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Beginning Teachers' Knowledge of Attention Deficit Hyperactive Disorder and Classroom Interventions

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CERTIFICATE OF APPROVAL

This is to certify that the **Action Research Final Project** of

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has been approved by the Review Committee, and fulfills the requirements for the Master of Arts in Education degree.

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ABSTRACT

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Summer Beth LaMontagne

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Action Research Final Project

Attention Deficit Hyperactive Disorder (ADHD) is so prevalent among children that it is likely that most teachers will have at least one student with ADHD in every class they teach. Because of this, it is important for teachers to have knowledge of the disorder and the interventions they can use in their classrooms to help students succeed. The basic knowledge of ADHD and classroom interventions of three beginning teachers was assessed through a rating scale, checklist, and one-on-one interviews. The results show that improvement is needed in the following areas: teachers' knowledge of ADHD, teachers' knowledge and use of interventions, teacher training programs, and training in the schools we teach in. Furthermore, the data indicates that teachers want to learn more and that experience makes a difference in understanding and working with students with ADHD.

TABLE OF CONTENTS

Chapter 1:

Introduction

This paper starts with a student named Beau. Beau was a student I had in the one health class I taught in my former life as a Physical Education and Health teacher. At that point in my education career I had six years of what I felt was good classroom management under my belt; however, all the classes I had taught previously were out on a field or in a gym. There is a whole different dynamic in a classroom setting with desks in what is required in the management of 30 eighth grade students.

With that said, I also simply was not prepared to effectively teach a boy like Beau. He had what his team called "extreme ADHD." I was not prepared for him in part because as a Physical Education teacher my job was to encourage movement. Before Beau, the longest I had asked a student to sit still at one time was the ten minutes I used to explain the day's activity. Physical Education is a safe place for a student with ADHD; they get to burn off their pent up energy and usually are the most enthusiastic learners in the class. If a student could not sit still or keep quiet while I was talking in the gym or on the field, I would send them to run laps, a very effective means of ensuring everyone's total attention.

No matter my lack of experience of teaching in a classroom, Beau was a tough draw for any teacher. He demanded total attention from everyone at all times. He had to be in everyone's conversation. He interrupted lectures and disrupted the class. I can vividly remember him not being able to sit still for more than a few minutes at a time. He could not focus on anything I asked for longer than five minutes. He would rush through

assignments, not caring if the answers were correct, often being the first one done, which allowed him more time to disrupt my class.

I tried everything my limited experience of working with a student with ADHD allowed me: reminding, ignoring, yelling, threatening, one on one talks, sending him outside the room, calling parents, conferencing with his team.

The defining moment that summed up my experience with Beau was when I had kicked him out of my class for the fifth or sixth time that semester, telling him to go to his case manager's room. He said, "NO!" I told him to leave and leave now. He responded with, "I'm not going anywhere." I said that we would wait for him to leave before the class continued. We waited and he did not budge. After what seemed an eternity, I finally had to carry on with class. I had quite ineffectively gotten into a power struggle with a fourteen year old boy and lost. In addition, my losing standoff took place in front of an audience of twenty-nine eighth grade students.

The truth of the matter is that I was a teacher who had no clue what ADHD was or how it made Beau act. I remember nothing in my education program preparing me to work with student with ADHD. My student teaching experience in the health classroom did not have one single student who exhibited the characteristics of ADHD. I took all of his outbursts and actions personally, like he was purposely trying to disrupt my lesson every day. I tried to combat his actions with talks and discipline, not knowing what strategies could make his energy help him succeed in my class. He always has and always will stand out in my mind because I know that every single thing I did and thought about him was so wrong that it seriously impaired my ability to help him succeed. The end result of our horrible teacher/student relationship was that Beau hated

health class (and me) and I was labeled at that particular school as a teacher who was not equipped to work with students with ADHD. I guess I can say the one good result from that experience is that it led me to take the challenge to pursue a career as a special educator and become more informed on the special needs of all students.

Purpose Statement

The purpose of this study is to explore what is needed for beginning teachers to work effectively with students with ADHD. I will describe the beginning teachers' basic knowledge of ADHD. I will ask the question: what do beginning teachers know about ADHD and the interventions they can use to help students with ADHD find success in their classrooms? I will also examine the beginning teachers' experience with students with ADHD and training received prior to their first year of teaching.

The information gathered from this study will be used in helping special educators and administration determine if and what kind of in-service programs on ADHD are needed in a beginning teacher's tenure.

Importance of Study

ADHD is so prevalent that it is likely that most teachers will have at least one student with ADHD in every class they teach. Because of this, it is important for teachers to have knowledge of the disorder and the interventions they can use in their classroom to help students succeed. According to recent literature reviews, most beginning teachers have limited knowledge due to lack of comprehensive instruction given relative to ADHD in their undergraduate education (Piccolo-Torsky & Waishwell, 1998). It is

important for teachers to have knowledge of ADHD and the interventions because when children exhibit behavior problems, it is often the teachers who are the first to recognize and refer the student for an assessment. Also, teachers play a key role in the classification decision as their observations and reports typically are used in the diagnosis process. In addition, if a child is diagnosed with the disorder, it is often the responsibility of the teacher to carry out the treatment plan in the classroom, implementing interventions, and assessing the effectiveness of the treatment plan (i.e. medication and/or behavior interventions). If the teacher does not agree with the treatment plan or has limited knowledge he/she may refuse to implement the intervention or may implement it improperly, causing setbacks in the effectiveness of a treatment plan (Vereb & Diperna, 2004). I know from my experience with Beau how detrimental it can be for a teacher to have a lack of knowledge about the disorder.

In my experience as a special education teacher of seven years, it is my opinion that a teacher's attitude towards students with the disorder is also a big factor on whether the student experiences success in the classroom or not. After conducting a review of literature to find the influence of teacher factors on behavioral and academic outcomes for children with ADHD, I found that research shows that "teacher factors can have profound impacts on various outcomes measures" (p.347). Sherman et al. (2008) suggest that, "teachers who demonstrate patience, knowledge of intervention techniques, and ability to collaborate with interdisciplinary team, and a positive attitude towards children with special needs can have a positive impact on student success" (p.347). A study done by Hudson in 1997 found that "the impact of teachers' perceptions, attitudes and expectations can have a major impact on the self-efficacy and academic success of

students with ADHD" (p.354). How a teacher feels about a student is important because students infer their own description of attitude for failure based on their teacher's emotional reactions (Wood and Benton, 2005). Brook et al., (1999) concludes their study of the attitudes and knowledge of ADHD and Learning Disabled among high school teachers with, "A positive dynamic environment should surround these children, involving frequent positive reinforcement for their individual effort and achievements. All this should be sought during their formative school years, if these children are to become productive individuals as they mature into adulthood" (p.251).

As a special educator in the schools, I will always be working with students with ADHD and the teachers who teach them, for as long as I stay in my position. It is well documented that course failure rates for students with ADHD are too dismal not to be concerned about. The implications of not feeling success in school can set up a lifetime of hardships for any student. School is a pivotal point in anyone's life. Working with students with ADHD is often extra work, but when gauging the potential success of one's life during formative school years, it is important that the people who are working with these students have background knowledge of their disorder and the interventions/strategies that can be used to help these students find success in the classroom.

In this study I will assess the knowledge of ADHD and the interventions used by three beginning teachers I work with. I will use three forms of assessment (one-on-one interviews, rating scale, and checklist) to assess the knowledge.

Definition of Terms

ADHD-Attention deficit hyperactivity disorder is a mental health disorder defined by a persistent pattern of inattention and/or hyperactivity (DSM-IV).

Beginning Teacher-A teacher who has less than one year of experience teaching.

IEP-Individual Education Plan. The document is written each year for a student in special education, describing the student's present level of performance, disability, and goals, and individual education plan.

Intervention-The techniques and strategies used to help the student handle his or her symptoms.

Chapter 2:

Literature Review

What is ADHD?

According the 2003 National Survey of Children's Health, conducted by the Center for Disease Control, approximately 7.8% of U.S. children ages 4-17 years had been diagnosed with Attention Deficit Hyperactive Disorder (ADHD). That correlates to approximately 4.4 million children. According to the 4th edition Diagnostic and Statistical Manual of Mental Disorders (DSM-IV 1994), criteria for a diagnosis of ADHD involves the following:

A. Either (1) or (2)

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

Inattention Span Criteria

Pays little attention to details; makes careless mistakes. Has short attention span. Does not listen when spoken to directly. Does not follow instructions; fails to finish task. Has difficulty organizing tasks. Avoids task that require sustained mental effort. Loses things. Is easily distracted. Is 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 the developmental level:

Hyperactivity Criteria

Fidgets; squirms in seat. Leaves seat in classroom when remaining seated is expected. Often runs about or climbs excessively in inappropriate times. Has difficulty playing quietly. Talks excessively.

Impulsivity Criteria

Blurts out answers before questions are completed. Has difficulty waiting turns. Often interrupts or intrudes on others.

B. Some hyperactivity-impulsive or inattention symptoms that cause impairments were present before the age of 7 years.

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

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

E. The symptoms do not occur exclusively during the course of another mental disorder.

According to LaVoie (2008), about 30% of those with ADHD are predominately inattentive, where the child is not likely to disrupt classrooms, but they tend to be easily distracted, make careless errors and fail to complete tasks. About 10-20% of children diagnosed with ADHD fall into the hyperactive-impulsive type, where the student is predominately hyperactive and impulsive. However, they experience little trouble with attention. Most students with ADHD (50-60%) exhibit multiple symptoms, falling into the combined type of ADHD, where symptoms from both categories may be present.

Specialists are recognizing that ADHD is also a complex syndrome of impairments of the brain's cognitive management, or executive functions (Barkley, 2010; Brown, 2007). By disrupting executive functioning, ADHD affects one's ability to self-stop or inhibit behavior, thoughts, words, or emotions, self-manage time, self-organize and problems solve across time, self-motivate across time, and self-activate and concentrate across time (Barkley, 2010).

Symptoms/Characteristics

Russell A. Barkley Ph.D., at the ADHD in Children and Adolescents: Executive Functioning, Life Course Outcomes, and Management Conference in February, 2011, presented that people that have ADHD-Inattention have problems with "poor persistence

towards goals or tasks, impaired resistance to responding to distractions, deficient task re-engagement following disruptions, and impaired working memory (remembering what is to be done)." He also indicated that the current clinical view of people with ADHD-Hyperactivity-Impulsivity (Inhibition) is that they have "impaired verbal and motor inhibition, impulsive decision making; [they] cannot wait or defer gratification, [they demonstrate] decreased valuing of future (delayed) consequences over immediate ones, excessive task-irrelevant movement and verbal behavior (fidgeting, squirming, running, climbing, touching) and restlessness [that] decreases with age, becoming more internal, subjective by adulthood."

The cross-situational impairment reported by parents and teachers, includes negative interactions with parental figures, increased familial stress, decreased academic achievement, and poor peer relationships in the school setting. These difficulties are chronic and often persist into adulthood, continuing to negatively impact the lives of individuals with ADHD and those around them (Jones et al., 2008). Brown (2007) found the disorder affects one's ability to get organized and started on tasks, attend to details, avoid excessive distractibility, regulate alertness and processing speed, sustain and shift focus, use short-term working memory and recall, sustain motivation to work, and manage motions appropriately.

Treatment

The American Academy of Pediatrics (2001) made the following recommendations: 1. "parents, and the child, in collaboration with school personal, should specify appropriate target outcomes" (p.1036), 2. "recommend stimulant

medication and/or behavioral therapy to improve target outcomes" (p.1037), 3. "if one stimulant does not work at the highest feasible dose, the clinician should recommend another" (p. 1038), 4. "when the selected management for a child with AHDH has not met target outcomes, evaluate the original diagnosis, use of all appropriate treatments, adherence to the treatment plan, and presence of coexisting conditions" (p. 1040), and 5. "should periodically provide a systematic follow-up for the child with AHDH. Monitoring should be directed to target outcomes and adverse effects by obtaining specific information from parents, teachers, and the child" (p. 1041).

A lot of media attention has been directed lately to the perceptions that ADHD is an over-diagnosed disorder and medication is over-prescribed. DuPaul and Stoner (2003) report that over 1.5 million U.S. children are treated with psychostimulant medications. The most commonly used medications for ADHD are: methylphenidate (Ritalin), dextroamphetamine, amphetamine (Dexedrine and Adderall), and atomoxetine (Strattera) (Johnson & Safranek, 2005). The U.S. Drug Enforcement Agency (2002) reported that there was a 900% increase in methylphenidate production from 1990-2001. Ninety percent of that was consumed in the U.S. for treatment of ADHD (Snider, Busch, and Arrowood, 2003).

However, professionals in the field of ADHD often find stimulant medication therapy is the most effective treatment for ADHD in children. According to the trial reported on by Johnson and Safranek in The Journal of Family Practice article (2005), they found that stimulants produced, "significant improvements in symptoms and modest improvements in academic achievement" (p.166). They added, "nonpharmacologic therapies, such as behavior therapy, school-based interventions, and family therapy, are

not as effective as stimulants but may add modest benefit to the effects of medication" (p.166).

Why is medication so effective? Brown (2007) explains that:

> ADD is a highly heritable disorder, with impairments related to problems in the release and reloading of two crucial transmitter chemicals made in the brain: dopamine and norephinephrine. These chemicals play a crucial role in facilitating communication with neural networks that orchestrate cognition. A massive body of evidence indicates that 8 of 10 individuals with the disorder experience significant improvement in their functioning when treated with appropriately fine-tuned medications. These treatments can compensate for inefficient release and reloading of essential neurotransmitters at countless synaptic connections in the brain (p.26).

The topic of medication use is controversial, especially when it involves children. One of the leading researchers in the study of ADHD, Russell Barkley, points out that "medications may be essential for most (but not all cases), but behavioral treatment is essential for restructuring natural settings to assist the executive functioning" (teleconference January 28, 2010). His comments are contradictive to the previous comment about the non-medical therapies (behavioral treatment) not being as effective as medication use, made by Johnson and Safranek (2005). However, most ADHD experts would agree the combined treatment involving medication and behavioral therapies is most effective in treating ADHD.

In this article's clinical commentary, Jerry Friemoth, MD states, "In my experience, when patients, parents and teachers are well educated about ADHD and use behavioral therapy along with medication, we achieve better outcomes" (pg. 168).

Implications of ADHD in an academic setting

Russell Barkley (2004) stated, "In general, children with ADHD experience their greatest challenges in the areas of behavior management, academic progress, and social interaction" (p. 156). Of course these are the domains a student will be immersed in throughout the course of a day in school. Due to the prevalence of ADHD, teachers are likely to have at least one student with ADHD in every class they teach (Brown, 2007). A child with ADHD will have troubles in the following areas: difficulty in following directions, misreading directions on assignments, often being unprepared for class due to inability to sustain attention to tasks or to complete homework, losing things necessary for tasks, difficulties in organizing activities, having poorer study skills, disrupting in the classroom, and receiving lower grades than children without ADHD (Cherkes-Julkowski, Sharp and Stolzenber, 1997; Evans, Axelrod, and Langberg, 2004; Piccolo-Torsky and Waishwell, 1998). Also, if they are of the hyperactive-impulsivity type, they may talk excessively, fidget, squirm, be unable to stay in their seats and blurt out answers before the question has been completed (Piccolo-Torsky, et al., 1998).

As a result of exhibiting some or all of these issues, one of the most common characteristics exhibited by children with ADHD is underachievement relative to their intellectual abilities (Trout, Liennemann, Reid, and Epstein, 2007). The long-term outcome for children with ADHD is frequently poor. They are more likely to display delinquent, antisocial behavior as adolescents and achieve lower grades at school than their peers (Merrel & Tymms, 2001).

According to the ongoing 30-year study Russell Barkley Ph.D. is conducting with

158 children diagnosed with ADHD between the years 1978-80 in Milwaukee, WI, the educational outcomes for students diagnosed with ADHD are devastating. He found that there is a 25% increase in grade retention, 20% increase in suspension from school, 8% increase in expulsion rate, and 17% higher drop-out rate. Students with ADHD exhibit lower academic achievement test scores, lower class ranking, lower GPA's, fewer enter college, and fewer graduate from college. Outside of the classroom, children and adults with ADHD demonstrate increased medical needs, likelihood for drug use, driving risks, and employment issues (Barkley, 2011).

Classroom Interventions/Strategies

It was pointed out earlier that treatment of ADHD with stimulant medication therapy is effective; however, the knowledge and practice of effective non-medical treatments (interventions) is important because educators do not have control over whether a student is medicated or even if the student responds favorably to medications. According to the Trout et al. (2007) review of non-medication interventions to improve the academic performance of children and youth with ADHD, several studies found that the combination of medication and academic interventions produced the largest affects on academic performance. They also found six studies involving the use of response cost or token reinforcement, all improving academic performance across subjects and in one study, decreasing hyperactivity. There were also eight studies reviewing the effectiveness of self-instruction, self-reinforcement, self-monitoring, and self-regulation as individual treatments or in conjunction with response cost/token economy. All but one showed improvement in one or more of the following areas: reading fluency, work completion, reading comprehension, written expression, and math or overall gains in pre-post

measurement of academic growth. According to Wood & Benton (2005), something as simple as students who receive positive feedback on ability and effort from their teacher have higher levels of self-efficacy than those who do not. Reis (2002) determined through field observations, discussions with teachers and a review of existing research that six strategies meet the classroom needs of students with ADHD. These strategies include: increase the use of positive reinforcement, bridge from previously taught concepts to new concepts, provide opportunity for students to apply concepts they have studied to the reality of their daily lives, incorporate various cueing systems, to use contingency-based self-management techniques, and use self-monitoring of attention to increase on-task behavior.

Below is a list of the above mentioned and other commonly suggested teacher strategies/interventions for working with ADHD students:

Instructional Interventions:

Provide Peer Tutoring: have students help or be helped by a model student

Help students get organized: model organizational skills in routine manner, help students plan ahead and schedule blocks of time to complete tasks, take time to write in planners

Assist students with following directions: foreshadow directions to students and point out the important listening, provide both written and oral directions

Provide varied presentation and format of materials: using different modalities such as videos, overheads, posters, models, as well as adding color, shape, or texture

Use cues, prompts, and attention checks: using short verbal cues, such as "All eyes on me" or "Listen", subtle nonverbal prompts (flickering lights)

Bridge the previously taught concepts to new concepts

Enhance large-group instruction: begin lesson with attention grabber, use visual images, allow students to respond frequently

Provide teacher attention: give student positive and negative verbal feedback, as well as

nonverbal feedback such as nods, frowns smiles, and pats of approval

Behavioral Interventions:

Use token economy: awarding tokens or points that are dependent upon specified appropriate behaviors

Use response cost: taking away privileges, tokens, or points, for inappropriate behavior

Use time-out from positive reinforcement: restricting the child's access to positive reinforcement such as placing the child in the hall

Encourage self-management: have student monitor and evaluate his/her own academic and social behavior

Establish clear expectations: establishing and posting simple classroom rules and consequences, review rules and consequences frequently, following through consistently and calmly

Use home based contingencies: combining school and home efforts to improve child's classroom behavior, such as calling him, filling out check list which indicates whether child has fulfilled goals

Environmental Interventions:

Understand physical arrangement: arranging seats in classroom such as having student with ADHD in close proximity to teacher and away from door and distractions

Provide structure: providing organization in the classroom such as posting rules, providing students with daily classroom schedules

Maintain students' attention to seatwork: provide mellow background music, allow students to wear headphones, reward for completing seatwork

Academic Modifications:

Modify assignments as needed,

Modify lesson workload

Give extra time to complete tasks

Target productivity at first, not accuracy

Consider oral tests

Allow use of books on tape

Require daily notebook to write down all assignments

(Reis, 2002; "Teaching Children with ADD/ADHD" EC digest Sept.1998; Dendy, 1995; Flick, 1998; Trout, Lienemann, Reid, Epstein, 2007; Yehle, Wambold, 1998)

Even though a teacher may be aware of the list of adaptations/strategies a teacher can use in the classroom, there is no guarantee a student will experience success if teachers use such strategies. Fabiano and Pelham (2003) suggest that even though 81% of general education teachers report using behavior modifications in their classrooms, "the actual behavioral program a teacher implements may not be effective (e.g. the program is not intensive enough, the teacher does not know how to appropriately adjust an ineffective behavioral modification plan)" (p. 123). The case study went on to suggest, "many teachers would benefit from consultations that aim to improve the effectiveness of existing behavior modification programs before moving to more intensive and therefore costly treatments (e.g., stimulant medication, special education programs)" (p. 128). For example, the case study observed an eight-year old student on an IEP due to a diagnosis of ADHD continue to exhibit off task, disruptive behavior even though his teachers used a system of weekly rewards for him. After two weeks of gathering baseline data, three modifications were made to the reward system: opportunity to earn daily rewards, immediate feedback to student when violating rules, and goal sheet specifying number of infractions allowed. Immediate and drastic changes were made in the student's behavior, including consistent on task behavior relatable to the on task levels his peers established. The eight- year old student was non-medicated throughout the study.

Successfully working with a student with ADHD will take extra effort on the part of all parties involved at school. During a teleconference, The Link Between ADHD and the Executive Functions: Essential Treatment Implications in January, 2010, Barkley summed it up with "the compassion and willingness of others to make accommodations

are vital to success" (powerpoint slide #28).

Teacher Knowledge

Attention-Deficit/Hyperactivity Disorder is one of the most prevalent neurobiological/developmental disorders of childhood (American Psychiatric Association 2000). Numerous studies have been centered around the topic of ADHD in the last few decades. The studies have found as many as 35-50 percent of all children with ADHD will also have other specific learning disabilities. Furthermore, this research has shown that although these students are most often average to above-average intelligence, they are also at a very high risk for academic underachievement, especially if their ADHD is unrecognized and not managed appropriately (West, Taylor, Houghton, Hudyma, 2005). Since children are in the classroom during the majority of their waking hours over nine months of the year, the teachers of these students are an integral part of the team that helps a student manage their ADHD appropriately and effectively. The creators of a tool used to assess teachers' knowledge regarding ADHD, (Sciutto, Terjesen, & Bender-Frank, 2000) state that the teacher's knowledge of ADHD is important because teachers play a role in the referral for ADHD evaluations. In fact 40 percent of initial referrals for ADHD come from teachers (Snider, Frankenberger, and Aspensen, 2000) and they are a direct source of information in the diagnosis of ADHD by way of filling out the forms that are required by the medical field, in order to diagnose ADHD. Teachers are often asked to report behaviors and rate them in order to determine if medication is working effectively for a student. In addition to being an integral part of the team that assesses for the diagnosis and treatment of ADHD, studies have been done that confirm that "teachers and knowledge also influence the classroom that in turn, can affect the performance of

students with ADHD. For this reason, teachers need to have realistic attitudes and factual knowledge about the disorder" (Bekle, 2004, p.153).

A review of literature reveals that there not only has been a scarcity of published studies in the United States, assessing the knowledge that teachers possess relating to ADHD, but the results are somewhat contradictive. First, a review of the findings and then possible explanations as to why the results are so varied.

Teacher Knowledge of ADHD and Educational Interventions

The only study found that assessed both teachers' knowledge of ADHD and effective strategies for helping children with ADHD succeed was conducted by Arcia, Frank, Sachez-LaCay, Fernandez (2000). The twenty-one teachers involved were interviewed about a child in their classroom who exhibited inattention, distractibility, and/or hyperactivity in order to learn about the special efforts they made to help students with these characteristics. Not all the students were labeled with ADHD, but all exhibited behaviors consistent with the ADHD diagnosis.

One of the more concerning elements of the findings is that several teachers dismissed the behaviors of their students as being caused by ADHD because the student wasn't disruptive. This indicates a lack of awareness that some children with ADHD are highly inattentive and do not show hyperactive-impulsive symptoms. This may contribute to the under-identification of many children with the inattentive subtype of ADHD, and the failure of these children to obtain the assistance and services they require to succeed.

Another misconception teachers have regarding the cause of ADHD that was affirmed by this study is the possible explanations the teachers gave for the students'

misbehavior. The teachers listed disruptive family environment, lack of discipline, single parenthood, over-protective mothers, lack of parental support for the child's education, and neglect as possible explanations for misbehavior. Although the factors listed above can contribute to behavioral and academic difficulties, the majority of children whom teachers were interviewed about had confirmed diagnoses of ADHD. This suggests that teachers may erroneously blame parents and environmental factors for difficulties a student with ADHD is experiencing. This kind of thinking gets in the way of identifying a student who could benefit from appropriate evaluation and intervention services.

The authors also looked at the teachers' knowledge of the strategies and interventions used for managing the behavior of these students. The teachers reported on a variety of strategies that came from the categories of instructional modifications (use of peers as tutors), behavioral interventions (use of points systems), and environmental modifications (preferential seating), however the teachers did not have a consistent and coherent plan of action across time, resulting in an unsound behavior plan. "Indeed the teachers in this study used a wide range of techniques to try and meet the needs of the students, however techniques were reactive rather than proactive and did not represent a comprehensive plan" (Arcia, et.al., p. 98).

Teacher Knowledge of ADHD

Scuitto et al. (2000) tested 149 New York area public school teachers' knowledge of symptoms and diagnosis of ADHD, treatment options and general knowledge about the disorder, using the Knowledge of Attention-Deficit Disorders Scale (KADDS). The KADDS rating scale consisted of thirty-six statements in which the participants answered

True, False, or Don't Know. The results of the study reported that the average knowledge of the teachers was only at an accuracy of 47.8 percent, indicating an overall lack of knowledge of ADHD by the teachers in the study. The participants chose Don't Know for 35.6 percent of the thirty-six statements. The participants had misperceptions (answered incorrectly) on 14.8 percent of the thirty-six statements. Teachers in the sample were most knowledgeable about symptoms/diagnosis, which is in line with the information outlined in the Diagnostic and Statistical Manual of the American Psychiatric Association-fourth edition (DSM-IV), one of the assessment tools for identifying students with ADHD. However, the teachers lacked knowledge in the areas of nature, course, and treatment of ADHD. Individual items of the KADDS that indicated less knowledge were the misconception or lack of knowledge about the effects of sugar intake, what behavior treatment is, how situation variations (novel vs. familiar situations, compliance with father vs. mother) affect ADHD students, and long term prognosis.

Other studies using the KADDS rating scale held similar results as the Scuitto (2000) study. The South African Journal of Education published a study by Perold, Louw, and Kleyhans (2010) with results suggesting there is a substantial lack of knowledge about ADHD among teachers in primary schools. Teachers' overall percentage score of correct responses was 42.6%, indicating knowledge, 35.4% for don't know responses, indicating a lack of knowledge, and 22% for incorrect responses, indicating misperceptions. Frernandez, Minquez, and Casas constructed a study in Spain in 2007, using a replication of Scuitto and company (2000) assessment. Correct response percentages for the sample of 193 teachers was as follows: 31.7 % accuracy on general knowledge, 63.8 % on symptoms/diagnosis, and 40.5 % on treatment, indicating a low

level of knowledge in the area of general knowledge and treatment as well.

West, Taylor, Houghton, Hudyma (2005) conducted a study in Australia, setting it up to compare teachers' and parents' knowledge and beliefs about ADHD. A 67 item rating scale modeled after the KADDS, called the KADDS-Q (Questionnaire), was administered to 256 teachers in Perth, Australia. The mean percentage of items answered correctly by teachers was 65.2 on the Causes subscale, 59.0 on the Characteristics subscale, and 47.8 on the Treatment scale, with a mean percentage of don't know responses for teachers at 29.9. These numbers are consistent with the results of Scuitto's KADDS; teachers are least knowledgeable about treatment and that teachers have an overall low level of knowledge.

Kos, Richdale, Jackson (2004) conducted a study to also compare ADHD knowledge of pre-service (teachers still in school) to in-service teachers (practicing teachers) in Australia. They asked 120 in-service and 45 female university students in their final year to rate 27 statements True, False, Don't know regarding ADHD. Individual actual knowledge scale items were a combination of items found on Jerome et. al., (1994) and Scuitto (2000) rating scales along with items based on ADHD literature (Kos et. al., 2004). In-service teachers accurately scored on 60.7 percent of items, while pre-service teachers were at 52.6 percent, indicating a lack of knowledge.

Studies involving a version of the KADDS assessment, consistently report a lack of knowledge among teachers, especially in the areas of general knowledge and treatment. To accurately assess whether teachers have accurate knowledge of ADHD, other studies not involving a version of the KADDS need to be examined. This should be done to

ensure that the KADDS assessment is a valid instrument for measuring knowledge of ADHD. The following studies all measured teacher knowledge of ADHD, using means other than the KADDS assessment.

Weyandt, Pulton, Schepman, Verdi, Wilson (2009) administered a 24 item ADHD Belief's scale to assess the knowledge of general education and special education teachers on the east coast. The research team deemed the accurate knowledge of both groups of teachers "limited, as evidenced by the fact that general education teachers agreed with more false beliefs than they did reasonable beliefs" (p. 958). As with prior research, knowledge regarding treatment was low.

Brook et al. (2000) found that their "study's main findings are as follows: teachers' knowledge regarding ADHD/LD is insufficient" (page 250) in their study conducted in Israel to assess the attitude and knowledge of attention deficit hyperactivity disorder and learning disability among high school teachers. Given a nine-question "yes/no" answering format, the 46 high school teachers were found to answer only 71 percent of their questions correctly.

Another study that not only examined teachers' knowledge of ADHD, but also the teachers' knowledge of treatment was completed by Vereb and DiPerna (2004). They administered the Knowledge of ADHD Rating Evaluation (KARE) consisting of questions assessing knowledge of ADHD, knowledge of treatment, medication acceptability, and behavior management acceptability to 47 elementary teachers on the east coast. The results not only indicated insufficient knowledge on the etiology, symptoms, and prognosis of ADHD (69% accuracy), but a very low level of knowledge

of the treatment of ADHD (54%).

A study conducted to examine the knowledge and attitudes towards ADHD among 196 elementary school teachers in Shiraz, Iran by Ghanizadeh, Behredar, Moeini (2006), found "knowledge about ADHD to be very low", with a mean score of 3.98 correct out of 8 questions.

Snider et al. conducted a survey in 2003 that assessed teacher knowledge of stimulant medication and ADHD and found that although teachers had a positive opinion of medication on behavior, they had limited knowledge of ADHD and the medication used to treat it.

The studies previously mentioned all indicate teachers having low levels of knowledge about ADHD. However, the following studies indicate educators having adequate levels of knowledge pertaining to ADHD, but all exhibit teacher misconceptions in the area of treatment and/or prognosis.

In 1994, Jerome, Gordon, and Hustler conducted a survey comparing 850 Canadian and 439 American elementary teachers on their knowledge and attitudes concerning ADHD. Jerome et al. reported that on average teachers correctly answered 77.5 percent of the ADHD knowledge items on a 20 item True-False questionnaire, but the research also found that the areas that the teachers are least knowledgeable are dietary management and long-term prognosis.

Another study was conducted by Barbaresi and Olsen (1998), using the true/false option, based on the items from the Jerome et. al questionnaire. The purpose was to find out if the teacher's knowledge of ADHD improved after professional development.

Results indicated teacher knowledge did improve with proper education regarding ADHDH with an increase in overall scores from 77 percent to 85 percent, both percentages indicating an adequate level of knowledge.

Also, Piccolo-Torsky et al. (1998) evaluated 154 elementary teachers' knowledge of ADHD in 1998 in an upper middle class district located in rural Morris County, New Jersey. Just as the survey conducted in Jerome et al. (1994) indicated, the teachers seemed to be least knowledgeable about diet and long-term prognosis. However, the mean score of accuracy for all teachers was 80.9 percent, indicating that educators had a good understanding of ADHD, but that some myths and misconceptions existed.

Bruna Bekle set out in 2004 to further examine the comparison between practicing teachers and undergraduate education students' knowledge of ADHD in Australia. She gave a modified version of the Jerome et al., (1994;1999) questionnaire to 30 practicing teachers and 40 primary education students in their final year a Perth university. The results of her study corroborated with the earlier Jerome et al. studies; both practicing teachers and undergraduate education students have sound knowledge base of ADHD.

As a part of a study to examine the efficacy of teacher in-service training for ADHD in Washington DC elementary schools, Jones and Chronis-Tuscano (2004), tested knowledge by constructing a 25-item true/false pre test based on the view of the current ADHD literature. On average, the 132 participant group answered 77% of their questions correctly, indicating that teachers have a good base of knowledge about ADHD.

Conclusion

The review of these studies begs the question, why are the results of teachers'

knowledge level mixed? There are a couple of possible answers to that question. The results that derive from the Jerome et al. (1994, 2000) & Behkle (2004) use assessments that contain a small number (8-20) of true-false questions; these assessments indicated a higher level of knowledge than the assessments with a larger number of statements/questions. This could be explained in "that teachers' lack of ADHD knowledge is magnified when a larger number of items and possibly a broader range of issues are tapped" (Kos, Richdale, Hay 2006, page 151). Also, the studies that involve questionnaires that only provide true/false options examples (Jerome et al. 1994, Barbaresi & Olsen, 1998; Bekle 2004, Piccolo-Torsky et al. 1998, Jones & Chronis-Tuscano 2008) are found to have higher accuracy scores versus the ones using three options; true, false, don't know examples like Scuitto et al. 2000, Kos et al., Perold et al. 2010, West et al. 2005, Frenandez et al. 2007, and Vereb & DiPerna 2004 studies. An explanation for this is that the two option questionnaires (True/False) could actually report knowledge scores that are inflated, due to the 50% chance of guessing the correct answer, instead of providing the option of answering 'don't know', which differentiates the between what one actually doesn't know and what they misconceive.

No matter the results of the teachers' overall level of knowledge, common misconceptions and lack of knowledge surround the dietary treatment and long- term prognosis of ADHD (Sciutto et al., 2000; Arcia et al., 2000; Frernandez et al., 2007; West et al., 2005; Weyandt et al., 2009; Brook et al., 2000; Piccolo-Torsky et al., 1998; Jerome et al., 1994, 1999; Snider et al. 2003; Vereb et al, 2004; Behke, 2004). Jerome et al. (1994) found that the areas that the teachers are least knowledgeable about are dietary management and long-term prognosis. 66 percent of all teachers endorsed the

misconception that sugar and food additives can often cause ADHD and 50 percent of all teachers incorrectly believe that ADHD is outgrown in adolescence. Just as the survey conducted in Jerome et al. (1994) indicated, the teachers in Piccolo-Torsky's 1998 study seemed to be least knowledgeable about diet and long-term prognosis. 46.1 percent of the teachers felt that ADHD is often caused by sugar or food additives, 27.9 percent of teachers incorrectly believed that children would outgrow their ADHD, and 30 percent surveyed did not think that students with ADHD had a higher risk for becoming delinquent teenagers. Weywedt et al. (2009) went as far as to suggest that teachers believe a "special diet was acceptable treatment plan for children with ADHD" (p.958). Snider et al. (2003) and Brook et al (2000) participants were unaware of methylphenidate (Ritalin) or its side effects, such as morning fatigue and depression.

What also isn't contradicted is the common thread that weaves throughout this literature review: most teachers report having little training in their coursework. The results of Piccolo-Torsky's (1998) questionnaire indicated that 83.1 percent received "no or very little formal training in ADD in their undergraduate work" (p. 37), similar to the study conducted in 2008 by Jones et al. where it was reported that 77 percent received no instruction about ADHD during their undergraduate training.

The research shows that professional development does have a positive effect on knowledge. In the West et al. (2005) study the teachers who reported that they had attended related professional development in the previous 12 months had significantly high scores (mean=40.5) as compared to those who did not (mean=34.4). In a study to assess the effectiveness of ADHD in-service programs in a Midwestern school district, it was found that teachers receiving professional development regarding ADHD were

"associated with confidence to teach students with ADHD and to include students with behavior and learning problems in their classrooms." (Zentall and Javorsky, 2007, p. 90).

Also, teachers indicated they would like to benefit from additional training regarding ADHD. In the Jerome et al. (1994) study, nearly all the American and Canadian participants expressed a strong interest in obtaining additional training after 89 percent of American and 99 percent Canadian participants reported a lack of opportunity to learn about ADHD at their universities.

As Arcia et al. (2000), states, "teachers should not be blamed for lack of info about ADHD or the limitations with regard to behavior management. The responsibility falls on teacher training institutions and on school districts to provide appropriate training, supports, and meaningful continuing education" (p.98).

Experience Matters

Within most of the studies conducted, participants were asked for their level of experience working with ADHD students. All but one study confirmed that experience matters. In the Sciutto et al., 2000 study, overall knowledge was related to teachers' past experience with ADHD children; teachers who reported having taught a student with ADHD scored higher than those who had reported that they did not. In the Kos et al. (2004), overall knowledge was lacking but the study also found that a strong positive correlation of accurate answers to experience of working with a student diagnosed with ADHD.

Chapter 3:

Methodology

According to Geoffrey E. Mills 2007, "action research is any systematic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their particular schools operate, how they teach, and how well their students learn" (p.5). Since I conducted a study of teachers in a teaching environment, this study falls under the category of action research.

Participants

Three teachers participated in this study. I verbally recruited the participants through personal contact. All three teachers were chosen because they fit the definition of a 'beginning teacher' used for the purpose of this study: a teacher who has taught less than one school year. They all taught a different area of general education at a suburban ninth through twelfth grade high school in the 2009-2010 school year, the year of my research. The school had 160 students receiving special education services out of 1104 total students, which is 14.5% of the overall population. Students receiving special education services vary in their needs. Some of these students are diagnosed as having Learning Disabilities, some Emotional Behavioral Disorder, some Autism. The most prominent special education label given to students receiving service because of a diagnosis of ADHD is Other Health Impairments (OHI). Thirty-six of the one hundred and sixty students receiving service at the high school had a label of OHI. Additionally, eleven students with ADHD had 504 plans through the school-counseling program. Four

beginning teachers worked at the school at the time of this research; however, one teacher went on maternity leave and was unavailable to participate in the project. The following teachers were chosen to participate on this project:

Chris, 26-year-old male, was a General Physical Science and Physics teacher who has a Bachelor of Science in Physics Education from a four-year college in Minnesota. He is also in the military as a reserve in the National Guard. In the classes Chris taught, students ranged in ability levels and he had fifteen students on 504 plans and Individualized Education Plans; estimating six of which had ADHD.

Julie, 24-year-old female, earned her Bachelor of Science in English Education at a four-year college in Wisconsin and taught 9th and 10th grade Regular and Honors Communications. Within Julie's classes were several students who had Individualized Education Plans, including four with ADHD.

Kathy, 24-year-old female, earned her Bachelor of Arts in Social Studies Education at a private four-year college in Iowa. She taught 10th-12th grade Social classes, including the American History Essentials class made up of 50% students on Individual Education Plans (special education students), with an estimate of anywhere between five to fifteen students with ADHD.

Materials and Procedures

For the purposes of this study, I used a few different approaches. These included conducting recorded, face-to-face interviews and having the participants complete a checklist on adaptations and the Attention Deficit Disorders Scale (KADDS) rating scale. The face-to-face interviews were conducted individually during or after school hours in

the teachers' rooms. These interviews ran an average of forty-five minutes. After background questions such as age, college and areas of specialty, the interview followed a format of open-ended questions. The responses to the questions were transcribed during audio playback in June 2010 and used later to develop themes that will be discussed further in this paper.

The rating scale I used was created by Mark J. Scuitto, Ph.D and Emily Feldhamer and titled, The Knowledge of Attention Deficit Disorders Scale (KADDS). I came across a reference and use of the KADDS while doing my literature research. Permission to use the rating scale was granted by way of email May 14, 2010, by Dr. Scuitto. The rating scale consists of a True (T), False (F), or Don't Know (DK) response to thirty-six questions regarding Attention-Deficit/Hyperactivity Disorder. This format allows for differentiation of what teachers DO NOT KNOW from what they believe incorrectly (KADDS manual p. 4).

Dr. Scuitto felt it was important to construct a rating scale in order to assess the important domains of ADHD knowledge (i.e., associated features, symptoms & diagnosis, treatment) among parents, teachers, and mental health professionals because they all play major roles in the referral, identification, intervention and treatment of ADHD. By enumerating these different domains, each person filling out the KADDS can clearly show his/her knowledge of ADHD, whether he/she is a parent, teacher, or mental health professional. Dr. Sciutto insisted in his manual "In constructing individual KADD items, a deliberate effort was made to only include items that were well documented and empirically supported" (KADDS manual p. 5).

The creators of KADDS tested the rating scale for reliability, stability, and validity. Five studies that used the KADDS from 1996 to 2004 were compared to find the mean average of accuracies. The data from these studies suggests that the KADDS total scale had high internal consistency, supporting its claim for reliability (KADDS manual p. 6). In addition to reliability, administering the rating scale to a sample of 185 college students two weeks apart tested the stability of the KADDS. No education intervention or information pertaining to ADHD was provided during the two-week period. The results showed the test-retest correlation was moderate to high, giving support to the stability of the KADDS (KADDS manual p. 7). Finally, the KADDS was found to be valid. In order to test validity of the rating scale, the creators of KADDS argued that personal interactions with an ADHD child are expected to lead to increased knowledge of the characteristics of the disorder. Therefore, if the KADDS is a valid measure of ADHD knowledge, one would expect participants' prior exposure to the disorder to be correlated with scores on the KADDS. For example, if a person's exposure to the disorder had been infrequent, his/her results on the KADDS would be low. Results from various studies supported a significant difference in the performance of individuals who had previous exposure and training to ADHD compared to the performance of those who had no experience with the disorder, thus deeming the KADDS a valid assessment. (KADDS manual pp. 8 and 9).

An eighteen-item checklist, labeled "Interventions Survey", was constructed using possible behavior interventions that have been listed in various resources as helpful when working with students with ADHD. When interviewing my participants, I purposely gave the checklist after the interviews were completed because I wanted to hear in the

interview what interventions the teachers knew by name, without having been given a list of possible ones to consider as a response to the question, "What interventions have you heard of or used in your classroom?"

The KADDS rating scale and Interventions checklist were given to each teacher at the completion of the interview. They were directed to give them back to me when they were completed. One teacher returned the rating scale and checklist within a day, but the other two teachers misplaced theirs during the end of the school year activities. I gave those teachers a second copy of each in September 2010 and I received those copies back within a few days.

Data Analysis

Mills (2007) states: "Data analysis is an attempt by the teacher researcher to summarize collected data in a dependable and accurate manner" (p. 122).

I audio recorded each interview, later transcribing the participants' responses. Then I typed the transcription of interviews into a word document. Mills also states: "One of the most frequent data analysis activities undertaken by action researchers is coding, the process of trying to find patterns and meaning in data collected through the use of surveys, interviews, and questionnaires" (p. 124). I used the concept of "coding" as I read and reread the transcription of interviews. I coded quotes from each participant and organized them into three themes: education of ADHD, experience teaching students with ADHD, and known and used interventions for ADHD. I organized the coded quotes, within the labeled themes, on another document. I was able to easily view the data from the interviews, since they were now in the organization of the three themes. Months later, as I was working on my findings chapter and was rereading the transcription of

interviews, unexpectedly another theme emerged; the desire for improvement by education program, self, or current position was discussed by each teacher.

In an attempt to add a quantitative measure to my research, I eagerly evaluated the KADDS assessment according to the manual provided by the creator, Mark J. Scuitto, Ph.D. I was able to collect the following information for each participant and together as a group: overall accuracy (answers correct), misconception rate, admitted "don't know" rate, and those same accuracies and rates for each of the subcategories embedded in the scale (general information, symptoms, and treatment). I used this quantitative measure to analyze the teachers' knowledge pertaining to ADHD.

Lastly, as I looked over the Intervention Survey, I noticed only one participant had answered the checklist as I had intended. Since too much time had passed from when I had asked the participants to fill them out to when I was analyzing the data, I decided only to include the correctly filled out survey in my study.

Chapter Four:

Findings

Throughout my qualitative research study, I sought to answer two questions:

1. What do beginning teachers know about Attention Deficit Hyperactivity Disorder (ADHD)?
2. What do teachers know about the interventions/strategies that can be used to help students with ADHD find success in their classrooms?

This chapter focuses on the findings of the research that emerged during the data collection process. The use of the assessment tool, Knowledge of Attention Deficit Disorders Scale (KADDS), in-depth interviews, and an interventions survey allowed the emergence of four themes answering the two research questions. These themes include the following: 1) Knowledge of teachers regarding ADHD, 2) Knowledge of the interventions that can be used in order to help a student with ADHD find success in the classroom, 3) Experience and training prior to their first year of teaching, and 4) Desire to improve. Each theme is important to understanding how effective a teacher can be in working with a student with ADHD.

Knowledge of ADHD

"I just don't understand really. I don't have ADHD. I just don't understand really what's going on with their inattentiveness at those moments, you know. Just let me in their brain, can't you do that?" -Chris

Using the KADDS rating scale each of the beginning teacher subjects responded to a thirty-six item list by choosing from *true, false*, or *don't know*. The purpose of the scale is to differentiate between what a subject does know, what a subject does not know,

and what a subject has misconceptions about relating to ADHD. The first theme that emerged after reviewing the KADDS rating scale results and teacher interviews was that the beginning teachers had limited knowledge of Attention Deficit Hyperactive Disorder.

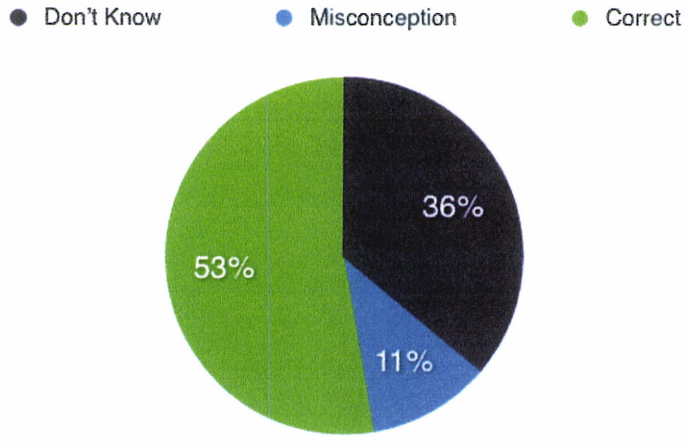
Since one of my subjects stated that she does not understand ADHD since she does not have ADHD and wishes to have access to their brains, it was not surprising to discover that beginning teachers do not understand ADHD. The subjects answered a good portion of the assessment statements with *Don't Know*. Kathy indicated a *Don't Know* response 36.1% of the thirty-six statements. Of the statements she did not know, seven of fifteen were from General Knowledge, three of nine from Symptoms, and three of twelve from Treatment. Additionally, Chris selected *Don't Know* on 44.4% of the thirty-six statements. Of the ones he indicated he did not know, six of fifteen were General Knowledge, three out of nine Symptoms, and seven out of twelve Treatment statements. As well as Chris, Julie's selected *Don't Know* rate was also high: 52.8% of all thirty-six statements. Of the ones she indicated she did not know, twelve out of fifteen from General Knowledge, five out of twelve Treatment, and two out of nine Symptom Statements. As an average, the three beginning teachers had a combined indication of *NOT KNOWING* 44.4% of the thirty-six statements.

The subjects had an average misconception rate of 17.8% on their remaining thirty-six statements (the statements left after indicating *don't know*); Chris answered incorrectly on six of the remaining twenty items (30%), Kathy answered incorrectly on four of her remaining twenty-three statements (17.4%), and Julie did the best with only one misconception out of her remaining seventeen statements (5.9%).

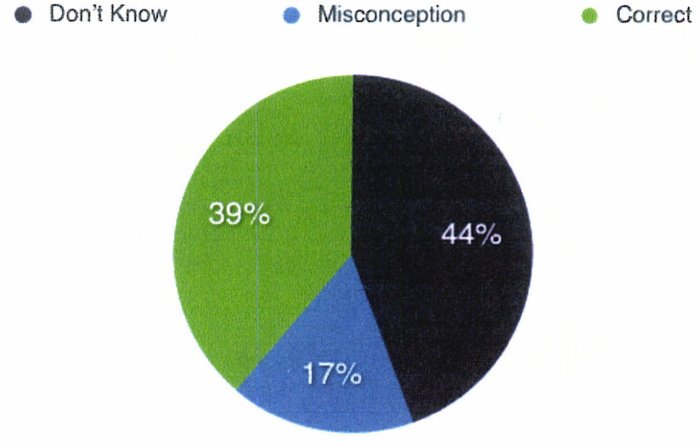
Given their misconception rate and percentage of statements they indicated they *Don't Know*, the participants scored an overall combined accuracy of 45.4% on the KADDS assessment, with Kathy answering accurately to 52.8%, Julie 44.4%, and Chris 38.9% of the thirty-six assessment statements. See Figures 1-4.

Figures 1-4:

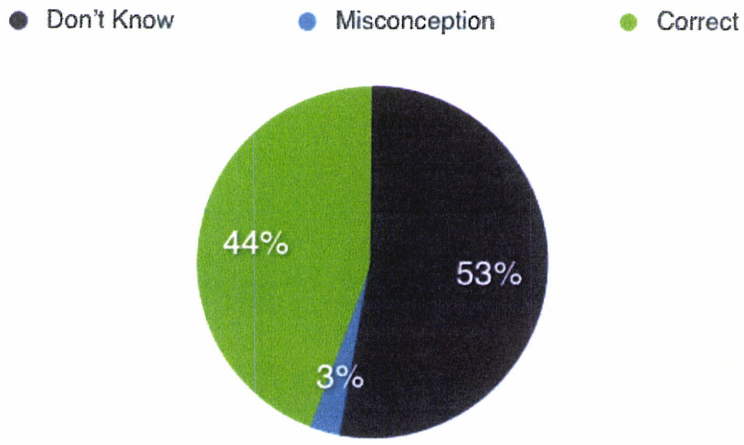
Kathy's Data:



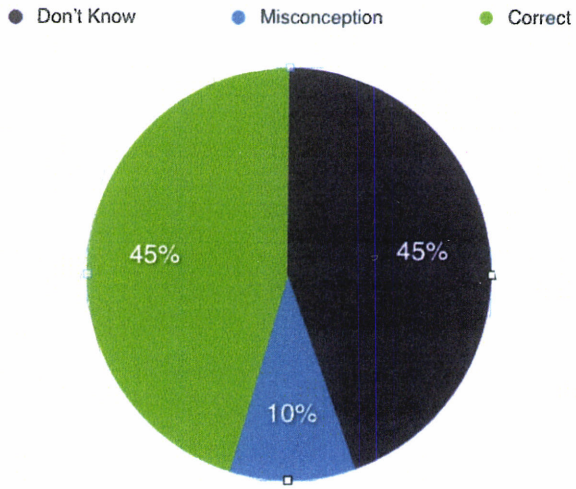
Chris's Data:



Julie's Data:



All Participants Average:



This data is similar to the study that Scuitto et al. (2000) conducted with 149 public school teachers where the results indicated their average knowledge of ADHD was at 47.8 % accuracy on the KADDS assessment.

On only five of the thirty-six statements, all three participants answered correctly. They are listed in TABLE 1.

TABLE 1:
Statements all participants answered correctly

Item #	Correct Response	Statement	Subscale
2	F	Current research suggests that ADHD is largely the result of ineffective parenting skills.	T
9	T	ADHD children often fidget or squirm in their seats.	S
10	T	Parent and teacher training in managing an ADHD children are generally effective when combined with medication treatment.	T
13	T	It is possible for an adult to be diagnosed with ADHD.	G
16	T	Current wisdom about ADHD suggest two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity.	S

The KADDS statements are categorized into three areas: General-Associated Features, Symptoms/Diagnosis, and Treatment. The subscale average accuracy for all three participants was General-Associated Features--37.7%, Symptoms/Diagnosis--70.7%, and Treatment--55.7%. The teachers in this present sample were most knowledgeable about items in the Symptoms/Diagnosis subscale, just as they are in Scuitto's research. The significantly higher scores on this subscale support Francis' (1993) assertion about teachers' ability to recognize the symptoms of ADHD; often fidgeting and squirming in their seats. The items from the General-Associated Features and Treatment subscales, however, pertain specifically to knowledge about the nature, course, and treatment of ADHD. As Pfiffner and Barkley (1990) suggest, teachers tend to have a poor grasp of this type of information. This claim is backed by Kathy's comment during her interview:

> I didn't really know what a student with ADHD was going to be like in the classroom. School covered this is what ADHD is and this is the behavior and then moving on. I felt a false sense of being prepared to deal with students with ADHD. I don't know why. ADHD, the mentality is that the kids would be going off the walls and then you just have to deal with it.

Kathy's words demonstrate a problem with the education of beginning teachers in relation to preparing them for students with ADHD diagnoses.

There were ten common statements that all three participants either indicated they Didn't Know or answered incorrectly. The statements are listed in TABLE 2.

TABLE 2:

Statements that all subjects indicated Didn't Know or Misconception

Item #	Correct Response	Statement	Subscale
4	T	ADHD children are typically more compliant with their fathers than with their mothers.	G
5	T	In order to be diagnosed with ADHD, children's symptoms must have been present before age 7.	G
6	T	ADHD is more common in the 1st degree biological relatives.	G
14	F	ADHD children often have a history of stealing or destroying other people's things.	S
17	T	Symptoms of depression are found more frequently in ADHD children then in non-ADHD children.	G
19	F	Most ADHD children outgrow their symptoms by the onset of puberty and function normally in adulthood.	G
27	F	ADHD children generally experience more problems in novel situations than in familiar situation.	G
31	T	Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation.	
32	T	The majority of ADHD children evidence some degree of poor school performance in the elementary school years.	G
34	F	Behavioral/Psychological intervention for children with ADHD focus primarily on the child's problems with inattention	T

Knowledge of Classroom Interventions

"I think we talked about interventions in general (in teacher education program), but it wasn't specific to a certain learning disability. I would think it would be things like make sure they understand where you are going with the lesson, objective, key vocabulary terms, that kind of stuff. Again, those are interventions you can apply to the whole classroom." -Kathy

The quote above from Kathy is indicative of the comments from all three participants: they knew little about interventions specific to ADHD prior to teaching.

From these and other comments, another theme that emerged from the interviews and intervention survey: what the participants knew about interventions that are used in the classroom to help a student with ADHD find success. Not surprisingly, they had not received any specific instruction; however, they applied the strategies they learned for good teaching.

However, in each of their interviews, when asked what interventions they knew work with students with ADHD, they were each able to name at least six solid interventions. All of Chris's interventions were behavior related; close presence, continually changing activity, separate from their friends, positive reinforcement, coming back and repeating directions, and conducting "hand's on" activities. There was one aspect he admitted not being able to get a grasp on:

> Homework completion, I have no idea how to combat that with any student. I tried so many methods. If someone has the answer for me, I would give them a hundred bucks. Homework completion for me was very poor for my 9th grade GPS class, I'm sure you guys know it all sometimes.

At this point in the interview I asked him if he had actively sought out communication with special education staff, his comment was, "Nope, in all honesty I did not. They listed it on the IEP, in all honesty I never thought about it. Not something I'm really proud to say, but it's true."

In contrast to Chris, when asked what interventions Julie had heard of to work with ADHD students, all eight of Julie's interventions listed in the interview were academically related: modify multiple choice tests so there are only three options to choose from, break up matching tests into bunches of five, give extra time on tests, allow students to provide short answers verbally versus in written form, allow redo of tests,

verbally if needed, allow the student to test with special education case manager and allow extra time on assignments.

When asked what interventions Kathy had heard of, she listed a mixture of eight behavior and academic interventions: list deadlines and check up on them making sure they are doing the work; giving them folders to keep their work in the classroom; being direct with them; list directions on the board or power point as well as verbal directions, reminders, and redirections; and stand next to the a student who appears to no be paying attention.

All the interventions the participants listed are deemed valuable to helping a student with ADHD achieve in the classroom. Each participant's response demonstrated what he/she valued in the classroom as well as the type of classes he/she taught. Since both Kathy and Chris taught Essentials classes that were full of varying levels of ability and behavior issues, they were more likely focus on behavior techniques in order to keep order in the classroom. Essential classes are designed for slower paced learning of the curriculum. They often involve less homework than what is required in a 'regular' class. Students are placed in Essential classes based on reading levels and math abilities. However, when warranted, students that have grade level or higher abilities are placed in Essential classes due to behavior needs. All Essential classes are either co-taught with a special education teacher or have a special education paraprofessional present to assist with academic help and interventions. Academics took a back seat to behavior management for both of their classes. Julie taught the Regular Tenth grade Communication classes, where the majority of the class had grade-appropriate reading levels. Therefore, she likely had fewer behavioral issues to deal with, allowing her

emphasis to be on academics. Her responses regarding academically related techniques that work with students with ADHD were likely related to her student population.

Due to confusion on how to complete the Interventions Survey, only Julie's was deemed valid. Out of eighteen professionally recognized behavior interventions, she checked off that she was familiar with and has tried using ten of the interventions. However, she was not familiar with any of the following interventions: token economy (awarding tokens or points which are dependent upon specified appropriate behavior), response cost (taking away privileges, tokens, or points for inappropriate behavior), using varied presentation or format of materials, brief academic tasks interspersed with passive tasks, having the student monitor and evaluate their own academic/social behavior, helping students get organized, practicing following directions, or maintaining student's attention to seatwork by providing music or rewards for completing it. What is encouraging is that she checked that she would try using these interventions. Despite the fact that she was not familiar with all the possible behavioral interventions, Julie had a good grasp on what was needed to help a student with ADHD succeed in her classroom. She was able to list eight academic interventions in her interview and she indicated that she has tried ten behavioral interventions in her classroom. Most impressively, she was willing to try the ones she was not familiar with prior to the study.

Education Program and Prior Experience

"I think education programs needs to be more realistic of the type of students the new teacher will be encountering. Everything that is taught is not all very realistic. You are not going to have a classroom of 30 kids that sit and listen. You are not going to have a classroom with no IEP's. That is how it is. It's changing." -Kathy

Interviews with the participants revealed that there was a relationship between the specificity of ADHD in the participants' education programs and their student teaching experiences. The three participants differed in how well they felt their education program prepared them and in how much experience they had with students with ADHD prior to their first year of teaching. Kathy's statement above answered the questions pertaining to what can be done to make her and other teachers feel more prepared for teaching students with ADHD. She gave her education training on ADHD a "Fair or Not at all." She did say that her education program offered one course called Diverse Exceptional Learners. "I remembered we talked about learning disabilities and we talked about ADHD two or three days, if that. Or maybe we just covered this is what ADHD is and this is the behavior and then moving on." She said they did talk about interventions in general, but it was not specific to ADHD.

Chris's education experience was parallel to Kathy's. He remembers they talked about it in an Education of Psychology class focused on behavior. He took the class in the second block of teacher education, so the class was not fresh in his memory. One of the things he remembers is, "them telling you that there is no way to really train you for it." The interventions he learned were not specific to ADHD, but the best tools he remembered from his instructional classes was, "always the engagement. You need to keep them engaged." He rated his education program as "Fair."

In contrast with Chris and Kathy, Julie was satisfied with the training she received in her education program. She had a class covering exceptionalities that had a chapter covering ADHD. She found the class very informative in terms of what students look like in class and the different range of ADHD symptoms. She said in her interview that she

learned "Just because someone isn't hyperactive in class doesn't mean they aren't having difficulty following along and staying focused." Even though there were no lessons or student observation required for the class, for extra credit she observed an elementary special education teacher who worked with a student who had severe ADHD, where, "he would trail off in the middle of a sentence and not know where he started." Her exceptionalities class, taught by a psychology professor did provide medical interventions, which she thought was "weird."

The participants' experience with students with ADHD in their student teaching varied as well. Julie clearly had the best experience due to her attempt to actively seek out as much information and experience as she could. In addition to her observations, she sat in on some IEP meetings, which she deemed, "very helpful to watch the process and actually see how accommodations get decided and what's the rationale behind them and I think that helped me understand they are so important to follow." Additionally she stated:

> I did have two classes of three to four students with ADHD. I had one kid who probably was because he would climb all over the furniture. He was on top of the cabinets one day, in the recycling bins. I don't know why, maybe to make me angry.

Julie was able to deduce which students likely had been diagnosed with ADHD based on her willingness to educate herself about the condition.

However, Kathy and Chris had similar, limited experiences within their educational programs. Chris said that in all of his student teaching experience he only saw one IEP student and that student was in special education due to a brain injury. He attributed the lack of IEPs in his student teaching experience to the fact that he was teaching Physics, "which tends to be less IEP kinds, I noticed."

About her experience Kathy stated that she felt unprepared to deal with IEP students. This feeling was largely due to the fact that student teaching is so demanding. Kathy said:

> When I was student teaching I was so caught up in everything else. I didn't even think about my IEP students. In the other placement I can't remember if I saw any of those kid's IEPs and I was the teacher. I went to one IEP meeting. The teacher didn't prepare me. She didn't tell me we were going to an IEP meeting. I didn't know I was going to talk. I had no idea what was going on there. That scared me.

Overall, Kathy was unable to learn about students with IEPs in her student teaching.

Was the student teaching experience of these participants reflective of what they experienced in their first year of teaching? Both Chris and Kathy did not think so. Kathy said she was probably teaching between "five to ten students with ADHD each trimester, some not diagnosed." There were at least six students in her one Essentials class. Similarly, Chris was unprepared by his student teaching experience. He had no familiarity with IEPs. He said, "My first experience with IEP was here, in my first year of teaching. They talked about them in college, but I had never seen one. I didn't know the process, didn't understand." He estimated he had at least six students who specifically had ADHD in his classes in his first year of teaching.

Ways to Improve

"Education programs and school districts can do a better job of providing more information, more resources." -Kathy

One element all three participants agreed on is that improvements can be made both in their education programs and the school they teach in. Kathy's quote above

addresses how the education programs can improve. Kathy also noted that there are specific ways in which school districts could aid new teachers:

> A pamphlet on ADHD would be helpful. This is what it is, these are the kinds of interventions that have worked specifically in high school. These are the different ways to work with students with ADHD. The school sends you out to the wolves and don't provide a whole lot of support, which can be a good way to learn, but there are so many resources out there. So I don't know why they don't share them more openly.

She also thought giving information specific to the different content areas would be beneficial because, "teaching someone with ADHD Social Studies versus Math may be it's a little bit different."

Chris thought improvements could be made to the education program by offering the education/psychology classes closer to graduation so it would be fresher in the minds of the new teachers. Since he spent more time in college studying Physics than teaching due to his dual degree in Physics and Education, Chris felt the order of course requirements should be changed. He thought that the schools where he taught could improve by, "putting on one hour seminars about topics such as ADHD to keep the information fresh in the brain." Additionally, Chris noted that teaching how to work with ADHD students could be tricky:

> I don't think you can teach exactly what to do. I think strategy and techniques are good, if those are in there, when it's the teacher in the classroom they have to have some sort of natural ability to remember those techniques.

Unlike Chris, Julie thought the improvements could be made in the school's special education program's communication. She felt it would be useful to know when the case managers were available and when the IEP meetings were. She said:

> I don't know how often IEP meetings happen but out of all my students with IEP's I was only aware of one IEP meeting happening this year. I don't know if they happen all that often.

The lack of knowledge about IEP meetings and IEP case manager availability may have been detrimental to her success with ADHD students. It definitely impacted her opinion of the special education department and their ability to communicate.

Chapter 5:

Discussion

This study's original purpose was to find out what beginning teachers know about Attention Deficit Hyperactivity Disorder and the interventions that can be used to help students with ADHD be successful in the classroom. While constructing my interview questions I came to the conclusion that asking questions about their teacher education programs and experience with ADHD students was essential in determining the background knowledge of the beginning teachers as I asked them about their experience with students who have ADHD. As I conducted the interviews, I realized that another important question concerned participants' attitudes and ideas about additional training, now that they were well into their first year of teaching. Thus, the four themes that emerged throughout my findings were the following: experience and training prior to first year teaching, knowledge of teachers regarding ADHD, knowledge of the interventions, and desire to learn more about ADHD. The overall conclusions for this study are organized into the conclusions based on these four themes.

Conclusions about training and experience prior to first year teaching

Teacher education program training

In my own undergraduate teaching program only one course was offered on diverse learners. In this one course, only one day was spent learning about students diagnosed as ADHD. Truly, a single course with only a single day educating pre-service teachers about students with ADHD will not fully prepare teachers for a classroom who cannot all sit and listen to the teacher's instruction with their hands clasped in their laps. However, before I conducted my study I didn't know if my experience was isolated to the

school I attended or if other education programs offered more focused instruction. Perhaps these other schools had grown with the demands of our times to include instruction on the needs of students with disabilities.

According to the opinions of my participants, their education programs varied in how well they prepared beginning teachers. Two of the participants said their programs offered only one class, which related only a small amount of information and included no practical applications for what they would encounter in their first year teaching. Julie, the third participant, was satisfied with the training she received in her education program. The recommendation of additional work outside her school provided what she deemed as valuable experience, allowing her to see what an actual student with extreme ADHD looks in the classroom. It is not a coincidence that the only participant who felt her education program did a good job preparing her was the one who did the extra work outside of the program specifications.

Perhaps it is unreasonable to assume that with all the requirements of a teacher program, beginning teachers will feel prepared to teach all students with special needs, simply through the classroom instruction in their undergraduate program. Maybe the only way an education program can do a decent job of preparing a teacher is to recommend or require additional work outside of the teacher education program classroom (observations, interviews, etc...), like Julie did in her program.

However, it is the conclusion of my research that because some students do not feel their education programs did a satisfactory job preparing them to work with students with ADHD, the teacher education programs need to do a more complete job of preparing teachers to work with students with disabilities. These results are consistent the Piccolo-

Torsky & Waishwell (1998) study where 83% of the elementary teachers from New Jersey surveyed indicated they had received no formal training or "very little" formal training in ADHD in their undergraduate work.

Experience working with students with ADHD.

According to the study that Scuitto et al (2000) conducted with 149 New York area public school teachers, the overall knowledge of ADHD of the teachers was related to the teachers' past experience with ADHD; teachers who reported having taught a student with ADHD scored higher than those who had not.

The one participant who had the most experience in her student teaching practicum, by sitting in on IEP meetings and teaching six to eight students with ADHD, felt the most prepared to work with students with disabilities. I believe it was through these experiences that she learned that special education teachers were a resource for her to use in order to work with students with disabilities successfully. She was also the one teacher out of the three participants who was the most proactive and who had the most confidence working with students with disabilities. During her first year of teaching, she would approach me with accommodations she was making for students on my caseload before I had even had a chance to approach her. Clearly her initiative in her teaching program and student teaching practicum carried over into her first teaching placement.

Ironically, the other two teachers who admitted they had not even seen an IEP in their student teaching experience were given the classes in their field that held the most students on IEP's--Science and Civic's Essential--in their first year of teaching. However, my classroom was right next to one of these teachers, and she would routinely ask for recommendations on how to work with the students with all types of disabilities. Her

patience, flexibility, and concern for each and every student helped her become one of the most popular teachers. Her self proclaimed success in her first year of teaching students with disabilities can be attributed to her rapport with her students and ability to adapt, and her willingness to ask for help.

The students on my caseload who had the least amount of success in the classroom were in Chris's Science class. Not surprisingly, Chris is the participant who admitted to having no experiences with students with ADHD. Though I sought him out many times to talk about how the students on my caseload were doing in his classroom and to offer my assistance, many of these students still failed. However, he admitted in his interview that even though he struggled with some aspects of teaching all students, it never crossed his mind to seek out the special education experts to ask for assistance. He also said that it was through this experience of finally getting to work with students with disabilities and the flexibility of trial and error, that he did learn a lot about what works well with students with ADHD.

Overall, this study concludes that the current programs in teacher education are lacking in the area of special education knowledge for regular education teachers. It seems that only through working with students in the classroom and seeking additional knowledge on their own, beginning teachers are able to understand the needs of students with ADHD. It is especially true that being involved in IEP meetings and working with students who have ADHD one on one aids the beginning teacher most efficiently.

Conclusions about the knowledge of teachers regarding ADHD

In order to assess the basic knowledge of ADHD I used a rating scale called Knowledge of Attention Deficit Disorders Scale (KADDS). The rating scale assessed

what the participants know about general information, symptoms, and treatment of ADHD. The participants choose between *True, False,* or *Don't know* to a thirty-six item rating scale to differentiate between what subjects does know, doesn't know, and what they have misconceptions about pertaining to ADHD.

Given the fact that the participants scored an overall combined accuracy of 45.4% on the KADDS assessment, it is the conclusion of this researcher that beginning teachers do not have the basic knowledge of ADHD. The participants admitted to NOT KNOWING a combined average of 44.4% of the thirty-six statements. The overall misconception rate (answering incorrectly) of the three participants was 10.2%. The teacher who reported she felt prepared by the education she received in her teacher education program and had the most experience teaching students with ADHD prior to this year only answered one statement incorrectly out of the thirty-six, receiving the lowest misconception accuracy. This data again is consistent with the Scuitto et al. (2000) study, claiming more experience equates to more knowledge.

When breaking down the average accuracies of the three sub-sections--General, Symptoms, and Treatment-the highest amount of knowledge is in the Symptoms/Diagnosis subscale with 70.7% accuracy. This subscale pertains specifically to symptoms or criteria outlined in the DSM-IV. The significantly higher scores in this subscale support the Scuitto et al. (2000) assertion about teachers' ability to recognize the symptoms of ADHD. This also correlates with the fact that teachers are often the first to alert parents to the fact that their student may have ADHD, given the symptoms they demonstrate in the classroom. Also, teachers are often asked to fill out ADHD rating scales on a student's behavior during the assessment process. These assessments ask the

teachers to rate the students on a list of behaviors/symptoms exhibited by students with ADHD. One would assume that a teacher's knowledge pertaining to ADHD symptoms would be pretty high due to recognizing the behaviors as the ones that are listed and assessed on the rating scales.

The items from the general information and treatment subscales, however, pertain specifically to knowledge about the nature, course, and treatment of ADHD. The participants in this study had the least amount of knowledge in these two areas, with a combined average of 37.8% and 55.7%, respectively. As Pfiffner and Barkley (1990) suggest, teachers tend to have a poor grasp of this type of information. This present study is consistent with past studies, suggesting education programs need to focus on characteristics of ADHD that extend beyond the primary symptoms.

Another part of this study's results that is similar to past research results was the misconception or lack of knowledge on how diet plays a part in the treatment of ADHD. Two of three participants in this study struggled with the questions of how diet can be used in the treatment of ADHD, just as the research showed in numerous studies. They answered *didn't know* to whether or not reducing dietary intake of sugar of food additives is generally effective in reducing the symptoms of ADHD. The other participant accurately knew that that statement was false.

All but one of ten statements that all three participants indicated they *Didn't Know* or had a *Misconception* came from the General Information and Treatment subscales. The statements pertaining to situation variations (e.g. students with ADHD more distinguishable in classroom setting vs. free play, compliance with fathers vs. mothers, novel vs. familiar situations) that all three participants *didn't know* or had

misconceptions about involve information that can not only help the teacher in the classroom, but in communication with the parents. For example, parents who do not accept a teacher's recommendation to test for ADHD may blame the "off task" behavior on their child due to a mother's parenting techniques versus the father's. A well-informed teacher can present data that suggests that ADHD children are typically more compliant with their fathers than with their mothers. Or in the same situation a parent may argue that their child is "just fine" at home or in after school activities. A knowledgeable teacher would know that children with ADHD are more distinguishable from non-ADHD children in a classroom setting than in a free play situation.

As a high school teacher, two statements all three participants responded *didn't know* or had a *misconception* about, stand out as an alarming concern. The first statement the teachers did not know was that symptoms of depression are found more frequently in ADHD students than in non-ADHD children. Knowing this information could greatly benefit teachers since the other disorders (depression, anxiety, Tourette's syndrome) also add to the afflictions the student is faced with each day, in class and out. Therefore, many students are battling the effects of ADHD as well as other disorders, impacting the inability to focus or complete work or contribute in a positive way. Knowing and understanding additional afflictions of the ADHD students would greatly empower a teacher, especially a beginning teacher, to help such a student be successful in class. Without this knowledge, a teacher may not be as sympathetic to a student's difficulties. Educating teachers about the possibility of multiple co-morbid disorders could improve teacher/student relationships as well as student success and teacher compassion.

As well as the statement regarding the presence of depression in ADHD student, another statement of concern the participants did not know was that most ADHD children do not outgrow their symptoms by the onset of puberty and do not go on to function normally in adulthood. Beginning teachers need to be educated that the symptoms of ADHD may exhibit themselves in a different way as the child grows up or child may learn to compensate for some symptoms, but in general, ADHD usually will impact a student for the rest of his/her life. Though many ADHD children outgrow the hyperactive component of the disorder, they still may exhibit the impulse control and lack of focus throughout adulthood. These traits manifest themselves in failed personal relationships, increased traffic violations, and lack of employment (Barkley, 2010). By understanding and accepting the disability and by learning coping strategies and interventions as early as possible, a student may go on to lead a productive, successful lives. Moreover, by educating teachers of the fact that children do not outgrow their symptoms by puberty, more students with ADHD would be able to succeed in the classroom and beyond, and more teachers will be able to accomplish the goal of educating every student in the room.

Conclusions about the teachers' knowledge of interventions

Since two of the three participants did not fill out the Interventions Survey as it had been intended, conclusions on the teachers' knowledge of interventions is not as thorough as it could be. As stated before, the participants indicated that their education undergraduate programs did not provide specific examples of useful interventions for students with ADHD or classes covering knowledge of the disorder and methods to help students with their ADHD; their knowledge of interventions could be applied to the classroom management of the entire classroom. However, the six interventions

mentioned by two of them acknowledged children with ADHD need extra help staying focused and engaged in the classroom. One of the participants referred to these as "stock adaptations" that students with disabilities often have on their IEP's. These adaptations are known to "level the playing field" in the classroom for students with disabilities. "Level the playing field" is an expression used by special educators to explain that students with disabilities, versus their non-disabled peers, have all sort of issues, thoughts, and behaviors, working against their success. Interventions are a way to aid these students, helping them achieve success and, thereby, "leveling the playing field." Beginning teachers, as well as seasoned teachers, need a toolbox of interventions at their fingertips in order to gracefully elevate students with ADHD to a place of achievement.

For example, a student with ADHD may have quality knowledge of the content of a history class, but if given a matching test with more than ten definitions, he/she may become overwhelmed and lost in the process of trying to match all the definitions. As a result his/her score would not accurately reflect his/her level of knowledge. Consequently, an adaptation in this case would be to take matching tests that use sets of five definitions and terms in one space. Another example of a stock IEP adaptation would be to allow students to answer essay and short answer questions verbally. Essays questions are usually found at the end of a test. This way the student would not have to worry about maintaining focus for the entire class period in order to completely finish the test. Many times, students will know the answer, but they will not take the time to write out the answer as completely as if they would if they could verbalize the answer.

However, when assessing the teachers' knowledge based on the eighteen interventions listed on the survey, the participants' knowledge is not proficient. They

were only able to list one-third of the interventions with prompting during the one-on-one interviews. Also, the one participant who filled out the survey correctly was not familiar with eight of the interventions, two of which are the most commonly researched interventions: token economy and response cost. This may be explained since these two inventions are widely accepted and used more frequently in an elementary setting, whereas these participants all taught high school. It is also possible that the participant may not have known the terminology used for awarding privileges, like tokens or points for appropriate behavior (token economy), and taking away privileges, tokens or points for inappropriate behavior (response cost).

Other vital interventions for the success of a student with ADHD were not mentioned by any of the participants: communications with home or IEP teacher, clear expectations, following through on consequences consistently and calmly, and modeling organizations skills in a routine manner. Some of these interventions are simple strategies a teacher can use with any student. Therefore, it was alarming to realize that the beginning teacher participants were not familiar with them. Further more, successfully working with a student with ADHD will take extra effort on the part of all parties involved at school. Barkley (2010) summed it up with "the compassion and willingness of others to make accommodations are vital to success."

Though, the participants of this study had some decent basic knowledge of strategies that can be used for behavior management for all students and some academic options for all students with disabilities, a greater understanding of what works for a student with ADHD is missing.

Desire to learn more

Just as the research indicates, the teachers in this study have a desire to learn more about ADHD. The participants suggested their undergraduate education programs could do a better job of preparing them by providing more specific information and teacher education classes, especially closer to graduation. The participants also offered suggestions that the schools that hired beginning teachers could do more to educate the educators. For example, the hiring schools could provide more information by way of the pamphlets and seminars, give information specific to the content area taught, and have better communication between the general and special education staff.

The most compelling idea mentioned is that communication between general and special education should be improved. I can attest to the communication at this school definitely having its problems. One of the participants mentioned that she felt dismissed by one of my special education colleagues in her conference about a student. She went to the IEP teacher to talk about problems she had been having with a student in class and hoped to gain understanding and possible strategies on how to work with the student. She said the IEP teacher dismissed her concerns with the statement, "That is how [this student] is." No solution, no strategies, no understanding. Clearly, in this situation there was a better solution. Communication between general and special education staff must be an area of focus for improvement.

Recommendations

The following recommendations derive from the findings and discussion of the research project. They are all recommendations that I plan to share with the administration at the school where I currently teach.

Improve the instruction of ADHD in the undergraduate education programs

All educational programs are different in their approach to educating undergraduates about how to teach in the diverse classroom. However, a standard should be developed to include at least one unit dedicated to teaching each of the most common disabilities in today's classroom (i.e. ADHD, Autism, EBD). Research indicated that the information on ADHD should focus more on interventions that extend beyond the primary symptoms and general knowledge (situational variation, prognosis). Along with simply covering the information, colleges could enhance the learning experience with guest speakers that include parents, teachers, and/or a child with ADHD. Furthermore, a lesson on interventions that could be used in the classroom most definitely should be included. Additionally, a role-play activity or video showing the use of interventions would make the lesson more memorable.

Education programs should also mandate the participation of at least one IEP team meeting in the student teaching experience. This is where a beginning teacher can learn more of the "behind the scenes" issues that a student with ADHD is facing. Also, the beginning teacher can learn what goes into the process of determining the mandated adaptations listed on an IEP a teacher is expected to follow.

In practicality, it is likely impossible to include detailed instruction about all disabilities teachers will run into in their classrooms in a teacher education program. However, one of the participants from my study felt that she received adequate training prior to her first year of teaching. One of the reasons she felt so prepared was that for extra credit during her undergraduate program she did observations and volunteer work in a classroom that had a student with ADHD. This would be an excellent way to provide

experience for a pre-service teacher before entering the field. This could also be expanded to the other disabilities that overflow into regular education classrooms in the public schools these days: autism, emotional-behavior disorder, or learning disabilities. As the research shows and the participant mentioned, preparation inspires confidence and improves the ability to teach students with ADHD. Undergraduate programs could use her experience as a way to enhance their instruction of the most common disabilities found in today's classrooms.

Improve the teacher knowledge of ADHD in the schools we teach in

Everywhere throughout the state of Minnesota, out-of-district workshops for educators on all subjects pertaining to teaching are offered. It is up to the teachers to sign themselves up for the workshop, be approved for funding and find a substitute teacher for the days missed. School districts could do a better job of providing this ongoing education for their teachers. Teachers have busy schedules, but would likely participate in out-of-district workshops if offered the information and opportunity, along with encouragement, from their employer.

Every school district has staff development days built into their school year, either before the school year starts and/or throughout the year. These days are meant to update or improve the teaching staff's knowledge of the latest teaching concepts, trends, and/or technology in the education world. The school district could have a portion of one of these days dedicated to learning more about a disability, especially one that is prevalent in the schools today. Information pertaining to ADHD could be covered in a workshop such as this. According to the research, this information is currently lacking: basic knowledge of ADHD, treatment of and interventions that work in the specific subject

areas. Again, bringing in guest speakers to talk about the disability would be a great way to make the message more memorable. The speaker could be a student talking about how his/her disability impacts his/her learning at school. In addition, he/she could talk about what the teachers do (interventions) to really help him/her succeed in school. This information could also be passed along by way of pamphlets, videos, or discussion. One possibility would be to have "disability of the month" literature provided, allowing the information surrounding all the most common disabilities to be refreshed throughout the school year, every year. This would be beneficial to the tenured staff as well as the new teachers, some of them possibly hearing the information for the first time since their education programs likely did a poor job of covering the disabilities. As the participants of this study and research say, the teachers have a desire to learn more about the disabilities that are present in their classrooms.

Another way schools can improve the knowledge of beginning teachers is to have them observe an experienced teacher's lesson where the teacher is working with students with ADHD. Having successful interactions, interventions, and teaching styles modeled to them early in their teaching tenure would be a great way to help improve the knowledge and style of a teacher, as well as increasing their toolbox full of interventions. In turn, the beginning teacher should be observed by the experienced teacher. Recommendations from someone who has been "in the trenches" for years can be helpful in all facets of teaching.

Improvements made by the special education staff

Through this research project it became clear that our special education program can do a much better job of communicating with and educating our beginning and

experienced teachers. It was pointed out by more than one of the participants of my study that throughout their first year of teaching there had been poor communication with members of our special education staff. Just the other day, a regular education teacher asked a special education teacher, "What is going on with [this student]". The student was on the special educator's caseload and the regular education teacher was having issues with the student in class. His response was, "What isn't going on with [that student]?" He did not say anything more. Because of this project I have become more aware of the interactions between general and special education teachers. When general education teachers approach a special education case manager about a student, they are looking for expert advice and guidance on how to work with the student. They are not just looking to complain about the student or listen to us complain. The special education staff need to be reminded of this. This study shows evidence that general education teachers that view special education teachers as a resource, and who actively seek out advice and/or communicate with special educators, have more success in the classroom with students with disabilities.

I am happy to add that because one of my research participants pointed out that they had felt dismissed by our special education staff, I stepped in and asked the general education teacher what she was seeing in her classroom and with the help of her case manager, came up with some suggestions for how she could help the student in the future. I think the general education teacher (who happens to be a beginning teacher) walked away feeling like she had some strategies for helping the student succeed in her classroom.

Additionally, I believe the special education staff plays the biggest role in the plan for educating our general education staff about the disabilities of our students, after all, we are the experts. Everything I mentioned in the section about the improving the knowledge of teachers of ADHD should be planned and led by the special education department. It should be a part of our job to educate the staff, as a whole, on general knowledge, symptoms, treatment, and interventions of ADHD. This way the administration cannot deny any recommendations for educating the staff; all planning and funding would be provided by the special education department.

Limitations

The major limitation for this study was the small number of participating teachers. For this study to have more reliability and validity a broader base of teachers would need to be used. This would give a better sense of the first year teachers' needs and knowledge surrounding ADHD.

Another limitation is that my two participants did not understand how to respond to the Interventions Survey and did not complete it as I had intended. Because of this I was only able to include the information I gathered from one of the three participants.

Chapter 6:

Self Reflection

When developing the idea for this project, I had an idea of what the answer to my main research question would be: teachers would not have adequate knowledge about ADHD and the interventions they can use in the classroom. My experience with classroom teachers and ADHD had consisted of continually running interference for my students with ADHD with the teachers who were doing things in the classroom that were counterproductive to the students' disability. I heard comments like, "Oh, I didn't know she has ADHD. She isn't hyperactive. She just doesn't pay attention" or. "I expect him to know the rules. I went over them the first week of school. I don't know why he can't remember?" When I asked the teacher if the expectations were posted, her response was, "This is ninth grade, not kindergarten" clearly showing her lack of knowledge about ADHD.

I had wanted the purpose of my study to be to assess what ALL teachers knew about ADHD, but I was advised that would be too big of a project. However, I assume that if I had included veteran teachers in the research, the results would have been the same.

What I had not expected was the honesty from my participants about what they did not know and their willingness to do more to learn more about ADHD. I enjoyed the conversations I had with the participants during and after the individual interviews. They seemed genuinely interested in learning more about ADHD and other disabilities and offered worthy suggestions for how our school can improve teachers' knowledge. All of

these recommendations would have immediate positive impacts at our school if they were implemented.

These conversations have led to immediate changes in my daily practices, particularly in how I interact with the general education staff. Hearing first year teachers' concerns regarding communication issues with the special education staff has made me more aware of how I respond to all teachers' comments and concerns about my students. After working with this research study, I now leave conversations with general education teachers suggesting at least two interventions that they can try with the student they are addressing. With the knowledge that teachers probably have not had extensive training on ADHD, I no longer assume they know the interventions that can be used with students with ADHD in their classroom. Additionally, because of this research project, a practice I plan to add a new practice to my beginning of the year procedures: attaching a list of interventions to the adaptations sheet I give every one of my students' teachers informing them of their disability. This way, all the teachers can have a yearly reminder of the interventions they can use to help our students succeed in their classroom. Furthermore, I have set up a meeting with my building principal. I also cannot wait to share all the recommendations and potential improvements this research project generated. I am excited about the possible changes this action research project will bring my school.

The biggest impact this research paper has made on me is the awareness of how rewarding it is to become an expert in an area of my profession. Despite my previous knowledge, I learned a tremendous amount about ADHD through the process of conducting the research for this project. I made it a personal goal to read every study related to assessing teachers' knowledge of ADHD and I took pride in reading each study

as I had planned. The information I gathered has helped make me a more effective teacher over the past few years. Moreover, I also have become increasingly aware of how much MORE I still have to learn about all the disabilities that affect my students. To challenge myself and to continue to grow, I have set a new goal each year. I will dive into researching a different disability every year. By increasing my knowledge I will increase my ability to help students find success in school and beyond. The success I have had in conducting this research will lead me to future successes in improving my professional self and improving conditions for the students at my school.

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