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Reading comprehension strategies for students with attention deficit hyperactivity disorder

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Reading comprehension strategies for students with attention deficit hyperactivity disorder

Abstract

The purpose of this paper was to describe Attention Deficit Hyperactivity Disorder (ADHD), its possible causes, characteristics, treatment options, and instructional strategies used for teaching reading comprehension to people with this disorder. ADHD is characterized by inattentiveness, hyperactivity, or impulsiveness to a degree beyond what is considered normal for the person's age.

While the exact causes are unknown, research is beginning to reveal that the disorder is brain based and genetic in disposition. Presently there is no cure for ADHD, but treatment options are available which include medications and/or therapies. Reading comprehension strategies to assist people with ADHD include chunking, activating prior knowledge, using story maps and other graphic organizers, retelling the events of the story, and discussing what has been read.

**Reading Comprehension Strategies for Students
with Attention Deficit Hyperactivity Disorder**

A Graduate Review

Submitted to the

Division of Middle Level Education

Department of Curriculum and Instruction

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of the Requirements for the Degree

Masters of Arts in Education

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ABSTRACT

The purpose of this paper was to describe Attention Deficit Hyperactivity Disorder (ADHD), its possible causes, characteristics, treatment options, and instructional strategies used for teaching reading comprehension to people with this disorder. Attention Deficit Hyperactivity Disorder affects approximately 3% to 5% of the population. Nearly every classroom in the United States contains at least one student with ADHD. Therefore, teachers, administrators, and parents need information concerning the disorder to assist the child affected with ADHD.

ADHD is characterized by inattentiveness, hyperactivity, or impulsiveness to a degree beyond what is considered normal for the person's age. While the exact causes of ADHD are unknown at this time, research is beginning to reveal that the disorder is brain based and genetic in disposition. Presently there is no cure for ADHD, but treatment options are available which include medications and/or therapies.

Reading comprehension strategies to assist people with ADHD include chunking, activating prior knowledge, using story maps and other graphic organizers, retelling the events of the story, and discussing what has been read. These strategies are beneficial to people with ADHD as well as all students since they get the reader actively involved in the comprehension process.

DEDICATION

This project is dedicated to my son, David, who was the impetus for my research. You are my inspiration. You bring joy to my life and help me see the wonder in everything. You've taught me that perfection is not the goal- growth is! Thank you for being you. I love you.

ACKNOWLEDGEMENTS

This project could have never happened without the love and support of my family and friends. I would specifically like to thank the Souhrada family for all they have done. Thank you for lending Anna and Abby to me. I knew my son was in wonderful hands, and I want to publicly thank you for Anna's and Abby's dedication. Additionally, I want to thank the Souhrada family for continuing to watch David after Anna's untimely death. Through your love and support, you have helped David heal. For that, I am forever in your debt.

Thank you to my parents who have always supported my endeavors. You let me bounce ideas off of you. You helped me focus on the topic. You listened and gently prodded me when I needed it. Just knowing you were there inspired me to do my best.

Finally, thank you to Mark Ackerman. You are my best friend and my rock. Whenever I felt overwhelmed, you calmly kept my feet on the ground. You have shared my frustrations and my joys equally. You have always supported me, and I thank you. I love you.

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CHAPTER 1

INTRODUCTION

Albert Einstein. F. Scott Fitzgerald. Dwight D. Eisenhower. Louis Pasteur. Tom Smothers. Steve McQueen. Walt Disney. Cher. Lindsay Wagner. What do all of these famous and successful people have in common? They all have exhibited characteristics of Attention Deficit Hyperactivity Disorder (ADHD) including inattention, hyperactivity, and impulsivity that appear early in life (National Institute of Mental Health [NIMH], 2004). Because everyone shows some of these behaviors at times, the diagnosis of ADHD requires that these behaviors be demonstrated beyond what is appropriate for the person's age.

ADHD is a commonly diagnosed disorder affecting approximately 4.1 percent of youth age 9 years to 17 years in a 6-month period (NIMH, 2004). In order for a diagnosis to occur, a thorough medical examination of the child must be conducted to rule out other possible causes of the symptoms. Children with ADHD often have behaviors deemed inappropriate for the school environment; therefore teachers need to employ a variety of classroom interventions to help their students become successful (Duhaney, 2003). Additionally, teachers need to “adapt their assessment, instruction, and classroom management strategies to promote learning and positive behaviors” (Salend & Rohena, 2003, p. 264).

Rationale

The stimulus for my research of ADHD comes from my own family. When my nine year old son was in kindergarten, his teacher was insistent that he be tested for an

attention deficit problem. She had tried several strategies to assist him and had enlisted the help of the school psychologist. The psychologist had him sit on a doughnut-shaped cushion to help him to remember to sit still. I was uncomfortable with this because I felt it was an obvious sign to the other kindergarten children that he was different which could lead to teasing by the other children. However, the cushion did not work, so the next thing the psychologist wanted to do was to have David wear a fishing vest that contained weights in the many pockets. As his mother and a teacher, I knew this might lead to the exploration of every pocket and weight rather than sitting still and listening. Knowing that David's curiosity would lead him to investigate the vest, which in turn would cause the teacher to correct him, I refused to give permission for him to wear the vest.

The teacher then tried charts that emphasized a list of numerous unacceptable behaviors. My son's frustrations grew, as did mine, when he saw the frown faces. It was an especially difficult situation, since my son and I are in the same building, and I was made aware of his "problems" daily, either through face-to-face contact, email, or a message sent through a third party such as the Director of Student Services.

After only forty days of kindergarten, I was told David needed to be evaluated because of his unacceptable behavior which included disrupting other students, especially when they were working. My mother noticed quite a bit of frustration from David because he was not able to correctly write the letters of the alphabet, and yet he was supposed to write in a journal. When I asked the teacher about this, she told me that they had not yet begun to work on how to make letters, but she expected them to try to

“write.” David became frustrated and discouraged when his words did not look like what the teacher had written. David also was frustrated because he could not read. The teacher commented several times that he struggled with letter recognition, and when he became frustrated, his behavior got worse. When compared to other students his age, his reading level was below the benchmark set by the school.

When approached about his behaviors being consistent with a possible diagnosis of ADHD, I knew very little about the disorder, and I admit that I was not sure the disorder was even valid. My experience comes only from those students I have had in class who were labeled ADHD. Some were unmedicated and their behaviors were often out of control. Others were medicated with Ritalin, which was the only drug I knew that was available for treating the disorder, and those students seemed lethargic.

Additionally, I had the impression that certain elementary teachers, including the kindergarten teacher, wanted a “quick fix” with medication when any student, especially a boy, showed opposition of any sort. From these experiences, I was under the impression that all medicines would drug students to the point of them losing their personalities and becoming zombies. As a parent, I would not allow my son’s personality to be stripped from him. Because of my perceptions regarding a diagnosis of ADHD, I was unwilling to accept the teacher’s suggestion. Instead, I insisted on continuing the behavior modifications, such as a simplified version of the chart she had used.

My son’s first grade year was better than his kindergarten year, and there was not much talk of having him tested for ADHD. He still struggled with reading, and he was eventually placed in Title I Reading to give him extra help. David continued to be upset

that he could not read as well as his classmates. I learned that he expected to go to school and be able to read as well as adults with little practice.

In his second grade year, David's reading improved, but he was still behind his peers. In addition to his reading difficulties, David's behavior became so bad that he received several out-of-school suspensions for things like pushing over a desk, or saying something to the effect of, "My mom's gonna kill you," to another student. Now, not only was his behavior atrocious, but every time I got an email or saw an administrator walk my way, my stomach would lurch at the thought of what they had to tell me in regard to my son's behavior.

The last straw was the out-of-school suspension the last day before winter break. David was suspended for knocking over a chair in the principal's office after having acted out in the classroom. The principal made it clear that David needed to be tested before he could come back to school. I was adamantly opposed to a diagnosis of ADHD because of the bad "rap" that went with it. In my educational setting, having ADHD seemed to give kids a license not to do anything nor behave appropriately. When questioned about their behaviors, ADHD student and sometimes their parents simply said, "He/She has ADHD," as if that made the behavior acceptable. Additionally, it had appeared to me that some of the elementary teachers treated students with ADHD differently. However, I realized that my decision was based solely on my personal experience and not on research. Therefore, I began reading any article I could find about ADHD and possible treatments.

As I read articles on ADHD, I learned that often children with ADHD have reading difficulties. This intrigued me as a parent and as a reading teacher. I began to realize that this was a topic of interest and a possible subject for a literature review.

David was diagnosed with ADHD by a hospital-based psychiatric clinic. David's teachers were asked to fill out behavior rating scales. Upon analysis of the responses from the teachers, the psychiatrist determined that David displayed symptoms of ADHD. He was started on Adderall to assist him with his behaviors. When I explained the need for medication to him, I put it as simply as possible; his brain was working too fast for his body, and it was causing him to become frustrated. Therefore, the medicine would help slow his brain down just a little bit and speed up his body, so they could finally work together. However, I was not comfortable with medication alone. It was, and still is, my belief that he must have the tools in place to succeed in life, in addition to the use of medication. He needs to know how to handle his anger appropriately. He must learn to focus his attention on the problem at hand. He must learn to think things through before reacting. He must learn to stick with the job until it is done.

David has been on his medication and behavior plan for a year now. He has surpassed my expectations. I have always told him I do not expect perfection. I simply want him to try his hardest. In the past year, he has done just that. At the beginning of his third grade year, he no longer went to Title I Reading. In fact, the latest assessment shows his reading is at the beginning of the fifth grade. His behavior has improved greatly from his kindergarten year. I attribute the change in David to the behavior plan,

since all of the teachers and his parents are on the same page, the medication, and simply maturing on his part.

To help my son and my reading students, I decided to do more in-depth readings of Attention Deficit Hyperactivity Disorder. I felt that I would do a great disservice to my seventh and eighth grade reading students if I was not aware of the difficulties some of them face daily because of their ADHD. When I looked at my son's behaviors and areas of weakness, I discovered that reading and writing were often the time when he acted out the most. When I stopped and analyzed my own students, I found that those who often struggled with the homework portion of reading were the ones diagnosed with ADHD. When I asked for them to answer inferential questions that required them to comprehend the written material and to combine it with their own thoughts, the students with ADHD were apt to avoid doing the homework. I felt frustrated because I didn't know how to help my students and I was determined to learn some strategies to help them.

Purpose

The purpose of this research paper is to examine the current literature in regards to ADHD. Through this research I hope to answer the following questions:

1. What is Attention Deficit Hyperactivity Disorder?
2. What are the available treatment options for ADHD?
3. What strategies can I use to help my students with ADHD become successful readers?

This paper is intended to help the classroom teacher, administrators, and the parents of children with ADHD understand the disorder and implement strategies to help students with ADHD be successful in the classroom.

Terminology

In order for readers to have a common understanding of the terminology used in this review, the following definitions are provided:

- **Federal Food and Drug Administration (FDA):** A branch of the United States Department of Health and Human Services which is responsible for the regulation of medication in the United States (FDA, n.d.).
- **National Institutes of Health (NIH):** A branch of the United States Department of Health and Human Services which manages grants for medical and behavioral research done in the United States. (NIH, 2004).
- **National Institutes of Mental Health (NIMH):** One of twenty-seven components comprising the NIH. The goal of the NIMH is to “reduce the burden of mental illness and behavioral disorders through research on mind, brain, and behavior.” (NIMH, 2005).
- **Non-stimulant medication:** medication such as Strattera® which does not carry a risk of addiction in adolescents and adults (Grant, Murray, Bergeron, O’Keefe, & Limmer, 1995).
- **Side effects:** any action of a drug other than the desired action (Grant, Murray, Bergeron, O’Keefe, & Limmer, 1995).

- Stimulant medication: medication such as Ritalin® which can carry a risk of addiction in adults and adolescents (Grant, Murray, Bergeron, O'Keefe, & Limmer, 1995).

Limitations

The strategies to assist ADHD students are almost limitless and cover everything from organization to behavior to content-specific strategies. My search for articles focused only on reading comprehension strategies. As the research begins to reveal more certainty regarding the causes of ADHD, more specific strategies may be developed.

Since the research into the causes of ADHD is ongoing and the results are ever increasing, time became a factor in my research. I found that searching for articles using the same terms but at different times, usually at least a month apart, yielded more results than previous times. Unfortunately, there came a point where I had to return to my job and set aside the search for articles.

CHAPTER 2

METHODOLOGY

I selected a review of the literature to examine Attention Deficit Hyperactivity Disorder (ADHD) and strategies to assist students who have been diagnosed with ADHD become successful readers. The selection of this methodology was based on my realization that the information I had concerning ADHD was outdated, especially in regards to the causes, treatments, and strategies for learning. In order to help my son and my students become life-long learners, I needed to understand what is involved in the disorder, how it is treated, and what I can do to help my students with ADHD become better readers.

Research Questions

The research questions used to guide the review of the literature about ADHD and strategies to assist students were the following: What are the causes and symptoms of ADHD? What treatments are available? What can a teacher do to help students with ADHD be successful in a reading classroom?

Method to Locate Sources

To begin the search for literature on ADHD, I used Wilson Web, accessed through the University of Northern Iowa's Rod Library, to locate journal articles pertaining to my topic. Additional online databases, including ERIC and EBSCOHost, were searched. Next, the National Academies Discovery Engine was searched (E. Joram, personal communication, April 19, 2004) to find both articles and books related to ADHD.

I began searching using general terms and from there, refined my search using the following key terms:

- inattention
- hyperactivity
- Attention Deficit Disorder
- ADD
- Attention Deficit Hyperactivity Disorder
- ADHD
- reading comprehension strategies
- reading strategies
- comprehension strategies
- touch therapy
- biofeedback

A general search of the Internet, using the metasearch engine Dogpile, was used, again focusing on the key words mentioned above. Although this method was not as fruitful as searching the online databases previously mentioned, there were several websites, such as the Food and Drug Administration and National Institute of Mental Health that provided information. Finally, repeated references to specific authors led me to additional resources.

Selection of Sources

To determine which sources to select, subject headings obtained from the search engine results were read to determine relevance to the topic. If the article seemed to

provide appropriate information, the introductions and conclusions were read again to determine the article's relevance to ADHD (Wilhelm & Kaunelis, 2005). Articles written by frequently appearing professional authors were considered as viable options. The next step was to assess the legitimacy of the author and publisher. The author legitimacy was based on the profession of the author in relation to ADHD, the expertise of the author, and repeated references to that author's work by other authors. Widely known and circulated journals, such as those found at the University of Northern Iowa's Rod Library, were considered to be legitimate sources of information. Finally, because of the ever-changing research on ADHD, articles must have been published within the last ten years. Articles focused on reading strategies were considered current if they had been published in the last ten years.

I evaluated web pages as Wilhelm and Kaunelis (2005) suggest. I checked the reliability of the source by determining if the page was trying to sell something. This was important since the information presented could be attributed to a marketing ploy. The author of the web page had to be listed on the web page and credible. The author had to be knowledgeable about the subject matter. The date of the last update on the web page had to be listed to verify the recency of the information. I also looked to see if the sources of information were clearly cited.

Procedures to Analyze Sources

As I read the articles concerning ADHD, I highlighted information and took notes over the information (Hubbard & Power, 1999). From my notes, I analyzed and organized the information around three primary themes that I identified. These themes

and the consequent subthemes were used to conceptually frame my review of literature via an outline. From the outline, a rough draft and subsequent drafts were written and revised until the information was clearly and concisely presented in the form of a review of literature.

CHAPTER 3

LITERATURE REVIEW

Overview

The lack of understanding of Attention Deficit Hyperactivity Disorder (ADHD) in the educational setting by the author led to the desire to learn more about this disorder.

The research questions addressed are the following: a) What are the causes and symptoms of ADHD? b) What treatments are available? c) What can a teacher do to help students with ADHD be successful in a reading classroom?

ADHD is a commonly diagnosed childhood behavioral disorder which is a costly major public health problem (National Institute of Health [NIH], 1998). Students with ADHD often have behaviors deemed inappropriate; therefore teachers need to employ a variety of classroom interventions to help their students be successful (Duhaney, 2003). Many of the difficulties that ADHD students have stem from problems with executive function which includes management functions of the brain, allowing for the planning and execution of complex and complicated tasks (Rief, 2005; Schlozman & Schlozman, 2000). ADHD is a developmental failure in the brain circuitry responsible for inhibition and self-control. It impairs more important brain functions crucial for maintaining attention (U.S. Department of Education [USDE], 2003). Therefore, teachers need to “adapt their assessment, instruction, and classroom management strategies to promote learning and positive behaviors” (Salend & Rohena, 2003, p. 259).

ADHD is considered a neurobiological condition involving problems with inattention, hyperactivity, and impulsivity. These problems need to be determined to be

developmentally inconsistent given the age of the child. “ADHD is not a disorder of attention, as had long been assumed. Rather, it is a function of developmental failure in the brain circuitry that monitors inhibition and self-control” (USDE, 2003, p. 1).

History

There are conflicting historical views as to when ADHD was first noticed in children. According to the National Institute of Mental Health [NIMH] (2003), a physician, Dr. Heinrich Hoffman, was the first to describe a child with symptoms of ADHD in a poem he wrote in 1845 entitled “The Story of Fidgety Philip” (see Appendix A for poem). Hallowell and Ratey (n.d.) attribute the first descriptions of ADHD to Sir George F. Still, who, in 1902, described a group of children who were impulsive and had significant behavioral problems. Sir Still suggested the children’s problems were due to genetics rather than to poor childrearing.

ADHD has passed through several name changes through the years, including hyperkinesis and minimal brain dysfunction (NIMH, 1994). It has also been referred to as hyperkinetic reaction of childhood, hyperactive child syndrome, and more recently as Attention Deficit Disorder (Barkley, 1998). The frequency of name changes may indicate the uncertainty on the part of researchers as to the causes of the disorder.

Prevalence

According to DuPaul and White (2004), the current estimates are that approximately 3% to 7% of school-aged children are diagnosed with ADHD. This equates to approximately 1.46 to 2.46 million school-aged children in the United States (USDE, 2004). The American Academy of Pediatrics [AAP] (n.d.) estimates that

ADHD affects 4% to 12 % of school-aged children. According to Powell, Welch, Ezell, Klein, and Smith (2003), because boys are more physically active than girls, boys are more likely to be diagnosed with ADHD accounting for the two to three times greater number of boys diagnosed.

Symptoms and Diagnosis

According to the NIH (1998) and the AAP (n.d.), symptoms of ADHD include inattention, hyperactivity, and impulsivity (see Appendix B for a more complete list of symptoms). While most children exhibit these symptoms at some point, a diagnosis can only be made when the child exhibits these symptoms to a degree that is inappropriate for the child's age (NIH Consensus Statement, 1998). Salend and Rohena (2003) and the AAP (ND) stipulate that the following must be in effect before a diagnosis is made: (a) the symptoms must occur for at least six months and be evident before the age of seven although these may not be recognized until a later time; (b) the symptoms must also interfere with social, occupational, or educational performance in two or more settings; and, (c) the symptoms cannot be related to other medical or psychiatric conditions. Students with ADHD often exhibit behaviors that interfere with their academic performance as well as socialization with peers. Because of these behaviors, teachers need to use a range of interventions aimed at promoting positive behavior and socialization (Salend & Rohena, 2003).

The USDE (2004) indicates that ADHD symptoms change as the child grows older. "Adolescents tend to be more withdrawn and less communicative. They are often impulsive, reacting spontaneously without regard to previous plans or necessary tasks and

homework” (USDE, 2004, p. 1). Adolescents with ADHD exhibit some form of restlessness or fidgeting. These can include foot jiggling or pencil tapping. They continue to have problems beginning homework assignments or organizing and completing homework. They also have difficulty planning for long-term assignments. As all adolescents, those with ADHD have conflicts with their parents over rules and responsibilities (Magellan Health Services, 2005).

ADHD is often difficult to diagnose because of its coexistence with other disorders, including mood disorders, learning disabilities, or oppositional defiant disorders (Powell et al., 2003). Additionally, many people exhibit ADHD symptoms which actually result from emotional distress, depression, anxiety, obsessions, or learning disabilities (Powell et al., 2003).

It is important for teachers to be aware that inattention or inappropriate behavior may be explained by factors other than ADHD. Many of the behaviors that teachers interpret as symptoms of ADHD may actually be behaviors that are maintained by the need to obtain something...or to avoid something. (Snider, Busch, & Arrowood, 2003, p. 53)

Salend and Rohena (2003), Greer (2003), and Rief (2005) state that it is often difficult to distinguish between ADHD symptoms and the behavior patterns of children suffering from depression, living in chaotic conditions, experiencing health and nutrition problems, or auditory problems thus contributing to the difficulty of diagnosing ADHD. Anxiety disorders, sleep apnea, and some forms of autism tend to imitate the same symptoms as ADHD. Therefore, to determine the possible diagnosis of ADHD, the child must be

evaluated by a doctor or mental health professional (NIMH, 2003) who, through his own observation and questions, along with the observations of classroom teachers and the child's family members, will be able to diagnose the condition.

While recognizing the symptoms of ADHD is important, it is equally important to recognize and nurture the positive side of ADHD (Kurcinka, 1991). Students with ADHD are often highly energetic, verbal, spontaneous, creative, inventive, artistic, persistent, innovative, imaginative, warmhearted, compassionate, accepting, forgiving, inquisitive, resilient, empathetic, intelligent, humorous, outgoing, enterprising, good at improvising, and charismatic (Rief, 2005).

Causes

As of yet, the exact cause of ADHD remains unknown (NIMH, 2004). ADHD seems to be a neurobiological and genetic disorder (NIMH, 2003). ADHD often runs in families, strengthening the theory that it is genetic (Rief, 2005). The NIMH (2003) reports that studies have shown that 25% of the close relatives in the families of ADHD children also have ADHD compared to the rate of only five percent in the general population.

Symptoms of ADHD arise from abnormalities in the brain such as a chemical imbalance affecting the neurotransmitters, which are chemical agents at nerve endings that help electric impulses travel among nerve cells (DuPaul & White, 2004; USDE, 2003). Neurotransmitters are responsible for helping people attend to important parts of their environments. The common ADHD medications such as Ritalin®, Straterra®, and Adderall® stimulate the under-functioning chemicals to produce more neurotransmitters.

This increases the child's attention span, ability to control impulses, and reduces hyperactivity (NIMH, 2003). Because of the imbalance of chemicals, messages sent from one cell to another are sent incorrectly (Schlozman & Schlozman, 2000). Currently, there is little convincing evidence that ADHD can arise purely from social factors or child-rearing methods (NIMH, 2003). With the research pointing to biological causes, such theories that poor parenting, environment, diet, food additives, and sugar intake as causes of ADHD are being debunked.

Treatment

While there is currently no cure for ADHD, there are several options for the treatment of ADHD symptoms including medication, behavioral therapies, and alternative therapies. According to Greer (2003), medication is very effective in reducing the symptoms of ADHD, although it will not cure the disorder. According to DuPaul and White (2006) medication plus behavioral therapy is the best course of action. "Although most children respond positively to medication, the combination of medication and behavioral interventions tends to yield the greatest improvement in their social skills and school performance" (DuPaul & White, 2006, p. 59).

Medication

Medication is not used to control behavior; rather it is used to control the symptoms and help the ADHD student function more effectively. Currently, there are two classes of medication used to treat the symptoms of ADHD: stimulant medication and non-stimulant medication. Both stimulant and non-stimulant medication affect the part of the brain responsible for producing neurotransmitters (USDE, 2003). The use of

medication is highly controversial, according to Salend and Rohena (2003). Stimulant medication can affect the central nervous system and produce adverse side effects, such as increased heart rate and the possibility of liver cancer.

The stimulant drugs currently used to treat ADHD symptoms, including Ritalin® and Adderall®, are considered *Schedule II* drugs. Schedule II drugs have some value in relieving symptoms, but they also carry a risk of potential abuse (NIH Consensus Statement, 1998; R. Moad, personal communication, February 12, 2005; Rief, 2005; U.S. Drug Enforcement Administration [DEA], 2005). Stimulant medications have a high potential for abuse. Therefore, the DEA has “placed stringent controls on their manufacture, distribution and prescription. For example, DEA requires special licenses for these activities, and prescription refills aren't allowed” (Federal Food and Drug Administration [FDA], 1997). The NIMH (2003) states that to date, there are no studies which link drug abuse or dependence to the use of stimulant medications to treat ADHD.

Recently developed non-stimulant medications, including Strattera®, do not carry the risks that stimulant medication does. The most common side effects of Strattera® include upset stomach, decreased appetite, nausea or vomiting, dizziness, tiredness, and mood swings (FDA, 2002). The FDA (2004) issued a warning about severe liver injury as a result of taking Strattera®. In September of 2005, the FDA issued a cautionary statement for adolescents using Strattera®, advising the use of the medication may increase thoughts of suicide.

While medication tends to be the standard treatment for ADHD symptoms, one must remember that it requires a valid diagnosis of ADHD from a trained professional,

such as a doctor or mental health professional (NIMH, 2003). “The decision to prescribe any medicine is the responsibility of medical- not educational- professionals, after consultation with the family and agreement on the most appropriate treatment plan” (USDE, 2003, p. 10). Unfortunately, some parents and physicians turn to medication to solve problems such as inadequate discipline, overcrowded classrooms, boredom, and resistance to authority (Powell et al., 2003). Additionally, teachers and parents must remember that students with ADHD are “consistently inconsistent” (DuPaul & White, 2006, p.60), and there will be good days and bad days, even when effective medication is used.

Salend and Rohena (2003), and Austin (2003) suggest that only after appropriate teaching, classroom management strategies, and behavioral interventions have been correctly implemented for a reasonable length of time and have shown to be ineffective, should the use of medications be considered. Snider et al.(2003) states, “It seems optimistic to assume that a pill could undo years of poor work habits or reverse the cumulative effects of academic underachievement without other interventions occurring as well” (p. 53). Therefore, in addition to medication, strategies are necessary to help these students make academic progress and to learn to control their behavior (DuPaul & White, 2006).

Behavioral Therapy

Behavioral therapies can be used to counter the symptoms of ADHD. Therapies can be used in conjunction with medication. Therapies can target the individual child

with ADHD and also the family that is affected by ADHD. These therapies help the child and the child's family learn behavior management strategies (Greer, 2003).

Behavioral therapies help children with ADHD change their thinking and coping which can lead to a change in behavior (NIMH, 2003). Through behavioral therapies, behavior is shaped through a gradual and progressive process. As the desired behaviors occur, rewards are given. Once the desired behavior becomes the norm, the rewards are slowly withdrawn (USDE, 2004). Behavioral therapies focus on organizing tasks or homework, dealing with emotionally charged events, teaching the child to self-monitor his own behavior, and giving self-praise for acting in appropriate ways. Students who are impulsive can be taught to use self-talk to regulate their behavior. In self-talk, the student is taught to match their behavior to someone else's verbalization. From there, they learn to verbalize for themselves and match their behavior to those words (Duhaney, 2003).

Other Options

In their study on the benefits of massage therapy on students with ADHD, Khilnani, Field, Hernandez-Reif, and Schanberg (2003) found that students who received massages for 20 minutes, twice a week for a month, rated themselves as feeling happier and relatively better after the sessions. The classroom behavior for these students improved, also.

General Instructional Strategies

Research indicates that ADHD is a brain-based neurological disorder, yet treatment options target the behavioral symptoms of ADHD (Tannock & Martinussen, 2001). Using instructional practices based on the understanding of the cognitive

weaknesses of ADHD can benefit students. The strategies that are often the most effective with ADHD students are also the ones that are most effective with other children. Therefore, classroom strategies are an excellent option, as they are beneficial for all students (DuPaul & White, 2006).

Students with ADHD can be easily distracted. By placing these students away from high traffic areas, such as doors and pencil sharpeners, and near the teacher typically at the front of the room, ADHD students are more apt to stay on-task and learn (Greer, 2003; Gardill, DuPaul, & Kyle, 1996). Seating the ADHD student away from such distractions as windows, air conditioners, heaters, or computers can help the student stay focused (USDE, 2003; Rupley & Nichols, 1998). According to Rupley and Nichols (1998), ADHD students should not only be placed at the front of the room but also be surrounded by students who are good role models.

Since many ADHD students exhibit restlessness, building movement into the classroom routine provides the opportunity to release excess energy (NIMH, 1994; Duhaney, 2003). This can be accomplished by having the ADHD students pass back papers, water plants, move from station to station, or even partake in role-playing activities. During read alouds, ADHD children may have difficulty listening and maintaining their focus. To accommodate these children, teachers may wish to allow them to sit on the floor to eliminate fidgeting in desks (French & Landretti, 1995). For those students who must occupy their hands, having the students draw what they are visualizing, while listening to the story, allows their hands to be busy and may enhance the child's ability to visualize.

Organization is another weak area for ADHD students. Forgetting to do assignments and losing supplies can lead to frustration for students, parents, and teachers. Students with ADHD often have trouble paying attention to directions, causing them to fail to complete assignments (Salend, Elhoweris, & van Garderen, 2003). Teachers need to clearly state directions for both in-class and homework assignments (Rupley & Nichols, 1998). The directions should include the content and format of the assignment, the rationale for completing it, the amount of time to allot to the completion of the assignment, and the materials needed to complete the task (Salend et al. 2003; Neuwirth, 1994). Directions need to be given one assignment at a time, instead of multi-task directions (Reid, 1999). When verbal instructions are given, the teacher should maintain eye contact (Rupley & Nichols, 1998). According to Reid (1999), directions should be given three times. The first time, the directions are simply stated; the second time the directions are paraphrased; the third time additional cues are given by writing the directions on the board or displaying them on an overhead.

ADHD students can become overwhelmed and simply may not start an assignment when faced with reading large amounts of texts, such as entire chapters, along with answering questions which often accompany the reading assignment (Reid, 1999). Chunking assignments by breaking them down into smaller, simpler steps or topics allows ADHD students to manage the reading tasks. Deadlines for each step of the task should be set and rewards such as stickers or praise should be given when the task is completed (USDE, 2003; USDE, 2004; Wood & Beattie, 2004).

Effective Reading Comprehension Strategies

ADHD students and all students who struggle with comprehension of written material, whether narrative or expository, should be taught to use a variety of strategies to assist with the comprehension. Reading comprehension “is a proactive, continual process of using prior knowledge, metacognitive awareness, and reflection to make sense of a text” (Ivey & Fisher, 2005, p. 8). Reading comprehension strategies and interventions are necessary because it is common for students with ADHD to have difficulty with reading comprehension due to a lack of attention and focus on the text. Therefore, it is critical that students with ADHD to be actively engaged in reading, or they will struggle with comprehension (Rief, 2005). “Active reading requires readers to be present and attentive, which means doing more than just moving their eyes across words” (Coutant & Perchemlides, 2005, p.44). Student must be actively involved with the text. ADHD students must be taught explicit strategies to develop their metacognition. When students become active participants in their learning processes, they become empowered learners (Billmeyer, 2003).

Chunking

To develop strategic reading skills for independent use, students can be taught to *chunk* their own reading. Chunking involves dividing large amounts of text into smaller sections. These are more easily read and understood (Kozen, Murray, & Windell, 2006). Teachers can model the strategy of reading a paragraph or segment from a text and mentally asking themselves the question, “What did I read here?” Then, they can retell the content of the passage in their own words. After modeling, the student practices the

strategy with guidance from the teacher. With repeated practice, students can use the strategy independently.

Silent Reading Time

Providing the students with silent reading time, in which they choose their own novels, increases their background knowledge, vocabulary, and motivation to read (Ivey & Fisher, 2005). Silent reading time can be frustrating to students with ADHD because of the difficulty maintaining their focus. One of the strategies for ADHD students who are poor readers is a fixed silent reading time, where the students read aloud quietly to themselves. By listening to their own voices, they are more apt to maintain attention during silent reading time (Wood & Beattie, 2004). Because structure and consistency are important for students with ADHD (USDE, 2004), a set time for silent reading is recommended.

Prereading Comprehension Strategies

Prereading strategies should help the students connect prior experience or knowledge to current learning, set a purpose for the reading, or preview what will be read.

Activating Prior Knowledge

Students with ADD/ADHD, and in fact all students, need to be able to connect what they are learning with what they already know (Garriott & Jones, 2005). For students to make the appropriate connections, they need to activate their prior knowledge of the subject. Students may have the background information, but they often read without using this information to make sense of the text (Coutant & Perchemlides, 2005).

To make information meaningful to students, there are two options: a) find the experience they've had and hook the new information to it; or b) create the experience with them (Wolfe, 1997). To help students make the necessary connections between what they already know and what they are learning, teachers can incorporate class discussions over the topic. This allows the students to share what they already know and experiences they've had with the topic. It also provides the teacher with the opportunity to discover any misconceptions or missing information the students may have.

Setting a Purpose

Establishing a purpose to read is another strategy that helps students make connections between what they know and the material they are learning (Garriott & Jones, 2005). Setting a purpose in the reading process increases comprehension (Blanton, Wood, & Moorman, 1991). Determining the purpose for the reading can motivate the students to read. It also activates prior knowledge. When students know the purpose for reading, they know what to select as important information.

Predicting and Previewing

Creating a class list of predictions before reading the piece of literature is another way to activate prior knowledge (Garriott & Jones, 2005). Previewing the text by looking at illustrations, captions, headings, key words, and chapter questions allows the students the chance to recall information they already know and prepare for information they are about to encounter (Coutant & Perchemlides, 2005; Garriott & Jones, 2005). Discussing vocabulary terms that might be challenging is another effective prereading strategy (Rief, 2005).

During Reading Comprehension Strategies

ADHD students tend to lose focus when reading a large amount of text. To assist these students in focusing and understanding the text, story maps, self-questioning, and summarizing strategies can be used.

Story Maps

Teaching students to identify the main characters, setting, conflict, major events, and resolution in narrative texts provides a framework on which to base their comprehension (Ostoits, 1999). Story maps are organizers with the story elements listed as headings. Students then find the key information and record it (Swanson & De La Paz, 1998). Plotting the storyline by using a story map, as suggested by the Alberta Department of Education (1996), provides ADHD students with a graphic organizer to help organize the information and comprehend the story.

Self-Questioning

The Alberta Department of Education (1996), Swanson and De La Paz (1998), and Rief (2005) recommend teaching students self-questioning strategies during reading to allow them to monitor their comprehension of narrative and expository texts. Teachers should model the self-questioning technique and cue the students to ask the comprehension question, “Does this make sense?” To work on prediction, the students should ask themselves, “What will happen next?” By asking, “How does this relate to what I already know?” students connect what they are reading to their own experiences. To monitor comprehension, readers should ask, “Where and when does the story take

place?” “Who are the characters?” “What is the conflict, or problem, in the story?” (Rief, 2005).

Generating Interaction between Schemata and Text

In the Generating Interaction between Schemata and Text (GIST) strategy, students read a paragraph of expository text, after which they write a one sentence summary of the paragraph using no more than fifteen words to accomplish this (Swanson & La Paz, 1998). When teaching this strategy, the students begin with reading the first word of the paragraph and writing a summary sentence which does not exceed fifteen words. The students then read the next sentence of the paragraph and summarize the first two sentences in one sentence with not more than fifteen words. This process continues until the entire paragraph is read and summarized in a single fifteen word sentence.

After Reading Comprehension Strategies

Once the student has completed the reading, there are strategies which can be used to continue to develop the comprehension of both narrative and expository texts. These strategies include graphic organizers, retelling, rereading, discussions, and Question Answer Relationships.

Graphic Organizers

When the child is finished reading, graphic organizers allow the reader to form an image of what was read (USDE, 2004). Graphic organizers can be used after reading as well as during reading. Their benefit is that they help students organize information through the use of graphic representations of the text. Graphic organizers are varied and allow for creativity. Several types of graphic organizers include framed outlines where

the students receive a copy of an outline created by the teacher with some information missing. This is especially useful with expository texts. As the material is read or discussed, the students fill in the outline. Timelines can be beneficial to students because they allow visualization of the order in which events occurred. Venn Diagrams help students organize their comparing and contrasting

Retelling

Retelling the story is another way to increase the student's comprehension of what was read (French and Landretti, 1995; Rief, 2005). Additionally, it incorporates storytelling into the curriculum which promotes good attention, requires active involvement, encourages visualization, and uses one's imagination. In a retelling, the student reads a portion of the text and then tells a partner or group what he remembers about the text. After the group or partners have finished reading, their responses are written on the board or overhead. This strategy is beneficial because students who have difficulty with the initial reading of the selection may comprehend the text after a retelling. Students also find that their own associations are triggered when they hear others in the group retell the facts or events (Wood & Jones, 1998). A variation of this strategy would be to act out the story which allows movement for the ADHD child as well (USDE, 2004).

Rereading

Ostoits (1999) also suggests encouraging the ADHD child to reread as often as is necessary. Rereading is important because these students tend to lose their focus on what

is being read. Rereading paragraphs and sections makes students reexamine passages that confused them (Coutant & Perchemlides, 2005).

Discussions

Meaningful discussions about the concepts, events or characters can help students understand the material and increase comprehension of the literature (Garriott & Jones, 2005). When students discuss their ideas and provide facts from the text in support of their opinions, they are making necessary connections (Coutant & Perchemlides, 2005). Class discussions can be used to check comprehension, clear any misunderstandings, and deepen understanding of the text. Since many ADHD students are outgoing, verbal, and spontaneous, they excel at discussions (Rief, 2005, p.8).

Question-Answer Relationships

Question-Answer Relationships (QAR) is a strategy which “first and foremost provides teachers and students with a much-needed common language” (Raphael & Au, 2005, p.208.) The students are taught to classify questions about the text into two categories with two types of questions in each category (Swanson & De La Paz, 1998). The first category is *In the Book*. The answers for this category are found in the text. The two types of questions are *Right There* and *Think and Search*. Right There questions can be answered from the text, are found in one sentence in the text, and are usually the easiest to answer. Think and Search questions can also be answered from the text. The answer is found in more than one sentence causing the reader to combine information from several places to answer the question. The second category is *In My Head*. These questions require the reader to infer answers. The two types of questions are *Author and*

Me, and *On My Own*. Author and Me questions combine information from the author with information from the reader such as prior knowledge to answer the question. On My Own questions do not require the reader to read the information. Instead the reader uses prior knowledge to answer the question (Alberta Department of Education, 1996.)

Paraphrasing Strategy

The paraphrasing strategy which uses the mnemonic RAP is used for expository texts. This strategy teaches students to recall the main ideas and facts from the information they've read. The students read the paragraph silently focusing on word meaning. After reading, they ask themselves to identify the main ideas of the paragraph. From there, the students put the main ideas into their own words. They must include two details which relate to the main idea (Lebzelter & Nowacek, 1999).

Know, Want, and Learned Charts

French and Landretti (1995), and Rief (2005) suggest the Know, Want, and Learned (KWL) chart as a strategy to assist children in making the necessary connections between what they know and the topic they are learning. The KWL chart has the students list what they know about the topic, what they want to learn, and finally what they have learned about the topic. The KWL chart also helps students identify what they want to learn, thus setting a purpose for the reading (Readence, Bean & Baldwin, 2000). The KWL chart, also used as a comprehension strategy after reading, is an effective strategy to help students connect what they know to the topic about which they are reading (Alberta Department of Education, 1996). Completing the KWL chart assists students in organizing the information they've just learned (Rief, 2005).

Think Before Reading, Think While Reading, Think After Reading

Think before reading, think while reading, think after reading (TWA) strategy, as explained by Mason, Meadan, Hedin, and Corso (2006), combines several strategies into a multi-step procedure for reading expository texts which can be used before, during, and after reading. Before students begin reading the expository text, they activate their prior knowledge while thinking about the author's purpose for writing the text. They also think about what they know and what they want to learn about the topic. During reading, students think about their reading speed, linking the new knowledge to something they already know, and rereading parts that are confusing or unclear. After reading, the students use the RAP strategy, summarize the information by deleting trivial and redundant material, and creating a topic sentence. The last step is to practice retelling the information orally.

CHAPTER 4

ANALYSIS AND DISCUSSION

Attention Deficit Hyperactivity Disorder (ADHD) statistically affects every classroom in the United States. This analysis of literature revolved around three questions: What is ADHD? What are the available treatment options for ADHD? What strategies can I use to help my students with ADHD become successful readers?

While the actual cause of ADHD is, as of yet, unknown, there are several theories. There are treatments and strategies that can be used effectively to overcome deficits. Stimulant medication is commonly used to counteract attention deficits. Recent research is beginning to reveal that stimulant medication increases dopamine in key areas of the brain that are believed to control organization. Newer non-stimulant medications are being developed to provide the same results as stimulant medication without some of the side effects associated with stimulants.

With 3% to 7% of the school-aged children affected with ADHD, teachers need to be aware of the characteristics and needs of these students to prevent ADHD students from failing in their endeavors. While a myriad of strategies is available, this paper highlighted those specific to reading comprehension. One of the strategies is to use graphic organizers to help students visualize connections. ADHD students' attention can wander, especially during silent reading. To counter this, allowing these students to read quietly aloud can help maintain their focus.

Evaluation and Interpretation

What is Attention Deficit Hyperactivity Disorder?

Currently, research indicates that ADHD is a brain-based neurological disorder, which appears to be genetic in nature, as it seems to run in families. ADHD appears not to be correlated with child rearing practices or diets such as those rich in processed foods or sugar (NIMH, 2003). If ADHD is brain-based, the potential exists to create a definitive test to determine whether one truly has ADHD. This would eliminate the subjectivity that currently exists with the use of the rating scales and observations of behavior. Once the actual cause of ADHD is determined, the possibility exists for other treatment options, such as the development of additional medications or gene therapy which could lead to a cure.

It is important to note that many symptoms of ADHD, while not desirable in a typical educational setting, are of value once the individual is in the working world. Characteristics such as being able to see the patterns in the chaos, the ability to multitask, determination to gain more control, high energy, outgoing, persistent, spontaneous, and unconventional can cause headaches for the classroom teacher, but they are benefits later in life (Kurcinka, 1991; Rief, 2005).

What are the Available Treatment Options for ADHD?

Several options for the treatment of ADHD symptoms are available; however, at this time, there is no cure. Medication such as Ritalin and Adderall is used to help students overcome deficits including attention, hyperactivity, and organization. Other

therapies include massage and behavior management strategies. As more research is conducted, the possibility of additional treatments exists.

What Strategies Can I Use to Help my Students with ADHD become Successful Readers?

Through the readings, I have discovered that the strategies that appear to work best for students with ADHD are also those strategies that are considered *best practice* for all students. Understanding individual differences is key to tailoring instruction to fit the needs of all students, including those with ADHD, and thus ensure success. To do this, students' strengths and deficits must be identified. Teachers must build upon the strengths of the child and provide opportunities to overcome the deficits through the use of research-based strategies.

Reading comprehension strategies can be broken down into three categories: prereading, during reading, and after reading strategies. Prereading strategies include connecting prior knowledge to new knowledge. This can be done through the use of a KWL chart, class discussions, or simulations. Activating prior knowledge also helps set a purpose for the reading. During reading strategies include rereading passages that don't make sense, self-questioning to monitor understanding, creating story maps, and using the GIST strategy for summarizing. After ADHD students have finished reading, a concept map can be used to cement the ideas. Discussions after reading are also beneficial. By allowing the students the chance to discuss their ideas, we are validating them as learners and playing to the strengths commonly associated with ADHD. Class discussions also encourage respect and listening as everyone is valued in the discussion.

Using the RAP strategy to paraphrase what was read also aids comprehension.

Classifying and creating questions using the QAR strategy helps clear misconceptions.

Recommendations

Since ADHD appears to be a brain-based disorder, understanding the causes of the disorder may help to unlock more mysteries of the brain, including the causes of other disorders such as bipolar and oppositional defiance. Therefore, more research into the causes of ADHD needs to be conducted. Once the causes have been determined, development of better detection tools can occur. Knowing the causes of ADHD could also lead to further research on strategies to use to help students with ADHD, including self-management, general behavior, and reading strategies. Alternatives to medication should also be researched, since medication often has adverse side effects. Finding successful alternatives to medication could spare individuals the risks associated with current medications. Alternative therapies that have a calming influence such as tai chi, yoga, animal therapy, music therapy, and touch therapy are possibilities for research.

In order for students with ADHD, and indeed all students, to grow to their potential, they must be nurtured. Parents must be advocates for their children. They must not stand by and assume the teachers are aware of the best practices for students with ADHD. Instead, parents must help educate teachers as to what works with their children. Teachers must get to know their students well enough to realize in what areas these children need assistance and in what areas are their strengths. It is vital that teachers, administrators, and parents realize children with ADHD will never be “normal,” even with medication, since their brains work differently from other students.

Medication cannot be seen as the magic bullet, the cure all, or the panacea, for it is not. No amount of medication will fully eliminate a person's deficits. Children with ADHD have brains that do not function in the way other brains do, which means that they may always be disorganized even after repeated attempts to be otherwise. Teachers cannot- must not- give up trying, for success may be moments away. Applaud the successes which usually come in small steps. Constantly evaluate what is working and what is not. Be willing to change strategies when the progress to the goal slows. Just because one strategy did not work, does not mean it should be forgotten. Instead, place it in the toolbox within arm's reach to try again later.

Teachers should withhold judgment of the child and overlook what they have been told by previous teachers concerning the student. They should find the positives in each and every child in their classrooms, for these are the teachers who will be best able to help the student with ADHD to find the positives in himself. Teachers need to strive to meet the needs of the diverse learners in their classrooms to ensure that every child is learning. To do this, teachers need to read updated literature as more research results become available. Teachers must also be willing to try new strategies when it becomes clear that the current strategy is no longer meeting the needs of the student.

Administrators must provide support to the teacher and to the parents. Administrators must help teachers become aware of current strategies and theories, and they must listen to the parents who ultimately know the ADHD child best.

Administrators and teachers need to remember that it is the parents' right to refuse medication and to insist on the implementation of strategies instead. It is not the job of

the school personnel to suggest more medication is needed when the students with ADHD are not showing 100% improvement. The school's job is to collect the data- not interpret it. The interpretation of the data remains in the hands of the medical professionals.

The stigma that is sometimes associated with ADHD needs to be eliminated, and the children must be seen for their strengths instead of their weaknesses. The positive characteristics must be highlighted, so the individual with ADHD can grow to be a confident person. To do this, parents, teachers, administrators, and children must all work together to provide a secure environment that encourages risk taking in the academic setting so learning and success can occur.

We must continue to focus on the individual child and his needs and not take the easy road. Working with ADHD students is challenging, but by focusing on the positives, the joys abound. We must all embrace these children and continue to help them grow, remembering it is not perfection that is the goal; it is growth.

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APPENDIX A

The Story of Fidgety Philip *By Heinrich Hoffman*

"Let me see if Philip can
Be a little gentleman;
To sit still for once at table."
Thus spoke, in earnest tone,
The father to his son;
And the mother looked very grave
To see Philip so misbehave.
But Philip he did not mind
His father who was so kind.
He wriggled
And giggled,
And then, I declare,
Swung backward and forward
And tilted his chair.
Just like any rocking horse;-
"Philip! I am getting cross!"

See the naughty, restless child,
Growing still more rude and wild,
Till his chair falls over quite.
Philip screams with all his might,

Catches at the cloth, but then
That makes matters worse again.
Down upon the ground they fall,
Glasses, bread, knives, forks and all.
How Mamma did fret and frown,
When she saw them tumbling down!
And Papa made such a face!
Philip is in sad disgrace.

Where is Philip? Where is he?
Fairly cover'd up, you see!
Cloth and all are lying on him;
He has pull'd down all upon him!
What a terrible to-do!
Dishes, glasses, snapped in two!
Here a knife, and there a fork!
Philip, this is naughty work.
Table all so bare, and ah!
Poor Papa and poor Mamma
Look quite cross, and wonder how
They shall make their dinner now.

APPENDIX B

Inattention Symptoms

- often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- often has difficulty sustaining attention in tasks or play activities
- often does not seem to listen when spoken to directly
- often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- often has difficulty organizing tasks and activities
- often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
- is often easily distracted by extraneous stimuli
- is often forgetful in daily activities

Hyperactive Symptoms

- often fidgets with hands or feet or squirms in seat
- often leaves seat in classroom or in other situations in which remaining seated is expected
- often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- often has difficulty playing or engaging in leisure activities quietly
- is often on the go
- often talks excessively

Impulsive Symptoms

- often blurts out answers before questions have been completed
- often has difficulty awaiting his or her turn
- often interrupts or intrudes on others

adapted from NIMH (2003)