $\chi^2(5, N = 146) = 1.78, p = .88, \text{Cramer's } V = .11$. Of those who incorrectly diagnosed the subject in the vignette as shown in Table 6, 10% did not conduct supervised applied assessments, 29% had a “minimal” amount of supervision, 21% reported a “somewhat minimal” level supervision, 24% had a “moderate” amount of supervised applied assessments, 13% reported “somewhat intense” amount of supervised assessments, and 3% had an “intense” level of supervised applied assessments in graduate school. Of those who correctly diagnosed the subject in the vignette as shown in Table 7, 10.9% did not conduct supervised applied assessments, 34.8% had a “minimal” amount of supervision, 13% reported a “somewhat minimal” level supervision, 26.1% had a “moderate” amount of supervised applied assessments, 10.9% reported “somewhat intense” amount of supervised assessments, and 4.3% had an “intense” level of supervised applied assessments in graduate school.

The final research question was: “Will the level of independent assessments relate to accuracy of diagnosis?” A chi square test for independence was conducted on the amount of independent assessments in training compared to the accuracy of diagnosis on the subject in the vignette. At an alpha level of .05, results indicate that the level of independent assessments conducted and accuracy were not significantly related, $\chi^2(5, N = 146) = 5.25, p = .39, \text{Cramer's } V = .19$. Of those who incorrectly diagnosed the subject in

the vignette as shown in Table 8, 2% did not conduct independent assessments within training, 43% had a “minimal” amount of independent assessments conducted, 14% reported a “somewhat minimal” level of independent assessments conducted, 22% had a “moderate” amount of independent assessments, 12% reported “somewhat intense” amount of independent assessments, and 7% had an “intense” level of independent assessments conducted with minimal supervision as a component of training. Of those who correctly diagnosed the subject in the vignette as shown in Table 9, 0% did not conduct independent assessments within training, 54.3% had a “minimal” amount of independent assessments conducted, 15.2% reported a “somewhat minimal” level of independent assessments conducted, 21.7% had a “moderate” amount of independent assessments, 2.2% reported “somewhat intense” amount of independent assessments, and 6.5% had an “intense” level of independent assessments conducted with minimal supervision as a component of training.

Discussion

ADHD is commonly diagnosed in childhood and one of the most frequent referral concerns brought to the attention of school psychologists, yet it is often misdiagnosed. The purpose of this study was to examine whether the differences between the intensity of didactic training, supervised applied experiences, and independent ADHD assessment with minimal supervision in relation to ADHD assessment significantly contributed to the accuracy of diagnosis in specialist level school psychologists. It was hypothesized that the more intense the training received in the three areas, the more accurate the school psychologist was in diagnosing the subject in the vignette. It was found that of the 146 specialist level participants, 100 (68%) incorrectly diagnosed the subjects in the vignettes. The data did not support the hypothesis as it showed that the level of didactic training, supervised applied experience, and independent ADHD assessments conducted were not significantly related to the intensity of training.

When considering the type of training received, more than half of the participants fell into the “somewhat minimal,” “minimal,” or “not at all” category when considering the amount of training received in all three areas (didactic training, supervised ADHD experience, and independent assessments with minimal supervision). It was found that 54.1% of the specialist level participants received “somewhat minimal” and less amounts of didactic training in ADHD assessments (0-45 hours) as a component of training. This suggests that the majority of school psychologists may not have the background knowledge necessary to utilize these assessments and appropriately interpret the data.

When considering supervised applied experience with ADHD assessments, 59.6% of the participants reported receiving 45 hours or less (“somewhat minimal”-“not at all”)

of training. Based on these data, it seems as though school psychologists are not receiving guided instruction from their supervisors. Supervised applied experience is a pivotal aspect of training which allows the new school psychologist to conduct complicated ADHD assessments while under supervision. If the majority of participants report receiving 45 hours or less of this experience, they may not have been able to test their skills on several different cases.

The training area lacking the most was the area of independent assessments conducted with minimal supervision. Of the specialist level respondents, 62.3% reported receiving 45 hours or less of training (“somewhat minimal,” “minimal,” or “not at all”). This is an important aspect of training as this is the psychologist’s opportunity to utilize new skills with a great deal of independence. As 68% of the specialist level participants incorrectly diagnosed the subject in the vignette, having the opportunity to conduct assessment with a minimal amount of supervision would provide the new school psychologist with the opportunity to function independently and review the findings with an experienced school psychologist to ensure accuracy of findings.

These results contribute to dilemma regarding the appropriateness of school psychologists making an ADHD diagnosis. Results from the study conducted by Demaray, Schaefer, and Delong (2003) revealed low confidence levels among nondoctoral school psychologists regarding their ability to provide an ADHD diagnosis. Findings from the current study suggest that 68% of the specialist level psychologists will inaccurately diagnose a subject based on provided information. With so few hours spent in graduate training on diagnosing ADHD, this is possibly a contributing factor to the reported low confidence levels of school psychologists in the area.

It has been reported that GP's see themselves as playing a supporting role in the management and diagnosis of ADHD symptoms (Shaw et al., 2002). The low confidence level reported among school psychologists (Demaray, Schaefer, and Delong, 2003) and the results from this study only contribute to the question: who should be diagnosing ADHD? It is likely that these professionals should be working together and sharing data in an effort to provide children with the best possible services.

Limitations

There are several potential limitations with this study. The quantity of training received was questioned; however, the type of instruments they were trained on was not questioned. The participants may not have been exposed to the instruments in the vignettes or be familiar with analyzing these types of data. Another limitation is that the demographics of the sample do not mirror that of NASP. The results then cannot be said to be representative of NASP members. Yet another possibility is that the vignettes are flawed. Even though they were reviewed by several different professionals, it is possible that they did not provide information that the participants found to be conclusive enough for a diagnosis. Further, it is possible that the results were found to be not significant due to the sample size. Having a larger sample may have yielded different results.

As this is a rich data set, further breakdowns of the intensity of training would provide more information. It would be beneficial to determine whether those who reported "intense" amounts of training were more accurate versus those who reported lower levels of training. As data were collected for both nondoctoral and doctoral school psychologists, comparisons between educational level and accuracy could provide more information regarding the intensity of training.

Further research in this area should strive to include how much time is spent conducting ADHD assessments as a practicing school psychologist in comparison to overall comfort with their level of training and accuracy. Training programs would benefit from knowing how much time is actually spent conducting such assessments and would possibly be able to target instruction to areas that school psychologists believe they would have benefited from further instruction.

References

- Achenbach, T. M. (1991). *Manual for the Youth Self Report and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. S. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: University of Vermont, Department of Psychiatry.
- American Academy of Child and Adolescent Psychiatry. (1997). Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30(10), 85-121.
- American Academy of Pediatrics. (2000). Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics*, 105, 1158-1170.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: Fourth edition text revision*. Washington, DC: Author.
- Barkley, R. A. (1990). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*. New York, NY: The Guilford Press.
- Barkley, R. A. (1998). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment (2nd ed.)*. New York, NY: The Guilford Press.
- Bernstein, G. A., Carroll, M. E., Crosby, R. D., et al. (1994). Caffeine effects on learning performance and anxiety in normal school-age children. *Journal of American Academy of Child and Adolescent Psychiatry*, 33, 407-415.

- Biederman, J., Newcorn, J., & Sprich, S. (1991). Co-morbidity of attention deficit hyperactivity disorder with conduct, depressive, anxiety, and other disorders. *American Journal of Psychiatry, 148*, 564-577.
- Brown, R. T., Freeman, W. S., Perrin, J. M., Stein, M. T., Amler, R. W., Feldman, H. M., et al. (2001). Prevalence and assessment of attention-deficit/hyperactivity disorder in primary care settings. *Pediatrics, 107*(3).
- Chervin, R. D., Dillon, J. E., Bassetti, C., Ganoczy, D. A., & Pituch, K. J. (1997). Symptoms of sleep disorders, inattention, and hyperactivity in children. *Sleep, 20*(12), 1185-1192.
- Conners, C. K. (1997). *Conners' Rating Scales-Revised technical Manual*. North Tonawanda, NY: Multi-Health Systems.
- Costenbader, V., Swartz, J., & Petrix, (1992). Consultation in the schools: The relationship between preservice training, perception of consultative skills, and actual time spent in consultation. *School Psychology Review, 21*, 95-108.
- Cotuono, A. J. (1993). The diagnosis of attention deficit/hyperactivity disorder (ADHD) in community mental health centers: Where and when. *Psychology in the Schools, 30*, 338-344.
- Crystal, D. S., Ostrander, R., Chen, R. S., & August, G. J. (2001). Multimethod assessment of psychopathology among DSM-IV subtypes of children with attention-deficit/hyperactivity disorder: Self-, parent, and teacher reports. *Journal of Abnormal Child Psychology, 29*(3), 189-205.
- Demaray, M., Schaefer, K., & Delong, L. (2003). Attention-deficit/hyperactivity disorder (ADHD): A national survey of training and current assessment practices in the schools. *Psychology in the Schools, 40*(6), 583-597.

- Desgranges, K., Desgranges, L., & Karsky, K. (1995). Attention deficit disorder: Problems with preconceived diagnosis. *Child & Adolescent Social Work Journal, 12*, 3-17.
- Dryer, R., Kiernan, M., & Tyson, G. (2006). Implicit theories of the characteristics and causes of attention-deficit hyperactivity disorder held by parents and professionals in the psychological, educational, medical, and allied health fields. *Australian Journal of Psychology, 58*(2), 79-82.
- Dunlap, G., & Kern, L. (1996). Modifying instructional activities to promote desirable behavior: A conceptual and practical framework. *School Psychology Quarterly, 11*(4), 297-312.
- Dunlap, G., Kern, L., & Worcester, J. A. (2001). ABA and academic instruction. *Focus on Autism and Other Developmental Disabilities, 16*(2), 129-136).
- DuPaul, G. J., Barkley, R. A., & McMurray, M. B. (1991). Therapeutic effects of medication on ADHD: Implications for school psychologists. *School Psychology Review, 20*, 203-219.
- Egger, H., Kondo, D., & Angold, A. (2006). The epidemiology and diagnostic issues in preschool attention-deficit/hyperactivity disorder: A review. *Infants & Young Children, 19*(2), 109-122.
- Floyd, R. G., Keith, T. Z., Taub, G. E., & McGrew, K. S. (2007). Cattell-Horn-Carroll cognitive abilities and their effects on reading decoding skills: g has indirect effects, more specific abilities have direct effects. *School Psychology Quarterly, 22*(2), 200-233.

- Furman, L. (2005). What is Attention-Deficit Hyperactivity Disorder (ADHD)?
Journal of Child Neurology, 20(12), 994-1002.
- Goldman, L. S., Genel, M., Bezman, R. J., & Stanelz, P. J. (1998). Diagnosis and treatment of attention-deficit/hyperactivity disorder in children and adolescents.
Journal of the American Medical Association, 279, 1100-1107.
- Gresham, F. M., & Elliot, S. N. (1990). *The social skills rating system*. Circle Pines, MN: American Guidance.
- Haak, R. A. (2003). The sentence completion as a tool for assessing emotional disturbance. In Reynolds, C. R. & Kamphaus, R. W. (Eds.), *Handbook of psychological & educational assessment of children: Personality, behavior, and context* (pp. 159-181). New York, NY: The Guilford Press.
- Kaplan, B. J., Crawford, S. G., Fisher, G. C., & Dewey, D. M. (1998). Family dysfunction is more strongly associated with ADHD than with general school problems. *Journal of Attention Disorders, 2*(4), 209-216.
- Lanham, J. (2006). The evaluation of attention deficit hyperactivity disorder in family medicine residency programs. *Southern Medical Journal, 99*(8), 802-805.
- Loeber, R., Green, S. M., Lahey, B. B., Frick, P. J., & McBurnett, K. (2000). Findings on disruptive behavior disorders from the first decade of the Developmental Trends Study. *Clinical Child and Family Psychology Review, 3*, 37-60.
- McDaniel, S. H. (1995). Collaboration between psychologists and family physicians: Implementing the biopsychosocial model. *Professional Psychology: Research and Practice, 26*(2), 117-122.

- Medway, F. J. (1979). How effective is school consultation? A review of recent research. *Journal of School Psychology, 17*, 275-282.
- Merrell, K. W. (2003). *Behavioral, social, and emotional assessment of children and adolescents*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Mindell, J. A. & Owens, J. A. (2003). Evaluation of pediatric sleep disorders. In *A clinical guide to pediatric sleep: Diagnosis and management of sleep problems*. (pp. 42-54). Philadelphia: Lippencott Williams, & Wilkins.
- National Health & Medical Research Council: (1997). *Attention Deficit Hyperactivity Disorder*. Canberra: Australian Government Publishing Service.
- Neul, S., Applegate, & Drabman, R. (2003). Assessment of attention-deficit/hyperactivity disorder. In Reynolds, C. R. & Kamphaus, R. W. (Eds.), *Handbook of psychological & educational assessment of children: Personality, behavior, and context* (pp. 320-334). New York, NY: The Guilford Press.
- O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook*. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Owens, J., Maxim, R., McGuinn, M., Nobile, C., Msall, M., & Alario, A. (1999). Television-viewing habits and sleep disturbance in school children. *Pediatrics, 104*(3).
- Platzman, K. A., Stoy, M. R., Brown, R. T., Coles, C. D., Smith, I. E., & Falek, A. (1992). Review of observational methods in attention deficit hyperactivity disorder (ADHD): Implications for diagnosis. *School Psychology Quarterly, 7*(3), 155-177.

- Power, T. J., Andrews, T. J., Eiraldi, R. B., Doherty, B. J., Ikeda, M. J., DuPaul, G. J., & Landau, S. (1998). Evaluating attention deficit hyperactivity disorder using multiple informants: The incremental utility of combining teacher with parent reports. *Psychological Assessment, 10*(3), 250-260.
- Rappaport, J. L., Buchsbaum, M. S., Weingartner, H., et al. (1980). Dextroamphetamine: Its cognitive and behavioral effects in normal and hyperactive boys and men. *Archives of General Psychiatry, 37*, 933-943.
- Reschley, D. J. & McMaster-Beyer, M. (1991). Influence of degree level, institutional orientation, college affiliation, and accreditation status on school psychology graduate education. *Professional Psychology: Research and Practice, 22*, 368-374.
- Reschley, D. J., & Wilson, M.S. (1997). Characteristics of school psychology graduate education: Implications for the entry-level discussion and doctoral-level specialty definition. *School Psychology Review, 26*, 74-92.
- Rie, H. E. (1976). Effects of methylphenidate on underachieving children. *Journal of Consulting and Clinical Psychology, 44*, 250-260.
- Roth, R. M. & Saykin, A. J. (2004). Executive dysfunction in attention-deficit/hyperactivity disorder: Cognitive and neuroimaging findings. *Psychiatric Clinics of North America, 27*, 83-96.
- Rushton, J. L., Fant, K. E., & Clark, S. J. (2004). Use of practice guidelines in the primary care of children with attention-deficit/hyperactivity disorder. *Pediatrics, 114*(1), e23-e28.

- Sattler, J. M. (2006). *Assessment of children: Behavioral, social, and clinical foundations (5th ed.)*. San Diego, CA: Jerome M. Sattler, Publisher, Inc.
- Shapiro, E. S. (2004). *Academic skills problems: Direct assessment and intervention (3rd ed.)*. New York, NY: The Guilford Press.
- Shaw, K., Mitchell, G., Wagner, I., & Eastwood, H. (2002). Attitudes and practices of general practitioners in the diagnosis and management of attention deficit/hyperactivity disorder. *Journal of Paediatrics and Child Health, 38*(5), 481-486.
- Smith, A. (2000, May). School psychologists and attention-deficit/hyperactivity disorder: A survey of training, knowledge, practice, and attitude. *Dissertations Abstracts International Section A, 60*.
- Tarnowski, K. J., Anderson, D. F., Drabman, R. S., & Kelly, P. A. (1990). Disproportionate referrals for child/academic/behavioral problems: Replication and extension. *Journal of Consulting and Clinical Psychology, 58*(2), 240-243.
- Thapar, A., Holmes, J., Poulton, K., & Harrington, R. (1999). Genetic basis of attention deficit and hyperactivity. *British Journal of Psychiatry, 174*, 105-111.
- Tobin, R. M., Schneider, W. J., Reck, S. G., & Landau, S. (2008). Best practices in the assessment of children with attention deficit hyperactivity disorder: Linking assessment to response to intervention. In Thomas, A. & Grimes, J. (Eds.), *Best Practices in School Psychology V* (pp. 617-631). Bethesda, MD: NASP Publications.
- Tripp, G., Schaughency, E. A., & Clarke, B. (2006). Parent and teacher rating scales in the evaluation of attention-deficit hyperactivity disorder: Contribution to

diagnosis and differential diagnosis in clinically referred children. *Developmental and Behavioral Pediatrics*, 27(3), 209-218.

Valera, E. M., & Seidman, L. J. (2006). Neurobiology of attention-deficit/hyperactivity disorder in preschoolers. *Infants & Young Children*, 19(2), 94-108.

Wechsler, D. (2004). *Manual for the Wechsler Intelligence Scale for Children* (4th ed.). London: Pearson Assessment.

Woodcock, R. W. (1989). *Woodcock-Johnson Psycho-Educational Battery-Revised*. Allen, TX: DLM Teaching Resources.

Appendix A

The Diagnostic and Statistical Manual of Mental Disorders (2000) Disruptive Behavior

Checklist Criteria for an ADHD Diagnosis

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.

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). (p. 92-93)

Appendix B

Vignette 1

REASON FOR REFERRAL

Johnny Jones is a 7 year old Caucasian male who is currently enrolled in the 1st grade. He was referred for an ADHD evaluation due to concerns about daydreaming, off-task, fidgeting, and academic problems from his teacher and parents. He has repeated the 1st grade due to these behaviors and poor academic achievement.

PARENT INTERVIEW

Johnny's mother reported that he is the product of a full-term pregnancy without complications. They also reported no complications during labor or delivery. Developmental milestones were met at appropriate ages. They reported their son was an "easy" infant and toddler, but very active. With regard to medical history, both parents reported Johnny had typical childhood diseases, such as the chicken pox. His parents indicated that when Johnny was 6 months old, he had recurrent upper respiratory infections, which were remedied with medication. From 6 months to 2 years of age, Johnny also experienced frequent ear infections, which were also remedied with medication, according to his parents. According to his mother, he received a hairline fracture on his ankle from sliding down the ladder of his bunk bed during the time of the current assessment. There are no hearing or speech problems reported at this time. With regard to Johnny's academic performance, His mother stated that he failed first grade last year because he did not mastery the required material.

His father reported that he believes Johnny is capable of attending to preferred activities, but has difficulty sustaining attention to less preferred tasks. For example, he stated that Johnny can "sit in front of the television forever." He also reported that Johnny's previous teacher reported he has a short attention span in school, had difficulty completing his homework, difficulty following instructions, talked out of turn, and had trouble finishing his work. The current teacher reports similar problems.

In terms of behavior management, the parents indicated they are the primary disciplinarians in their home. Both parents use removal of privileges, and reasoning to manage Johnny's behavior. They also reported that Johnny receives hugs, kisses, and verbal praise when he is behaving appropriately. Both parents reported their son is often fidgety, has difficulty remaining seated, and is easily distracted. They also stated Johnny has difficulty awaiting his turn, is impulsive, and has difficulty following instructions.

TEACHER INTERVIEW

Johnny's current teacher indicated that Johnny often does not pay attention to academic instructions, does not start class assignments in a timely manner, and does not complete homework assignments. She reported that these problem behaviors occur during independent seatwork, large and small instruction groups (i.e., across a variety of classroom conditions), and in the cafeteria. In addition, she reported that Johnny often talks loudly in the library and interrupts others, and finishes his work so that he may walk or jump around the library. She reported these problem behaviors occur during independent work and one-to-one interaction. She reported that his current academic level is below that of his peers. She indicated that he was on Kindergarten level in math and reading.

PERCEPTIONS ABOUT CHILD

Several rating scales were given to the parents and Johnny's teacher to evaluate their perceptions of his behavior.

The *Achenbach Child Behavior Checklist-Parent and Teacher Report Form (CBCL)* is a parent-completed rating scale for children ages 6 to 18 comprising descriptions of 112 common childhood behavior problems. Parents indicate on a 0- to 2-point scale ("Not True," "Somewhat or Sometimes True," or "Very True or Often True") within the past six months. Ratings are combined to yield eight subscale scores. Three of these subscales are further combined to form an Internalizing scale (Anxious/ Depressed, Withdrawn/Depressed, and Somatic Complaints) and two form an Externalizing scale (Rule-Breaking Behavior and Aggressive Behavior). The six DSM-oriented subscales include Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. Scores are compared to those of a national sample of children. Based on parental report, both the parents perceived Johnny as in the Clinically Significant range for Attention/Deficit Hyperactivity Problems, Thoughts problems, Attention problems, and in the Borderline Range for School Problems and Attention/Deficit Hyperactivity Problems. The teacher perceived Johnny as in the Clinically Significant Range for Social Problems, Academic Performance, Attention problems and Attention/Deficit Hyperactivity Problems and in the Borderline range for Thought problems.

The *DSM-IV Disruptive Behavior Checklist* is a parent and teacher-completed rating scale based on the symptoms of the three disruptive behavior disorders of childhood: Oppositional Defiant Disorder (ODD), Attention Deficit Hyperactivity Disorder (ADHD), and Conduct Disorder (CD). This scale compares both boys and girls. Scores equal to or above the 85th percentile are considered significant in the ADHD inattentive category. Scores equal to or above the 90th percentile are considered significant in the ADHD hyperactive/impulsive category. In the ODD category scores from only symptoms rated two or three are added, and a score equal to or above four is considered significant. In the CD category scores from only symptoms rated two or three are added, and a score equal to or above 3 is considered significant. Johnny's parents and teacher perceive Johnny as Clinically Significant on the ADHD Inattentive subscale.

The *Conners' Parent and Teacher Rating Scale-Revised* is used to identify behavior problems in children ages 3 to 17. The abbreviated parent version consists of 27 to 28 items which yield three subscale scores (Oppositional, Cognitive Problems-Inattention, and Hyperactivity), as well as an ADHD Index. The parents rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive and Borderline Range for the ADHD Index. The teacher rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive, Hyperactivity, and the ADHD Index.

The *Social Skills Rating System (SSRS)* is a parent and teacher completed checklist of social skill items that are exhibited by children "often," "sometimes," or "never." In addition, there is a Problem Behavior Scale consisting of 12 problem behaviors exhibited by children that may effect social interactions. The parents perceived Johnny as having average social skills with more problems with hyperactivity while the teacher rated him as having fewer self-control, and cooperation skills and more hyperactivity problems.

Curriculum-Based Assessment (CBA)

Math. In this procedure, children are required to compute a series of computation problems. Probes are used from the child's grade. After the child computes the problems, the number of digits correct per minute is determined, as is the numbers of errors. Results are compared against those of children at the same grade levels, and determined to be at Mastery, Instructional, or

Frustrational level for the particular grade. The student was instructed to work mathematics problems for one minute and the examiner counted the number of digits correct on 3 different probes of equal difficulty and took the median. The number of digits correct per minute was calculated using the formula below:

$$\frac{\text{Number of words digits written} - \text{Number of errors}}{\text{Number of digits written}} \times 60 = \text{Digits correct per minute (DCPM)}$$

Grade level	# Digits Correct Per Minute/Level	Level
First	(instructional = 10-19)	Frustrational (2 DCPM)

Reading. In this procedure, children are asked to read aloud 3 passages of equal difficulty on the grade level that the student is placed. When the child reads aloud, the number of words read per minute is determined, as are the numbers of errors. The median is taken and compared against those of children at the same grade levels, and determined to be at Mastery, Instructional, or Frustrational level for the particular grade. The student was instructed to read for one minute and the examiner noted the words with which the student made errors reading. The number of correct words read per minute was calculated using the formula below:

$$\frac{\text{Number of words read} - \text{Number of errors}}{\text{Number of words read}} \times 60 = \text{Correct words read per minute (WCPM)}$$

Grade level	Correct Words Per Minute/Level	Level
First	(instructional = 40-60)	Frustrational (10 WCPM)

OBSERVATIONS

Behavioral observations were conducted in Johnny's general education first grade classroom. The behaviors that were being observed were off task, fidgeting, vocalizing, out of seat, and playing with objects. The observations were conducted at two different times of the day to observe Johnny's behavior during different tasks. Observation #1 was conducted during individual testing instruction and a changing of stations. Observation #2 was conducted during the morning activities such as silent reading. Same age/sex peers were randomly selected as comparison children as a standard for which to compare Johnny's behavior. The following chart summarizes these data:

Percentage of Observation Intervals in Which Target Behaviors Occurred.				
Target Behaviors	Observation #1		Observation #2	
	Johnny	Peer	Johnny	Peer
Off-task	77%	23%	63%	10%
Fidgeting	23%	21%	35%	20%
Vocalizing	3%	0%	35%	5%
Out-of-Seat	10%	18%	55%	5%
Plays with Object	0%	0%	2%	10%
Total	23%	12%	38%	10%

ANTECEDENT MANIPULATION

Antecedent Manipulation conditions were developed based on guidance from empirical literature in applied behavior analysis to further evaluate potential purposes for the display of problem behavior. Two experimental conditions (high demand versus low demand) lasting five minutes in

duration were conducted across multiple settings over 16 sessions. The experimental analysis was conducted within Johnny's first grade classroom. The target behaviors included off-task, out of seat, and inappropriate vocalizations and were defined in the same manner as during the direct observations. The classroom teacher stood within 3 feet but provided no attention (i.e., no eye contact, physical contact, or verbal comments). When the student demonstrated off-task behaviors, the teacher removed the task to provide escape by removing the task presented for a 20 second time period. The first condition was labeled Low Demand (LD). During LD, Johnny was presented a math task identified by his teachers as a task of low difficulty (quantity discrimination task). The second condition was labeled High Demand (HD). During HD, Johnny was presented with a math task identified as difficult by his teachers (mixed skill computation: addition and subtraction 0 to 9). When academic tasks were presented to Johnny within the classroom setting during the LD condition he presented out of seat behavior during 0% of the intervals, inappropriate vocalization 0%, and off-task behavior during 3% of the intervals. During the HD condition, Johnny presented off-task behavior 40%, out of seat behavior 0%, inappropriate vocalization during 33% and. Johnny averaged 16.2 DCPM during the LD conditions and averaged 1.6 DCPM during the HD conditions.

Vignette 2

REASON FOR REFERRAL

Johnny Jones is a 7 year old Caucasian male who is currently enrolled in the 1st grade. He was referred for an ADHD evaluation due to concerns about daydreaming, off-task, fidgeting, and academic problems from his teacher and parents. He has repeated the 1st grade due to these behaviors and poor academic achievement.

PARENT INTERVIEW

Johnny's mother reported that he is the product of a full-term pregnancy without complications. They also reported no complications during labor or delivery. Developmental milestones were met at appropriate ages. They reported their son was an "easy" infant and toddler, but very active. With regard to medical history, both parents reported Johnny had typical childhood diseases, such as the chicken pox. His parents indicated that when Johnny was 6 months old, he had recurrent upper respiratory infections, which were remedied with medication. From 6 months to 2 years of age, Johnny also experienced frequent ear infections, which were also remedied with medication, according to his parents. According to his mother, he received a hairline fracture on his ankle from sliding down the ladder of his bunk bed during the time of the current assessment. There are no hearing or speech problems reported at this time. With regard to Johnny's academic performance, His mother stated that he failed first grade last year because he did not mastery the required material.

His father reported that he believes Johnny is capable of attending to preferred activities, but has difficulty sustaining attention to less preferred tasks. For example, he stated that Johnny can "sit in front of the television forever." He also reported that Johnny's previous teacher reported he has a short attention span in school, had difficulty completing his homework, difficulty following instructions, talked out of turn, and had trouble finishing his work. The current teacher reports similar problems.

In terms of behavior management, the parents indicated they are the primary disciplinarians in their home. Both parents use removal of privileges, and reasoning to manage Johnny's behavior. They also reported that Johnny receives hugs, kisses, and verbal praise when he is behaving appropriately. Both parents reported their son is often fidgety, has difficulty remaining seated, and is easily distracted. They also stated Johnny has difficulty awaiting his turn, is impulsive, and has difficulty following instructions.

TEACHER INTERVIEW

Johnny's current teacher indicated that Johnny often does not pay attention to academic instructions, does not start class assignments in a timely manner, and does not complete homework assignments. She reported that these problem behaviors occur during independent seatwork, large and small instruction groups (i.e., across a variety of classroom conditions), and in the cafeteria. In addition, she reported that Johnny often talks loudly in the library and interrupts others, and finishes his work so that he may walk or jump around the library. She reported these problem behaviors occur during independent work and one-to-one interaction. She reported that his current academic level is below that of his peers. She indicated that he was on Kindergarten level in math and reading.

PERCEPTIONS ABOUT CHILD

Several rating scales were given to the parents and Johnny's teacher to evaluate their perceptions of his behavior.

The *Achenbach Child Behavior Checklist-Parent and Teacher Report Form (CBCL)* is a parent-completed rating scale for children ages 6 to 18 comprising descriptions of 112 common childhood behavior problems. Parents indicate on a 0- to 2-point scale ("Not True," "Somewhat or Sometimes True," or "Very True or Often True") within the past six months. Ratings are combined to yield eight subscale scores. Three of these subscales are further combined to form an Internalizing scale (Anxious/ Depressed, Withdrawn/Depressed, and Somatic Complaints) and two form an Externalizing scale (Rule-Breaking Behavior and Aggressive Behavior). The six DSM-oriented subscales include Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. Scores are compared to those of a national sample of children. Based on parental report, both the parents perceived Johnny as in the Clinically Significant range for Attention/Deficit Hyperactivity Problems, Thoughts problems, Attention problems, and in the Borderline Range for School Problems and Attention/Deficit Hyperactivity Problems. The teacher perceived Johnny as in the Clinically Significant Range for Social Problems, Academic Performance, Attention problems and Attention/Deficit Hyperactivity Problems and in the Borderline range for Thought problems.

The *DSM-IV Disruptive Behavior Checklist* is a parent and teacher-completed rating scale based on the symptoms of the three disruptive behavior disorders of childhood: Oppositional Defiant Disorder (ODD), Attention Deficit Hyperactivity Disorder (ADHD), and Conduct Disorder (CD). This scale compares both boys and girls. Scores equal to or above the 85th percentile are considered significant in the ADHD inattentive category. Scores equal to or above the 90th percentile are considered significant in the ADHD hyperactive/impulsive category. In the ODD category scores from only symptoms rated two or three are added, and a score equal to or above four is considered significant. In the CD category scores from only symptoms rated two or three are added, and a score equal to or above 3 is considered significant. Johnny's parents and teacher perceive Johnny as Clinically Significant on the ADHD Inattentive subscale.

The *Conners' Parent and Teacher Rating Scale-Revised* is used to identify behavior problems in children ages 3 to 17. The abbreviated parent version consists of 27 to 28 items which yield three subscale scores (Oppositional, Cognitive Problems-Inattention, and Hyperactivity), as well as an ADHD Index. The parents rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive and Borderline Range for the ADHD Index. The teacher rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive, Hyperactivity, and the ADHD Index.

The *Social Skills Rating System (SSRS)* is a parent and teacher completed checklist of social skill items that are exhibited by children "often," "sometimes," or "never." In addition, there is a Problem Behavior Scale consisting of 12 problem behaviors exhibited by children that may effect social interactions. The parents perceived Johnny as having average social skills with more problems with hyperactivity while the teacher rated him as having fewer self-control, and cooperation skills and more hyperactivity problems.

Curriculum-Based Assessment (CBA)

Math. In this procedure, children are required to compute a series of computation problems. Probes are used from the child's grade. After the child computes the problems, the number of digits correct per minute is determined, as is the numbers of errors. Results are compared against those of children at the same grade levels, and determined to be at Mastery, Instructional, or Frustrational level for the particular grade. The student was instructed to work mathematics problems for one minute and the examiner counted the number of digits correct on 3 different

probes of equal difficulty and took the median. The number of digits correct per minute was calculated using the formula below:

$$\frac{\text{Number of words digits written} - \text{Number of errors}}{\text{Number of digits written}} \times 60 = \text{Digits correct per minute (DCPM)}$$

Grade level	# Digits Correct Per Minute/Level	Level
First	(instructional = 10-19)	Frustrational (2 DCPM)

Reading. In this procedure, children are asked to read aloud 3 passages of equal difficulty on the grade level that the student is placed. When the child reads aloud, the number of words read per minute is determined, as are the numbers of errors. The median is taken and compared against those of children at the same grade levels, and determined to be at Mastery, Instructional, or Frustrational level for the particular grade. The student was instructed to read for one minute and the examiner noted the words with which the student made errors reading. The number of correct words read per minute was calculated using the formula below:

$$\frac{\text{Number of words read} - \text{Number of errors}}{\text{Number of words read}} \times 60 = \text{Correct words read per minute (WCPM)}$$

Grade level	Correct Words Per Minute/Level	Level
First	(instructional = 40-60)	Frustrational (10 WCPM)

OBSERVATIONS

Behavioral observations were conducted in Johnny's general education first grade classroom. The behaviors that were being observed were off task, fidgeting, vocalizing, out of seat, and playing with objects. The observations were conducted at two different times of the day to observe Johnny's behavior during different tasks. Observation #1 was conducted during individual testing instruction and a changing of stations. Observation #2 was conducted during the morning activities such as silent reading. Same age/sex peers were randomly selected as comparison children as a standard for which to compare Johnny's behavior. The following chart summarizes these data:

Percentage of Observation Intervals in Which Target Behaviors Occurred.				
Target Behaviors	Observation #1		Observation #2	
	Johnny	Peer	Johnny	Peer
Off-task	77%	23%	63%	10%
Fidgeting	23%	21%	35%	20%
Vocalizing	3%	0%	35%	5%
Out-of-Seat	10%	18%	55%	5%
Plays with Object	0%	0%	2%	10%
Total	23%	12%	38%	10%

ANTECEDENT MANIPULATION

Antecedent Manipulation conditions were developed based on guidance from empirical literature in applied behavior analysis to further evaluate potential purposes for the display of problem behavior. Two experimental conditions (high demand versus low demand) lasting five minutes in duration were conducted across multiple settings over 16 sessions. The experimental analysis was

conducted within Johnny's first grade classroom. The target behaviors included off-task, out of seat, and inappropriate vocalizations and were defined in the same manner as during the direct observations. The classroom teacher stood within 3 feet but provided no attention (i.e., no eye contact, physical contact, or verbal comments). When the student demonstrated off-task behaviors, the teacher removed the task to provide escape by removing the task presented for a 20 second time period. The first condition was labeled Low Demand (LD). During LD, Johnny was presented a math task identified by his teachers as a task of low difficulty (quantity discrimination task). The second condition was labeled High Demand (HD). During HD, Johnny was presented with a math task identified as difficult by his teachers (mixed skill computation: addition and subtraction 0 to 9). When academic tasks were presented to Johnny within the classroom setting during the LD condition he presented out of seat behavior during 15% of the intervals, inappropriate vocalization 33%, and off-task behavior during 45% of the intervals. During the HD condition, Johnny presented off-task behavior 40%, out of seat behavior 25%, inappropriate vocalization during 33%. Johnny averaged 16.2 DCPM during the LD conditions and averaged 1.6 DCPM during the HD conditions.

Vignette 3

REASON FOR REFERRAL

Johnny Jones is a 7 year old Caucasian male who is currently enrolled in the 1st grade. He was referred for an ADHD evaluation due to concerns about daydreaming, off-task, fidgeting, and academic problems from his teacher and parents. He has repeated the 1st grade due to these behaviors and poor academic achievement.

PARENT INTERVIEW

Johnny's mother reported that he is the product of a full-term pregnancy without complications. They also reported no complications during labor or delivery. Developmental milestones were met at appropriate ages. They reported their son was an "easy" infant and toddler, but very active. With regard to medical history, both parents reported Johnny had typical childhood diseases, such as the chicken pox. His parents indicated that when Johnny was 6 months old, he had recurrent upper respiratory infections, which were remedied with medication. From 6 months to 2 years of age, Johnny also experienced frequent ear infections, which were also remedied with medication, according to his parents. According to his mother, he received a hairline fracture on his ankle from sliding down the ladder of his bunk bed during the time of the current assessment. There are no hearing or speech problems reported at this time. With regard to Johnny's academic performance, His mother stated that he failed first grade last year because he did not mastery the required material.

His father reported that he believes Johnny is capable of attending to preferred activities, but has difficulty sustaining attention to less preferred tasks. For example, he stated that Johnny can "sit in front of the television forever." He also reported that Johnny's previous teacher reported he has a short attention span in school, had difficulty completing his homework, difficulty following instructions, talked out of turn, and had trouble finishing his work. The current teacher reports similar problems.

In terms of behavior management, the parents indicated they are the primary disciplinarians in their home. Both parents use removal of privileges, and reasoning to manage Johnny's behavior. They also reported that Johnny receives hugs, kisses, and verbal praise when he is behaving appropriately. Both parents reported their son is often fidgety, has difficulty remaining seated, and is easily distracted. They also stated Johnny has difficulty awaiting his turn, is impulsive, and has difficulty following instructions.

TEACHER INTERVIEW

Johnny's current teacher indicated that Johnny often does not pay attention to academic instructions, does not start class assignments in a timely manner, and does not complete homework assignments. She reported that these problem behaviors occur during independent seatwork, large and small instruction groups (i.e., across a variety of classroom conditions), and in the cafeteria. In addition, she reported that Johnny often talks loudly in the library and interrupts others, and finishes his work so that he may walk or jump around the library. She reported these problem behaviors occur during independent work and one-to-one interaction. She reported that his current academic level is below that of his peers. She indicated that he was on Kindergarten level in math and reading.

PERCEPTIONS ABOUT CHILD

Several rating scales were given to the parents and Johnny's teacher to evaluate their perceptions of his behavior.

The *Achenbach Child Behavior Checklist-Parent and Teacher Report Form (CBCL)* is a parent-completed rating scale for children ages 6 to 18 comprising descriptions of 112 common childhood behavior problems. Parents indicate on a 0- to 2-point scale ("Not True," "Somewhat or Sometimes True," or "Very True or Often True") within the past six months. Ratings are combined to yield eight subscale scores. Three of these subscales are further combined to form an Internalizing scale (Anxious/ Depressed, Withdrawn/Depressed, and Somatic Complaints) and two form an Externalizing scale (Rule-Breaking Behavior and Aggressive Behavior). The six DSM-oriented subscales include Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. Scores are compared to those of a national sample of children. Based on parental report, both the parents perceived Johnny as in the Clinically Significant range for Attention/Deficit Hyperactivity Problems, Thoughts problems, Attention problems, and in the Borderline Range for School Problems and Attention/Deficit Hyperactivity Problems. The teacher perceived Johnny as in the Clinically Significant Range for Social Problems, Academic Performance, Attention problems and Attention/Deficit Hyperactivity Problems and in the Borderline range for Thought problems.

The *DSM-IV Disruptive Behavior Checklist* is a parent and teacher-completed rating scale based on the symptoms of the three disruptive behavior disorders of childhood: Oppositional Defiant Disorder (ODD), Attention Deficit Hyperactivity Disorder (ADHD), and Conduct Disorder (CD). This scale compares both boys and girls. Scores equal to or above the 85th percentile are considered significant in the ADHD inattentive category. Scores equal to or above the 90th percentile are considered significant in the ADHD hyperactive/impulsive category. In the ODD category scores from only symptoms rated two or three are added, and a score equal to or above four is considered significant. In the CD category scores from only symptoms rated two or three are added, and a score equal to or above 3 is considered significant. Johnny's parents and teacher perceive Johnny as Clinically Significant on the ADHD Inattentive subscale.

The *Conners' Parent and Teacher Rating Scale-Revised* is used to identify behavior problems in children ages 3 to 17. The abbreviated parent version consists of 27 to 28 items which yield three subscale scores (Oppositional, Cognitive Problems-Inattention, and Hyperactivity), as well as an ADHD Index. The parents rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive and Borderline Range for the ADHD Index. The teacher rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive, Hyperactivity, and the ADHD Index.

The *Social Skills Rating System (SSRS)* is a parent and teacher completed checklist of social skill items that are exhibited by children "often," "sometimes," or "never." In addition, there is a Problem Behavior Scale consisting of 12 problem behaviors exhibited by children that may effect social interactions. The parents perceived Johnny as having average social skills with more problems with hyperactivity while the teacher rated him as having fewer self-control, and cooperation skills and more hyperactivity problems.

OBSERVATIONS

Behavioral observations were conducted in Johnny's general education first grade classroom. The behaviors that were being observed were off task, fidgeting, vocalizing, out of seat, and playing with objects. The observations were conducted at two different times of the day to observe Johnny's behavior during different tasks. Observation #1 was conducted during individual testing instruction and a changing of stations. Observation #2 was conducted during the morning activities such as silent reading. Same age/sex peers were randomly selected as comparison

children as a standard for which to compare Johnny's behavior. The following chart summarizes these data:

Percentage of Observation Intervals in Which Target Behaviors Occurred.				
Target Behaviors	Observation #1		Observation #2	
	Johnny	Peer	Johnny	Peer
Off-task	77%	23%	63%	10%
Fidgeting	23%	21%	35%	20%
Vocalizing	3%	0%	35%	5%
Out-of-Seat	10%	18%	55%	5%
Plays with Object	0%	0%	2%	10%
Total	23%	12%	38%	10%

Vignette 4

REASON FOR REFERRAL

Johnny Jones is a 7 year old Caucasian male who is currently enrolled in the 1st grade. He was referred for an ADHD evaluation due to concerns about daydreaming, off-task, fidgeting, and academic problems from his teacher. He has repeated the 1st grade due to these behaviors and poor academic achievement.

PARENT INTERVIEW

Johnny's mother reported that he is the product of a full-term pregnancy without complications. They also reported no complications during labor or delivery. Developmental milestones were met at appropriate ages. They reported their son was an "easy" infant and toddler, but very active. With regard to medical history, both parents reported Johnny had typical childhood diseases, such as the chicken pox. His parents indicated that when Johnny was 6 months old, he had recurrent upper respiratory infections, which were remedied with medication. From 6 months to 2 years of age, Johnny also experienced frequent ear infections, which were also remedied with medication, according to his parents. According to his mother, he received a hairline fracture on his ankle from sliding down the ladder of his bunk bed during the time of the current assessment. There are no hearing or speech problems reported at this time. With regard to Johnny's academic performance, His mother stated that he failed first grade last year because he did not mastery the required material.

His father reported that he believes Johnny is capable of attending to preferred activities, but has difficulty sustaining attention to less preferred tasks. For example, he stated that Johnny can "sit in front of the television forever." He also reported that Johnny's previous teacher reported he has a short attention span in school, had difficulty completing his homework, difficulty following instructions, talked out of turn, and had trouble finishing his work. The current teacher reports similar problems.

In terms of behavior management, the parents indicated they are the primary disciplinarians in their home. Both parents use removal of privileges, and reasoning to manage Johnny's behavior. They also reported that Johnny receives hugs, kisses, and verbal praise when he is behaving appropriately. Both parents reported their son is often fidgety, has difficulty remaining seated, and is easily distracted. They also stated Johnny has difficulty awaiting his turn, is impulsive, and has difficulty following instructions.

TEACHER INTERVIEW

Johnny's current teacher indicated that Johnny often does not pay attention to academic instructions, does not start class assignments in a timely manner, and does not complete homework assignments. She reported that these problem behaviors occur during independent seatwork, large and small instruction groups (i.e., across a variety of classroom conditions), and in the cafeteria. In addition, she reported that Johnny often talks loudly in the library and interrupts others, and finishes his work so that he may walk or jump around the library. She reported these problem behaviors occur during independent work and one-to-one interaction. She reported that his current academic level is below that of his peers. She indicated that he was on Kindergarten level in math and reading.

PERCEPTIONS ABOUT CHILD

Several rating scales were given to the parents and Johnny's teacher to evaluate their perceptions of his behavior.

The *Achenbach Child Behavior Checklist-Parent and Teacher Report Form (CBCL)* is a parent-completed rating scale for children ages 6 to 18 comprising descriptions of 112 common childhood behavior problems. Parents indicate on a 0- to 2-point scale ("Not True," "Somewhat or Sometimes True," or "Very True or Often True") within the past six months. Ratings are combined to yield eight subscale scores. Three of these subscales are further combined to form an Internalizing scale (Anxious/ Depressed, Withdrawn/Depressed, and Somatic Complaints) and two form an Externalizing scale (Rule-Breaking Behavior and Aggressive Behavior). The six DSM-oriented subscales include Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. Scores are compared to those of a national sample of children. Based on parental report, both the parents perceived Johnny as in the Borderline Range for School Problems and Thought Problems. The teacher perceived Johnny as in the Clinically Significant Range for Social Problems, Academic Performance, Attention problems and Attention/Deficit Hyperactivity Problems and in the Borderline range for Thought problems.

The *DSM-IV Disruptive Behavior Checklist* is a parent and teacher-completed rating scale based on the symptoms of the three disruptive behavior disorders of childhood: Oppositional Defiant Disorder (ODD), Attention Deficit Hyperactivity Disorder (ADHD), and Conduct Disorder (CD). This scale compares both boys and girls. Scores equal to or above the 85th percentile are considered significant in the ADHD inattentive category. Scores equal to or above the 90th percentile are considered significant in the ADHD hyperactive/impulsive category. In the ODD category scores from only symptoms rated two or three are added, and a score equal to or above four is considered significant. In the CD category scores from only symptoms rated two or three are added, and a score equal to or above 3 is considered significant. Johnny's parents perceive him in the average range for all subscales but and teacher perceive Johnny as Clinically Significant on the ADHD Inattentive subscale.

The *Conners' Parent and Teacher Rating Scale-Revised* is used to identify behavior problems in children ages 3 to 17. The abbreviated parent version consists of 27 to 28 items which yield three subscale scores (Oppositional, Cognitive Problems-Inattention, and Hyperactivity), as well as an ADHD Index. The parents rated Johnny in the borderline Range for Cognitive Problems/Inattentive. The teacher rated Johnny in the Clinically Significant Range for Cognitive Problems/Inattentive, Hyperactivity, and the ADHD Index.

The *Social Skills Rating System (SSRS)* is a parent and teacher completed checklist of social skill items that are exhibited by children "often," "sometimes," or "never." In addition, there is a Problem Behavior Scale consisting of 12 problem behaviors exhibited by children that may effect social interactions. The parents perceived Johnny as having average social skills and average problem behaviors while the teacher rated him as having fewer self-control, and cooperation skills and more hyperactivity problems.

OBSERVATIONS

Behavioral observations were conducted in Johnny's general education first grade classroom. The behaviors that were being observed were off task, fidgeting, vocalizing, out of seat, and playing with objects. The observations were conducted at two different times of the day to observe Johnny's behavior during different tasks. Observation #1 was conducted during individual testing instruction and a changing of stations. Observation #2 was conducted during the morning activities such as silent reading. Same age/sex peers were randomly selected as comparison children as a standard for which to compare Johnny's behavior. The following chart summarizes these data:

Percentage of Observation Intervals in Which Target Behaviors Occurred.				
Target Behaviors	Observation #1		Observation #2	
	Johnny	Peer	Johnny	Peer
Off-task	20%	23%	15%	10%
Fidgeting	23%	21%	17%	20%
Vocalizing	3%	0%	8%	5%
Out-of-Seat	10%	18%	0%	5%
Plays with Object	0%	0%	14%	10%
Total	11%	12%	11%	10%

Table 1

Frequency for Level of Didactic Training

Level of Training	<i>N</i>	%
"Not At All"	9	6.2
"Minimal"	45	30.8
"Somewhat Minimal"	25	17.1
"Moderate"	42	28.8
"Somewhat Intense"	16	11.0
"Intense"	9	6.2

Table 2

Frequency for Level of Supervised Applied ADHD Assessments in Training

Level of Training	<i>N</i>	%
"Not At All"	15	10.3
"Minimal"	45	30.8
"Somewhat Minimal"	27	18.5
"Moderate"	36	24.7
"Somewhat Intense"	18	12.3
"Intense"	5	3.4

Table 3

Frequency for Independent ADHD Assessments within Minimal Supervision

Level of Training	<i>N</i>	%
"Not At All"	2	1.4
"Minimal"	68	46.6
"Somewhat Minimal"	21	14.4
"Moderate"	32	21.9
"Somewhat Intense"	13	8.9
"Intense"	10	6.8

Table 4

Participants that Incorrectly Diagnosed the Subject Related to Level of Didactic Training

Level of Training	<i>N</i>	%
"Not At All"	5	5.0
"Minimal"	31	31.0
"Somewhat Minimal"	17	17.0
"Moderate"	30	30.0
"Somewhat Intense"	12	12.0
"Intense"	5	5.0

Table 5

Participants that Correctly Diagnosed the Subject Related to Level of Didactic Training

Level of Training	<i>N</i>	%
“Not At All”	4	8.7
“Minimal”	14	30.4
“Somewhat Minimal”	8	17.4
“Moderate”	12	26.1
“Somewhat Intense”	4	8.7
“Intense”	4	8.7

Table 6

Participants that Incorrectly Diagnosed the Subject Related to Level of Supervised

Applied ADHD Assessments in Training

Level of Training	<i>N</i>	%
"Not At All"	10	10.0
"Minimal"	29	29.0
"Somewhat Minimal"	21	21.0
"Moderate"	24	24.0
"Somewhat Intense"	13	13.0
"Intense"	3	3.0

Table 7

Participants that Correctly Diagnosed the Subject Related to Level of Supervised Applied

ADHD Assessments in Training

Level of Training	<i>N</i>	%
"Not At All"	5	10.9
"Minimal"	16	34.8
"Somewhat Minimal"	6	13.0
"Moderate"	12	26.1
"Somewhat Intense"	5	10.9
"Intense"	2	4.3

Table 8

Participants that Incorrectly Diagnosed the Subject Related to Independent ADHD

Assessments within Minimal Supervision

Level of Training	<i>N</i>	%
"Not At All"	2	2.0
"Minimal"	43	43.0
"Somewhat Minimal"	14	14.0
"Moderate"	22	22.0
"Somewhat Intense"	12	12.0
"Intense"	7	7.0

Table 9

Participants that Correctly Diagnosed the Subject Related to Independent ADHD

Assessments within Minimal Supervision

Level of Training	<i>N</i>	%
"Not At All"	0	.0
"Minimal"	25	54.3
"Somewhat Minimal"	7	15.2
"Moderate"	10	21.7
"Somewhat Intense"	1	2.2
"Intense"	3	6.5