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Effects of Professional Development on Secondary School Teachersâ€™ Self-Efficacy, Knowledge, and Attitudes About ADHD

Rebecca Jeanne Brown
Brigham Young University

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Terisa Gabrielsen, Chair
Rebecca Winters
Melissa Newberry
Paul Caldarella

Department of Counseling Psychology and Special Education

Brigham Young University

ABSTRACT

Effects of Professional Development on Secondary School Teachers' Self-Efficacy, Knowledge, and Attitudes About ADHD

Rebecca Jeanne Brown
Department of Counseling Psychology and Special Education, BYU
Education Specialist

Educators in general are not likely to have an accurate understanding of attention deficit hyperactivity disorder (ADHD), including its etiology, how it presents, or how it is treated. Teachers also report lower satisfaction with students who have ADHD, including frustration with classroom experiences. Additionally, teachers express a desire to learn more about ADHD and how to manage related behaviors in their classrooms. Students with ADHD report wishing their teachers liked them more and understood that they aren't trying to be difficult. Accurate knowledge of ADHD has been shown to improve teacher efficacy. The current research study is adapted from Latouche and Gascoigne's study (2019) in which primary school teachers were provided with ADHD training. Teachers' knowledge of ADHD and their efficacy was measured by survey before and after the training. Results showed that both efficacy and ADHD knowledge increased. This conceptual replication pre–post study determined how relevant ADHD training was for teachers in the author's region: the Mountain West region of the United States. It examined teacher knowledge and efficacy before and after ADHD training in two schools, creating two pre-test/post-test designs. Additionally, the current study's adaptation involved secondary teachers (Grades 7–9) rather than primary school teachers. Results were used to determine if there was a connection between ADHD knowledge and teacher efficacy. Surveys also included questions to determine social validity of the ADHD training. Results showed that ADHD training in the form of a workshop increased teacher efficacy with a small effect size, significantly increased teacher knowledge about ADHD, increased positive attitudes about ADHD, decreased negative attitudes about ADHD, and was a socially valid form of learning about ADHD.

Keywords: attention deficit hyperactivity disorder (ADHD), secondary teacher, self-efficacy, professional development

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CHAPTER 1

Introduction

Attention deficit hyperactivity disorder (ADHD) is a chronic, neurodevelopmental disorder characterized by inattention and/or hyperactivity and impulsivity that also impacts executive functioning (American Psychiatric Association [APA], 2022). Most children with ADHD experience academic challenges (DuPaul & Langberg, 2014). However, despite the knowledge that children with ADHD experience difficulties in school, there is a lack of generally available information about how to help children struggling in this way (Zendarski et al., 2020). Some studies have suggested that a supportive relationship with the classroom teacher may help children function better in school (Baker, 2006; Roorda et al., 2011). Children with ADHD may also perform better in the classroom when teachers recognize symptoms and use appropriate approaches for the condition (Murphy, 2014). However, a review of the literature found that teachers tend to hold negative perceptions of the externalizing behavior of students with ADHD and feel pessimistic about teaching them (Kos et al., 2006a). Various studies from around the world have found that teachers don't have enough knowledge about ADHD and want to learn more (Greenway & Edwards, 2020; Murphy, 2014; Yarde-Leavett, 2018). This indicates the possibility that teachers' negative perceptions may be due to a lack of knowledge about ADHD. Promisingly, Greenway and Edwards (2020) found that a greater knowledge of ADHD in teachers correlated with positive attitude scores about ADHD.

Measuring teacher efficacy in relation to ADHD knowledge and attitudes may provide insight into how to improve the classroom for both teachers and students with ADHD. Teacher efficacy is the teacher's own belief that they can help even the most difficult students (Berman et al., 1977). Because students with ADHD contribute to challenging settings for teachers and

classrooms, self-efficacy plays a significant part in how a teacher will handle challenging ADHD behaviors. While research on teacher self-efficacy in relation to ADHD knowledge and training is limited, studies have found that self-efficacy may improve after teachers receive training (Jarque Fernández et al., 2021; Latouche & Gascoigne, 2019). These findings provide a possible implication that if teachers' knowledge of ADHD is improved, their self-efficacy will also likely improve, leading to better behavior management in the classroom. Improved knowledge and self-efficacy can lead to fewer negative beliefs and viewpoints about students with ADHD and more of a willingness to implement effective classroom interventions. Additionally, as efficacy improves, willingness to try new programs or methods can also improve (Berman et al., 1977). Therefore, as improving ADHD knowledge and providing ADHD training is a helpful method for improving teacher self-efficacy, it is likely that higher self-efficacy will prompt greater teacher willingness to implement new strategies learned in training.

Statement of the Problem

Teachers are faced with many behavioral challenges in the classroom. Symptoms of ADHD may present as challenging behaviors in a classroom, including such behaviors as high activity levels, impulsive behaviors, fidgeting, making noise, making careless mistakes, excessive talking, frequent daydreaming, and losing items (American Psychological Association [APA], 2021; Centers for Disease Control and Prevention [CDC], 2021). Academically, students with ADHD may struggle to remember what they have learned, to start tasks, to follow through with tasks, to process information quickly, to turn in homework, and more (APA, 2021; CDC, 2021). These behaviors can be frustrating for teachers, and with an estimated prevalence of 9.4% among children ages 2–17 (APA, 2021; Wolraich et al., 2019), it is likely that every teacher will have a student with ADHD or ADHD-like behaviors in their classroom. Unfortunately, teachers

are typically not provided with ADHD training in their teaching programs and seem to learn about ADHD by interacting with students with the disorder (Mulholland et al., 2015). As a result, teachers report not knowing how to handle ADHD behaviors, becoming frustrated by those behaviors, and having negative feelings about students who exhibit those behaviors (Anderson et al., 2017). These feelings may be connected to teacher efficacy, and they lead to the question: Can a teacher feel good about their teaching when they don't feel they can handle symptoms of ADHD?

Studies show that teachers do not have an adequate knowledge of ADHD (Mulholland et al., 2015) and teachers have expressed that they would like related training (Greenway & Edwards, 2020; Murphy, 2014; Yarde-Leavett, 2018). Latouche and Gascoigne (2019) showed a connection to teacher efficacy and ADHD training. In their study, teachers demonstrated an increase in ADHD knowledge and efficacy after receiving training through a brief 2-hour workshop. The present study is an adaptation of Latouche and Gascoigne's study. It will attempt to add strength to the theory that ADHD training improves teacher efficacy. If teacher efficacy improves with ADHD training in this study, it will add significant strength to how to assist teachers with challenging classroom behaviors.

Statement of Purpose

The purpose of this study was to examine the relationship between ADHD training and teacher self-efficacy, knowledge, and attitudes about ADHD.

Research Questions

This study addressed the following research questions:

1. In what ways does professional development training change teacher knowledge about ADHD?

2. What knowledge of ADHD do teachers retain over time?
3. In what ways does professional development training change teachers' self-efficacy?
4. What is the social validity of professional development training for ADHD?

CHAPTER 2

Review of Literature

As one of the most common neurobehavioral disorders, and with an estimated 9.4% to 11% of U.S. children ages 2–17 having ADHD (APA, 2021; National Institute of Mental Health; Wolraich et al., 2019), it is likely that every elementary and secondary school teacher will have at least one student with the disorder in their classroom. As such, it is important for teachers to not only recognize behavior associated with the disorder, but to understand how to teach and interact with students with ADHD in a supportive way.

ADHD is a neurodevelopmental disorder characterized by inattention and/or hyperactivity and impulsivity that also impacts executive functioning. There are three types of ADHD: predominantly inattentive presentation, predominantly hyperactive-impulsive presentation, and combined presentation (APA, 2021; CDC, 2021). Inattentive ADHD may be characterized by a lack of focus, disorganization, frequent daydreaming, losing items, and memory challenges. Hyperactive ADHD may present with behaviors such as high activity levels, impulsivity, fidgeting, making noise, careless mistakes, unnecessary risk taking, trouble resisting temptation, difficulty in getting along with others, excessive talking, low adaptability levels, and difficulty in thinking before acting (APA, 2021; CDC, 2021). Combined type ADHD presents with characteristics of both hyperactive-impulsive type and inattentive type. Emotional regulation can also be difficult for individuals with any of the three types of ADHD (Barkley, 2015). ADHD of any type can have significant effects on a child's academic achievement, social interactions, and overall well-being (CDC, 2021; Wolraich et al., 2019). ADHD can last into adulthood and cannot be cured, but its symptoms can be managed (CDC, 2021). It is important to note that, as the inattentive subtype does not present with loud, intrusive, or otherwise

challenging behaviors, it may be less noticed by teachers. As a result, students with this subtype may not be as easily noticed.

Children with ADHD may have trouble in school due to difficulty sustaining attention, staying on task, following rules, and remembering instructions (CDC, 2021). Additionally, impulsivity, disorganization, and hyperactivity can lead to both behavior and academic problems (APA, 2021). Children with ADHD may also be defiant, socially inept, or aggressive in a classroom (APA, 2021). ADHD creates challenges for students to continue working on something they perceive as boring, repetitive, tedious, or lengthy, as these types of tasks cause distraction (Barkley, 2020).

Most children with ADHD struggle with academic impairment in educational settings (DuPaul & Langberg, 2014). Children with ADHD tend to present traits or characteristics with behavioral issues involving distractibility, restlessness, and inattention. These challenges affect academics by making it difficult to complete work or stay on task. Additionally, children with ADHD tend to struggle with executive functions like decision making, organization, pursuing goals, and self-regulation. Students with ADHD are at higher risk for poor academic performance, measured by such indicators as grade retention, failing grades, and school dropout. One systematic review of the literature found that the school setting intensifies ADHD symptoms due to behavior expectations in the classroom, as well as challenges in relationships at school (Gwernan-Jones et al., 2016). Indeed, researchers of the review found that students with ADHD described the classroom as a place that left them “frustrated, angry, drained, and/or imprisoned,” (Gwernan-Jones et al., 2016, p. 91). This same review of the literature also indicated that students with ADHD experience greater perceptions of injustice from teachers.

Because ADHD is described as a continuum (Levy et al., 1997), it presents differently from individual to individual, which could further complicate teachers' ability to recognize symptoms when they see them. Further, common comorbidity of language and learning problems may disguise or overwhelm other ADHD traits, and most children with ADHD also meet diagnostic criteria of another mental disorder (CDC, 2021; Wolraich et al., 2019). Additionally, even children without a diagnosis of ADHD may display characteristics of ADHD, such as hyperactivity or inattentiveness, from time to time. ADHD also has a high comorbidity rate with other neurodevelopmental conditions, which may exacerbate challenges in the classroom (APA, 2021). While these complications may make it difficult for a teacher to recognize ADHD in a student, they also increase the risk that teachers may feel more frustrated with a student with this disorder.

ADHD Impacts

In addition to the potential for negative experiences in the classroom, elementary-aged children with attention problems (as present in children with ADHD) are also at risk for lower academic achievement, not only present in their elementary years but in high school as well (Zendarski et al., 2020). Attention problems significantly impact academic achievement in negative ways, such as repeating a grade and lower reading and math scores (Currie & Stabile, 2006; Fletcher & Wolfe, 2008) or feeling less engaged in school (Zendarski et al., 2020). These impacts can last throughout a child's educational experience and may be, in part, due to teachers' lower expectations of the students (Breslau et al., 2009). One study found that impulsivity and inattention predicted more conflict with teachers, which then predicted students' decreased engagement in school and finally lower academic competence (Portilla et al., 2014).

On the other hand, one study found that students with ADHD tend to rate themselves higher in resilience and resourcefulness when they have good social skills (Hai & Climie, 2021). The study also found that students with ADHD and good social skills related to others more easily and were more likely to ask for help when they needed it. They also rated themselves to be more behaviorally competent in the classroom than students with ADHD and low social skills. As these skills would make a classroom environment more manageable and conducive to learning, teaching social skills to students with ADHD could be a helpful intervention.

Students with ADHD tend to fall behind their peers academically (Loe & Feldman, 2007). While it is well-documented that children with ADHD are more prone to experience difficulties in school, not much is known about how to protect children from struggling in this way (Zendarski et al., 2020). Some studies have suggested that a supportive relationship with the classroom teacher can be a possible strategy to help children function better in school (Baker, 2006; Roorda et al., 2011). Children with ADHD may also find success in the classroom when teachers recognize ADHD and use appropriate approaches for the condition (Murphy, 2014). Yet various studies from around the world have found that teachers don't have enough knowledge about ADHD and want more (Greenway & Edwards, 2020; Murphy, 2014; Yarde-Leavett, 2018). One UK study found that teachers felt that more knowledge about ADHD would help them specifically understand what was behind the children's behavior, including triggers and individual needs, and that more knowledge would help them have greater empathy for their students with ADHD (Ward et al., 2021). Anderson et al. (2017) found that teachers had ambivalent attitudes toward children with ADHD, but interestingly enough, they were aware of that ambivalence, which may or may not be their intention. Awareness of this ambivalence could

possibly be one factor to address when motivating teachers to improve their attitudes by seeking out and accepting training in ADHD.

Teachers' Perceptions, Knowledge, and Attitudes of ADHD

Several quantitative and qualitative studies have looked at teachers' knowledge of ADHD and found a range from a general lack of knowledge to an adequate knowledge (Kos et al., 2006b; Mulholland et al., 2015). Indeed, a search of the curriculum of the top 10 general education teacher training programs in the United States found no classes on ADHD, and only a few classes on disability or special needs (US News, 2021). Teachers' knowledge of ADHD appears to be related to in-service training, and training appears to be more common in teachers who have been teaching longer (Kos, 2008). Additionally, one study found that teachers believe ADHD is diagnosed too often, yet also believe that ADHD behaviors are frustrating and disruptive in the classroom (Kos, 2008). An "inefficient" knowledge of ADHD, or a belief that the disorder is diagnosed too often, can cause teachers to miss signals and signs that children in their classroom may need help or intervention (Mulholland et al., 2015).

Studies that attempt to understand teachers' knowledge of ADHD have found varied results depending on their measures. Jerome et al. (1994) asked teachers to read statements about ADHD and select whether those statements were true or false. In-service teachers' results showed average teacher knowledge responses to be 77% correct (Jerome et al., 1994). However, Sciutto et al. (2000) modified the questionnaire by including three response options—true, false, and don't know—to reduce guesses that resulted in "correct" answers from responders. With this test, Sciutto et al. (2000) found responses to be 47.81% correct, a marked difference. Teachers tend to be able to identify the hallmark characteristics of ADHD but still hold misperceptions about treatment of ADHD, specifically that ADHD can be effectively treated by diet (Sciutto et

al., 2000), that poor parenting is to blame for children's ADHD symptoms and behaviors in the classroom (Gwernan-Jones et al., 2016), or that students with ADHD-behaviors need to try harder to focus on their schoolwork (Mulholland et al., 2015). These findings indicate that teachers may not understand a child's ability to manage their symptoms or the ways in which a teacher can help that student in the classroom. Consistent with previous findings, one study using an updated measuring instrument called the ADHD-School Expectation Questionnaire (ASE; Dort et al., 2020b) found that both pre- and in-service teachers tend to have limited knowledge of ADHD.

Additionally, one systematic review of the literature found that students with ADHD face significant amounts of stigma from adults in schools, yet teachers and administrators do not see the stigma (Gwernan-Jones et al., 2016). A review of the literature (Kos et al., 2006a) found that teachers tend to hold negative perceptions of the externalizing behavior of students with ADHD and feel pessimistic about teaching them. Interestingly, one study found that teachers' ambivalence towards students with ADHD increases as their teaching experience increases (Anderson et al., 2012). Another study found increased age of teachers to be positively correlated with knowledge of ADHD but negatively correlated with attitude (Cueli et al., 2021). What's more, one Australian study of 177 students with ADHD and 208 without ADHD found that children with all three subtypes of ADHD presentation experienced a poorer student–teacher relationship quality than students without ADHD, with student conduct problems in the ADHD group predicting poorer teacher relationship quality (Zendarski et al., 2020). Other studies found that teachers had significantly more stress when interacting with students with ADHD than they did when interacting with students without the disorder (Greene et al., 2002; Mulholland et al., 2015), and that students with ADHD take up a great deal more attention (both negative and

positive) than students without ADHD (Greene et al., 2002). More knowledge of ADHD appears to reduce stigma towards individuals in a classroom with the disorder. Another study looked at stigma beliefs of individuals with ADHD, knowledge of ADHD, and attitudes towards ADHD (Toye et al., 2018). The study found that those who scored lower on measures of stigma while scoring higher on measures of ADHD knowledge showed more positive attitudes towards students with ADHD in the classroom. Those with higher reported stigma scores showed lower knowledge of ADHD symptoms, diagnosis, and treatment.

Researchers also found that in-service teachers described students with ADHD not by their symptoms but with words that indicated antisocial and disruptive traits, like "disobedient," "obstinate," "willful," and "violent" (Anderson et al., 2017). This same study found that pre-service teachers felt apprehensive about teaching students with ADHD, using words like "scared," "fearful," "apprehensive," "afraid," and "nervous" when asked to finish the sentence: "When I think about teaching children who have ADHD, I feel…" In-service teachers responded to the same sentence with words that indicated tiredness: "exhausted," "burnt-out," "pushed to the limit," "burdened," and "over it." Pre-service teachers, however, did report more positive feelings about students with ADHD than in-service teachers. This could suggest that pre-service teachers enter their career with idealism, or it could suggest that they are receiving more ADHD training than their in-service counterparts. However, as previously mentioned, it is unlikely that universities are providing ADHD-specific training (US News, 2021). Even with more positive feelings about students with ADHD, pre-service teachers shared doubt about their abilities (Anderson et al., 2017). In-service teachers, on the other hand, shared confidence in their abilities to work with students with ADHD, even though they described such students in negative ways. This mix of positive and negative feelings from both groups about students with ADHD

indicates an attitudinal ambivalence about the condition (Anderson et al., 2017). Training for teachers can be helpful to mitigate negative perceptions of students with ADHD. One study found that pre-service teachers were more likely to intend to use effective classroom management strategies when they had more positive attitudes toward students with ADHD (Strelow et al., 2020).

Additionally, ADHD training for teachers may help students experience better emotional and academic outcomes, as ambivalent attitudes may lead teachers to make inconsistent actions, decisions, and evaluations that can negatively impact a student's experience in the classroom (Anderson et al., 2017). Teacher education about ADHD would be a benefit to students. When teachers recognize ADHD behaviors as symptoms, rather than attributing those behaviors to family or individual failings, they were more likely to understand their students' behaviors and more empowered to interact with such students in inclusive and helpful ways. Training can help to provide more consistent interactions with students, while also helping teachers recognize both the challenges and the joys of teaching children with ADHD.

Even when teachers have increased knowledge, attitudes about ADHD behaviors remain low, perhaps due to inadequate training. One study found that teachers feel that ADHD behaviors in the classroom are a significant problem, interfering in the teaching and learning process, and that teachers need more training in how to handle them (Yarde-Leavett, 2018). A pilot study (Mulholland et al., 2015) in Sydney, Australia, found that teachers had adequate knowledge of ADHD symptoms, but knew less about assessment and prevalence, and found experience (years teaching) to be a significant predictor in ADHD knowledge. These results are in line with the results of a later study that included teachers in Indonesia (Murtani et al., 2020). Yet, even with an adequate knowledge of ADHD symptoms, teachers in Mulholland et al.'s study (2015) still

held negative feelings about teaching students with ADHD, felt stress from ADHD behaviors in the classroom, and found those behaviors to be irritating (Mulholland et al., 2015). What's more, teachers with more experience and more knowledge about ADHD were less tolerant and less sympathetic to disruptive ADHD behaviors and students exhibiting them. Significantly, teachers (including teachers from a special education or learning support background) felt they needed better training and professional development about ADHD (Mulholland et al., 2015).

A later Australian study found a similar correlation with years in service and teacher beliefs about ADHD: The longer a teacher had been in service, the lower their positive beliefs about ADHD tended to be (Greenway & Edwards, 2020). A later study in the Western Cape that assessed teacher knowledge of ADHD found that while teacher knowledge was adequate, 64% of teachers found ADHD behaviors irritating, 63% experienced stress when interacting with students exhibiting ADHD behaviors, and 80% felt it was challenging to teach students with ADHD behaviors (Yarde-Leavett, 2018). In this same study, most teachers indicated they would like more training about ADHD-appropriate classroom interventions (Yarde-Leavett, 2018). This desire for training was also found in Mulholland et al.'s study (2015).

Another study found that teachers find ADHD behaviors irritating in the classroom, with 73% of university student teachers and 86.5% of teachers reporting that feeling (Cueli et al., 2021). A later study also found that teachers reported wanting more information about ADHD, including how to manage students with the disorder, and specifically identified methods of receiving that knowledge as videos, literature, collegial meetings, or a lecture (Gaastra et al., 2020). When asked, these same teachers said they would be willing to spend an average of 1/2 day to 1 day a year on this training.

As the student–teacher relationship is a strong factor in a student's academic success, it is crucial that teachers understand ADHD and how it impacts students' behaviors. Students with poor relationships with their teachers have been shown to have higher negative externalizing behaviors, lower academic achievement, and worse peer relationships (Ewe, 2019). This is noteworthy because students with ADHD have been shown to have less emotional closeness and poorer relationships with their teachers in which more conflict is reported (Ewe, 2019). High-quality student-teacher relationships, on the other hand, are a protective factor against behavioral challenges in the classroom (Ewe, 2019). A systematic review of the literature found that students with ADHD report more teacher rejection, that they want their teachers to understand their needs and challenges, and that they are not deliberately trying to disturb the classroom through their actions (Ewe, 2019).

Significantly, negative effects are even found in children whose ADHD symptoms are relatively low and don't warrant an ADHD diagnosis, suggesting that teaching strategies for students with significant ADHD symptoms could also positively impact students who might fly under the radar (Currie & Stabile, 2006). Even among special education teachers, ADHD training may not be emphasized or even provided (Mulholland et al., 2015; Omunda, 2021).

Training about ADHD can help teachers' attitudes toward students with ADHD. Greenway and Edwards (2020) found that training is necessary for reversing negative beliefs, yet they were careful to point out that training without school support will not be effective in helping teachers' attitudes about ADHD. Even though research suggests that university teacher preparation programs should provide ADHD training, this is not prevalent in most training programs (Kos, 2008). While there is a large volume of research on ADHD regarding how it affects students and classrooms, and how to support students with the condition, there is a gap

between research and how professionals in school settings actually practice what has been researched (DuPaul & Jimerson, 2014).

One study found that in-service training can help teachers increase their knowledge about ADHD, reduce misconceptions, and reduce doubts about the disorder (Aguiar et al., 2014). Another study found that increases in knowledge gains persisted 6 months after training (Syed & Hussein, 2010). These findings suggest that teachers at all levels and experience would benefit from greater ADHD knowledge and training. Indeed, Greenway and Edwards (2020) found that greater knowledge of ADHD correlated with positive attitude scores about ADHD. Perceptions, knowledge, and attitudes about ADHD may also influence teacher self-efficacy.

Self-Efficacy

Teacher self-efficacy, the teacher's own belief that they can help even the most difficult students (Berman et al., 1977), is important to measure because teachers' perceived effectiveness is related to how teachers work towards the success of their students in their classrooms. Self-efficacy determines whether someone will continue with a difficult situation, whether they will even attempt to face a difficult situation, and how long a person will continue trying when they are confronted with obstacles (Bandura, 1978). Because students with ADHD contribute to challenging settings and situations for teachers and classrooms, self-efficacy plays a significant part in how a teacher will handle challenging ADHD behaviors. When teachers experience low self-efficacy in classroom management, they may also experience less ability to cope with classroom disturbances (Dicke et al., 2014). As students with ADHD often contribute to classroom disturbances, this could mean that teachers with lower self-efficacy may find ADHD behaviors more challenging than teachers with higher self-efficacy. Additionally, teacher efficacy is related to student performance (Berman et al., 1977; Tschannen-Moran & Hoy, 2001).

Because efficacy beliefs increase when one believes they have done well (Tschannen-Moran et al., 1998), providing more knowledge about ADHD for teachers can create greater efficacy, which can then contribute to an environment that is oriented toward the success of more students (Fuller, 2016). Teachers with high self-efficacy have been shown to be less likely to criticize a student, more likely to continue working with a struggling student, more likely to try new approaches, more likely to display fairness, and more likely to work with struggling students than they are to refer them to special education (Tschannen-Moran et al., 1998).

Additionally, teacher efficacy is related to student achievement (Tschannen-Moran et al., 1998). Fuller (2016) found that increasing teachers' knowledge and perceptions of ADHD, their knowledge of characteristics of ADHD, and their knowledge of treatment for the condition correlates with teacher-perceived effectiveness in the classroom. Indeed, one study found that teachers' perceived efficacy in teaching children with ADHD was higher when they had more knowledge of ADHD (Soroa et al., 2016), indicating that knowledge of ADHD is related to teachers' perceived ability to work with students with ADHD.

Another study found that a 2-hour in-service program about ADHD resulted in both increased knowledge about ADHD and increased teacher-perceived confidence in working with such students (Niznik, 2005). This is significant because it demonstrates that focused training not only improves ADHD knowledge, but it can also empower teachers to take that knowledge to their interactions with their students. Niznik (2005) found that teachers specifically felt more confident about creating an accepting classroom environment for students with ADHD and assisting classmates to be accepting and understanding of students with ADHD. Teachers did not report an improvement in knowing how to manage stress caused by students with ADHD or how

to determine if behavioral progress is being made. This suggests that training should go deeper into behavior management strategies.

Parents and teachers alike struggle with self-efficacy in helping children with ADHD succeed academically (Rogers et al., 2009). Indeed, one study found that parents even perceive school to be a less-inviting place for their children with ADHD (Rogers et al., 2009). Teachers also don't feel supported when it comes to how to handle behavioral challenges. One study found that teachers' only option of support outside the classroom was to send a child to the office (Arcia et al., 2000). Without support or an understanding of how to manage challenging ADHD behaviors, teachers' self-efficacy will likely suffer. Because self-efficacy is related to how a teacher will interact with students and challenging situations, it is important that teachers know how to manage challenging ADHD behaviors in the classroom.

Paradoxically, teachers lack confidence in working with students with ADHD. Ward et al. (2021) found that teachers felt a lack of confidence in managing the classroom when a child with ADHD behaviors is present. These teachers relied on teaching assistants, who were able to get to know the child better. However, when the teaching assistant was not present, the teachers' confidence diminished.

While research on self-efficacy in relation to ADHD knowledge and training is limited, one study found that when teachers were provided with training through a school year, their self-efficacy surrounding teaching students with ADHD significantly improved over that of teachers in a control group who did not receive training (Jarque Fernández et al., 2021). Additionally, the teachers who received training significantly increased their knowledge of ADHD while those in the control group did not. The teachers in the control group even experienced a significant reduction in self-efficacy in teaching students with ADHD. A meta-analysis found that when

teachers were provided with ADHD training, their ADHD knowledge significantly improved, with a large effect size (Ward et al., 2020). Face-to-face ADHD training was shown to be more effective than online training. In some studies examined in this meta-analysis, teachers' ADHD knowledge decreased over time, suggesting the need for ongoing training opportunities. Importantly, however, knowledge levels still stayed above pre-training levels. Additionally, teacher behavior improved overall, and teachers reported an increase in the use of behavior intervention strategies in their classrooms.

Another study used the Knowledge of Attention Deficit Disorders Scale (KADDS) to test teacher knowledge ahead of a brief in-service training, after the training, and 1 month later in a follow-up (Latouche & Gascoigne, 2019). The study also examined teacher efficacy with the Teachers' Sense of Self-Efficacy Scale (TSES; Tschannen-Moran & Hoy, 2001). All results were compared with a control group. Those teachers who had received the in-service training showed a significant increase in teacher knowledge and a small but significant increase in self-efficacy. The control group did not increase in ADHD knowledge or teacher self-efficacy. While both knowledge and self-efficacy decreased at the 1-month follow-up for the experimental group, they still remained higher than pre-intervention levels, suggesting that brief in-service trainings about ADHD help to improve both ADHD knowledge and teacher self-efficacy.

These findings provide a possible implication that if teachers' knowledge of ADHD is improved, their self-efficacy will also likely improve, leading to better behavior management in the classroom. Improved knowledge and self-efficacy can lead to fewer negative beliefs and viewpoints about students with ADHD and more of a willingness to implement effective interventions in the classroom. Additionally, as efficacy improves, willingness to try new programs or methods also improves (Berman et al., 1977). Therefore, as improving ADHD

knowledge and providing training is a helpful method in improving teacher self-efficacy, it is likely that higher self-efficacy will prompt greater teacher willingness to implement new strategies learned in ADHD training.

Teaching Students With ADHD

Teachers express a desire to learn more about ADHD, as well as a desire to learn practical strategies for how to manage ADHD behavior (Cueli et al., 2021; Greenway & Edwards, 2020; Kos et al., 2006a; Mulholland et al., 2015; Murphy, 2014; Ward et al., 2021; Yarde-Leavett, 2018). Empirically-supported classroom interventions to support students exist, but may not be widely implemented due to a gap in information shared between researchers and practitioners (Dort et al., 2020a).

Additionally, teachers' lack of knowledge about ADHD or negative attitudes toward children with ADHD impacts whether and how classroom interventions are applied (Dort et al., 2020b). For example, one study found that teachers used reinforcement correctly for their students with ADHD, but only used it once or twice a day, which was not enough to be effective, considering students with ADHD often require more frequent reinforcing (Kos, 2008). Of concern, one study suggests that ADHD training that involves a heavy focus on the difficulties presented by students with ADHD may be linked to negative feelings when encountering students with the disorder, suggesting that workshops about ADHD should assess teachers' emotional reactions to students with ADHD before and after the workshop. Additionally, teachers' stress reactions and confidence levels surrounding students with ADHD should be assessed (Ohan et al., 2011).

It has been shown that one protective factor that can shield students with ADHD against future negative outcomes is teachers who are knowledgeable and supportive (DuPaul et al.,

2011). Additionally, school-based interventions were shown in one meta-analysis to produce moderate to large effects on functioning of students with ADHD in both behavioral and academic areas (DuPaul et al., 2012). The researchers of the meta-analysis concluded from these results that school-based interventions should be in place for students with ADHD. Loe and Feldman (2007) suggest improving instruction and environment ("improved universal design") as opposed to attempting to make the student with ADHD fit into the school's environment.

Additionally, education about ADHD can help to change teacher perspectives of the child and the condition. If teachers view ADHD as a different way of learning or if they learn about the strengths of ADHD, they may be more interested in seeking out and using classroom strategies that are more effective for students with ADHD (Sherman et al., 2006). Children with ADHD and their teachers and parents can benefit from specific skills training (van der Oord & Tripp, 2020). These skills should include emotional regulation techniques, frustration management, and experiencing delay.

As teachers tend to have only an adequate knowledge of ADHD (Kos et al., 2006; Mulholland et al., 2015) as well as ambivalent attitudes toward students with ADHD (Anderson et al., 2017), one way to increase support from teachers is to allow teachers to process their disparate information about ADHD. Anderson et al. (2017) recommends that teachers identify conflictual feelings and beliefs, as well as their ambivalence between their actions and beliefs. Additionally, Anderson et al. (2017) recommends in-service workshops that include a safe and supportive environment, evidence-based strategies for improving classroom behavior, and supportive emotional regulation strategies.

Psychoeducation

It is helpful to know that children with ADHD will likely have a difficult time adapting to different environmental demands (van der Oord & Tripp, 2020). With this understanding, teachers can be sensitive to how the demands in their classroom may impact students with ADHD. Additionally, children with ADHD respond to motivation differently than children without ADHD (van der Oord & Tripp, 2020). Children with ADHD may give up more easily when tasks seem too difficult, have a difficult time understanding what is expected of them without explicit instruction, experience frustration with delays in rewards, and experience frustration when rewards are not immediately given (van der Oord & Tripp, 2020). Knowing this, teachers may experience a reduction in frustration when encountering ADHD behaviors or when typical reinforcement activities do not work for their students with ADHD.

Strategies

Strategies that are helpful in instructing students with ADHD include giving only one instruction at a time, breaking complicated tasks down into smaller steps, getting the child's attention before giving a command, and increased opportunities for reinforcement (Barkley, 2020; Wolraich et al., 2019). Common accommodations for students with 504 plans (Section 504 of the Rehabilitation Act of 1973, a plan that ensures a child with a disability in a public school receives accommodations to ensure academic success and access to the learning environment) include extended time for assignments and tests, modified homework assignments that reduce the required load, keeping study materials in class, and teachers' notes shared with the student (Wolraich et al., 2019). Additionally, reducing the overall noise level in the classroom can help students with ADHD experience fewer distractions (Loe & Feldman, 2007).

Contingency management strategies, including token economies, while used frequently, have not been shown to normalize classroom behavior for students with ADHD (Greene, 1995). Dr. Ross W. Greene's *The Collaborative and Proactive Solutions* intervention model advocates for focusing on, and solving, the problems *behind* challenging behaviors as opposed to focusing on, and modifying, problem behaviors (Greene, 2018). This provides an emphasis on skill deficits (e.g., low-frustration tolerance, difficulty solving problems, lack of adaptability), as opposed to performance deficit. This contrasts with common classroom management practices, which focus on incentives and punishments, without consideration of skill deficits. Greene (2018) emphasizes that these incentive and punishment practices do not solve the underlying problems that are causing difficult behavior in students with social, emotional, and behavioral challenges, such as students with ADHD. Indeed, one study that interviewed a variety of educators found that rewards were ineffective for students with ADHD when skill deficits are present (Moore et al., 2017).

DuPaul et al. (2011) identified useful antecedent interventions for students with ADHD. Antecedent interventions are used to prevent inattentive, hyperactive, and disruptive ADHD behaviors from happening in the first place. Posting and reviewing classroom rules can be helpful for students with ADHD. However, rules should be displayed and reviewed with certain things in mind: (a) rules should tell students what to do, not what to avoid; (b) teachers should keep rules to just a few, and they should be displayed where all students can see; (c) students with ADHD may benefit from having the rules posted closer to them, such as on their desk; (d) students also benefit when teachers praise them often for following the rules; (e) students with ADHD also may benefit when their assignments are modified by reducing the length. Once

students can successfully complete shorter assignments, teachers can gradually increase the length of assignments to match what is expected of the rest of the class.

Students with ADHD have also been shown to engage more while exhibiting less disruptive behavior when they are offered choices in assignments. These choices all end with a similar outcome, but the student chooses how they prefer to get there. For example, they may choose from a menu of activities that all provide practice in the same skill. Project-based learning may also be an effective way to use choice (DuPaul et al., 2011; Loe & Feldman, 2007). DuPaul et al. (2011) also pointed out that collaboration between teachers and school psychologists is a critical component of helping a child with ADHD succeed. In a successful collaboration, the teacher takes the role of the expert on the curriculum, classroom, and student's difficulties, while the school psychologist is the expert on empirically-supported interventions.

Training interventions that provide skills for organization and time management are well-established effective approaches for youth with ADHD and are beneficial for younger children as well (Moore et al., 2017; Wolraich et al., 2019). Strong family–school partnerships have also been shown to be effective in managing ADHD in the classroom (Wolraich et al., 2019). More physical activity can help to reduce disruptive behavior in students who display hyperactive behaviors (Loe & Feldman, 2007).

Ward et al. (2021) found that teachers were more effective at implementing strategies when they collaborated with other staff members by sharing information about behavior plans, reflecting on incidents, and sharing helpful strategies for children with ADHD at handoff from one year to the next. Building quality relationships with students with ADHD was also identified as a critical strategy in helping the child to succeed in the classroom. Another study found that teachers who tried to help students with ADHD placed great emphasis on their relationship with

the student, believing that a positive relationship that employs empathy would help the student be more successful in the classroom (Moore et al., 2017). Rief (2016) suggests that positive relationships can be built when a teacher does such things like use respectful language, greet students each day, keep high expectations of students while providing support for students to meet those expectations, showing empathy and sensitivity to students' needs, creating lessons that are engaging and fun, keeping a sense of humor, and refraining from using corrective language that embarrasses students in front of peers.

Classroom management strategies that help students with ADHD have been shown to also benefit other children in the classroom (Gaastra et al., 2016). A meta-analysis showed that academics in other classmates improved with antecedent-based interventions for students with ADHD. Disruptive behavior in all classmates decreased with self-regulation interventions. This indicates that ADHD-behavior management approaches are worthwhile to implement in a classroom, even when only a few students with ADHD are present. As teachers are already tasked with managing multiple challenges in the classroom, these antecedent-based interventions for students with ADHD would not add extra burdens to a teacher's classroom management strategy and time constraints.

Rewards and Punishments

Teachers should take caution with using rewards as a behavioral control strategy with children with ADHD. Children with ADHD may not respond to rewards in the same way that children without ADHD tend to do. Children with ADHD have challenges with self-regulation and may become frustrated when a reward is not given when they do not meet expectations (van der Oord & Tripp, 2020). Additionally, children with ADHD may struggle to wait for delayed

rewards, as waiting for a reward causes a disruption in the dopamine response (van der Oord & Tripp, 2020).

Mild punishment has been shown to improve on-task behavior in students with ADHD in the short term, but this effect does not appear to last (van der Oord & Tripp, 2020). In fact, mild punishment can lead children with ADHD to focus more on avoiding punishment (van der Oord & Tripp, 2020). It can also lead to reduced accuracy in their tasks, decreased engagement in their activities, and increased emotionality (van der Oord & Tripp, 2020). Children with ADHD may even be more sensitive to punishment than typically developing children (van der Oord & Tripp, 2020).

Strengths-Based Approaches

Considering the negative perception teachers may have of students with ADHD and the additional challenges students with ADHD face in a typical classroom, these students are particularly suited to benefit from a strengths-based approach to classroom learning. Research on the positive characteristics of ADHD is limited, but one study found that pointing out the strengths of the child with ADHD was shown to be an effective classroom management strategy because it taught the other children in the classroom that the child with ADHD had positive things to offer to the class (Ward et al., 2021). Indeed, adult perceptions of children are an important factor in children's social status, as one study of girls in a summer camp found that popularity with adults predicted lower levels of aggression in girls (Mikami & Hinshaw, 2003). Common deficits caused by ADHD cannot be resolved with behavior training and medication alone, and these deficits persist into adulthood, so a reconceptualization to a strengths-based approach can help students with ADHD find success despite their challenges. Recognizing strengths is an important first step, and children with ADHD have been shown to demonstrate

strengths in logical thinking and reasoning, creativity, and emotional intelligence (Climie & Mastoras, 2015). Children with ADHD may be creative and energetic, while also having a desire to please their teachers. Teachers can help students use these traits by giving students with ADHD special tasks that get them moving, teaching with hands-on lessons, and using a variety of media (Sherman et al., 2006). These teaching methods typically benefit all children in the classroom. Shifting from a deficit-based perspective may help the teacher view the student differently, recognizing that the disorder can coexist with strengths (Climie & Mastoras, 2015).

A strengths-based assessment is one way to recognize the strengths of students with ADHD. Strength-based assessments measure the child's skills that contribute to a sense of accomplishment, allow the child to cope with stress, improve relationships for the child, and lead to greater academic development (Nickerson & Fishman, 2013). This would reveal both what the student is struggling with and the supports and strengths that could be used to support their success. It also can counter the negative perceptions a teacher may have about the student and help the teacher design strength-based intervention. In contrast to typical ADHD interventions like token systems and daily report cards that focus teacher attention on negativity, this approach focuses the attention on strengths (Climie & Mastoras, 2015). Strengths-based assessments have been shown to facilitate better teacher/student relationships and help teachers create individualized plans that students and parents more readily accept. In therapy situations, strengths-based assessments have even been shown to help decrease externalizing and internalizing behaviors (Nickerson & Fishman, 2013).

When teachers have a clear understanding of ADHD, both its strengths and weaknesses, and how to work with students with ADHD, it is likely that those students will experience greater success academically and behaviorally. As a result, teachers may feel not only like they

have greater control in the classroom, but they may experience greater efficacy as their students experience success. This is the basis for what this research study attempts to discover.

CHAPTER 3

Method

Participants

Two groups of middle school teachers were recruited to participate in a 1-hour ADHD professional development workshop. To ensure that participants from both groups were as similar as possible, teacher participants were recruited from two middle schools in the same school district (geographical catchment area) in the Mountain West region of the United States. Teachers participated in the ADHD workshops with the permission and encouragement of their principals. Continuing education credit was offered to both groups to attract as many teachers as possible.

Group 1

Teachers from a suburban middle school participated in the workshops by invitation in an after-school professional development meeting, per the principal's preference. Their principal offered a $25 stipend for the 1-hour workshop as an incentive because the workshop was beyond the regular school day for the teachers. Teachers were given a continuing-education certificate from the researcher for attendance, but participation in data collection was not incentivized.

Group 2

Teachers from a second suburban middle school participated in the workshop during a morning professional development meeting, per the principal's preference. This meeting was mandatory, and no stipend was offered. Teachers were given a continuing-education certificate from the researcher for attendance, but participation in data collection was not incentivized.

Settings

Two middle schools were recruited for the study. The workshops took place on location

in each school and were conducted by the researcher. The workshops took place in a room in the school building with adequate seating and projection capability (e.g., library or auditorium).

Setting 1

The first school is a public middle school, serving seventh to ninth graders, in a large suburb setting in the Mountain West with a population of 1,375 (Institute of Education Sciences, 2021). A slight majority (56%) of the student population scored at or above proficient level for math and 53% scored at or above proficient level for reading in 2021. Minoritized student enrollment is 15%, and 11% of the student population includes economically disadvantaged students. The school employs approximately 55 general education teachers and 4 special education teachers.

Setting 2

The second school is a public middle school, serving Grades 7 to 9, in a large suburb setting in the Mountain West with a population of 1,507 students (Institute of Education Sciences, 2021). Slightly less than a majority (45%) of the student population scored at or above proficient level for math and 44% scored at or above proficient level for reading in 2021. Minoritized student enrollment is 32%, and 17% of the student population includes economically disadvantaged students. The school employs approximately 47 general education teachers, 4 special education teachers, and several support staff.

Measures

A survey measuring teacher knowledge about ADHD, teacher efficacy, and social validity of the ADHD workshop was created for the study. The survey took approximately 10 to 20 minutes to complete. This survey combined selected questions from four surveys found to be reliable and valid: the Knowledge of Attention and Disorder Scale (KADDS; Sciutto et al.,

2000); the ADHD-Specific Knowledge and Attitudes of Teachers (ASKAT; Mulholland, 2016); the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Hoy, 2001); and the Primary Intervention Rating Scale (PIRS; Wright et al., 2019).

The survey also included four open-ended questions from Anderson et al.'s study (2017). Teachers were asked to write their thoughts about four attitude components, completing the following sentences: (a) on stereotypic beliefs: "Children with ADHD are…"; (b) on teaching beliefs: "Children who have ADHD affect the teaching process in the following ways…"; (c) on affect: "When I think about teaching children who have ADHD, I feel…"; and (d) on past behaviors: "In the past I have acted in the following ways when teaching a child with ADHD:" These open-ended questions were chosen because when used in Anderson et al.'s study, they revealed beliefs that are not captured with the other selected instruments. Additionally, the answers provided qualitative data that can enrich quantitative data captured by the above instruments.

To increase compliance in survey-taking and to reduce the likelihood of fatigue from the participants, a reduced number of questions from each instrument were included in the complete survey for the present study. The questions selected were reviewed by the thesis committee.

The survey was given to both groups of teachers in November 2022, 7 days prior to the intervention. It did not include social validity questions from the PIRS at this point, as participants had not yet received the workshop training. The survey was then given again to each school within 30 days of workshop completion. This final survey also included social validity questions from the PIRS to determine how effective the workshop was perceived.

Knowledge of Attention Deficit Disorders Scale (KADDS)

Fifteen questions from the KADDS survey (Sciutto et al., 2000) about ADHD knowledge appeared on the survey for both groups of teachers at multiple points in the experiment. Questions from this survey were chosen because the KADDS survey was found to have good internal consistency and validity (Sciutto et al., 2000). Additionally, it has been shown to be sensitive to teacher characteristics such as previous training in ADHD (Sciutto et al., 2000). In contrast to previous surveys about ADHD knowledge, the original 39-question survey attempts to eliminate guesses by including an answer selection of "I don't know" in addition to true and false. This helps to distinguish more accurately between what teachers do not know and what teachers believe inaccurately, giving a more complete picture of teachers' ADHD knowledge.

The KADDS survey measures teachers' knowledge of ADHD in three areas: symptoms/diagnosis of ADHD, treatment of ADHD, and general information about the nature and causes of ADHD. These areas were chosen by the KADDS survey's authors because they are relevant to educational interventions. Additionally, the survey uses both negative and positive indicators of ADHD to test for negative response bias.

In the present study, some of the wording was changed to reflect updated understandings of person-first language. Additionally, some of the questions were eliminated as they are outdated or irrelevant to the workshop the researcher was presenting in this study. For example, question 5 states: "In order to be diagnosed with ADHD, the child's symptoms must have been present before age 7." However, the current *Diagnostic and Statistical Manual of Mental Disorders 5th Edition, Text Revision* (DSM-5-TR) recently adjusted the diagnosing condition to include a cutoff of the age of 12 rather than 7 (APA, 2021). This question, and others relating mostly to treatment, which were not discussed in the workshop, were eliminated from the survey

for this study. Given these criteria, 15 of the 39 KADDS questions were used in the study questionnaire. Although removal and slight alteration of some questions prohibits the use of an overall score on the KADDS, our analysis was not based on overall scoring of any of the contributing questionnaires. Instead, the analysis for the present study measured the percentage of correct questions prior to the workshop and the percentage of correct questions after the workshop.

ADHD-Specific Knowledge and Attitudes of Teachers (ASKAT)

"True," "false," and "I don't know" questions (n = 11) and 18 Likert questions from the ASKAT (Mulholland, 2016) were included on the survey for both groups of teachers at multiple points in the experiment. The ASKAT measures both knowledge and attitudes of teachers about ADHD. The author of the survey analyzed questions that were used in surveys in previous studies about ADHD knowledge and chose to include them based on their frequency. The author of the survey created questions about attitude that were analyzed by a panel of experts. The survey was found to be a valid and generalizable research instrument (Mulholland, 2016). In the present study, 12 questions from the ASKAT were chosen to address knowledge about ADHD because they highlight common myths about the condition, thus providing a helpful measure as to whether teachers agree with myths or not. Questions about knowledge are presented similarly to the KADDS, with "yes," "no," or "I don't know" options. Included questions about attitude were answered on a 6-point Likert scale, which assisted in providing rich comparisons of detailed information from pre-workshop and post-workshop.

Teachers' Sense of Efficacy Scale (TSES)

As in Latouche and Gascoigne's study (2019), teacher self-efficacy was measured with questions from the short-form TSES (Tschannen-Moran & Hoy, 2001). This scale measures

teachers' self-evaluations of their own abilities in student engagement, instructional practices, and classroom management. Participants use a 9-point Likert-type scale to rate their abilities in these areas. Questions (examples) include the following:

1. How much can you do to control disruptive behavior in the classroom?
2. How much can you do to motivate students who show low interest in schoolwork?
3. How much can you do to help your students value learning?
4. How much can you do to calm a student who is disruptive or noisy?
5. How much can you do to get children to follow classroom rules?
6. How much can you do to get students to believe they can do well in schoolwork?
7. How well can you establish a classroom management system with each group of students?
8. To what extent can you provide an alternative explanation or example when students are confused?
9. How much can you assist families in helping their children do well in school?
10. How well can you implement alternative teaching strategies in your classroom?

To reduce the length of the overall survey and potentially reduce survey fatigue in respondents, two questions of the TSES were eliminated in the survey. Those questions were: To what extent can you craft good questions for your students? How much can you use a variety of assessment strategies? These questions were not relevant to attitudes and knowledge.

This scale was chosen because internal consistency for the TSES total scale score and its subscales has been found to be high (.94), and it is considered a reliable and valid instrument (Tschannen-Moran & Hoy, 2001). As in Latouche and Gascoigne's study (2019), the present study used the total scale score to measure teacher efficacy.

Primary Intervention Rating Scale (PIRS)

Teachers are more likely to implement the knowledge and strategies of the ADHD workshop if they believe the workshop is worthwhile (Wright et al., 2019). To understand teacher perspectives of the ADHD workshop, questions from the PIRS were used to measure social validity (Wright et al., 2019). This survey includes 17 questions with answers on a 6-point Likert scale. The PIRS was found to be reliable and structurally valid, with replication occurring across elementary, middle, and high schools (Wright et al., 2019). One limitation of the PIRS was the absence of qualitative data. To account for this limitation and to gather additional information about teachers' experiences with the workshop, the measure for this study also included open-ended questions about teachers' experiences in and perceptions of the workshop. Because the questions from the PIRS are intended to measure the effectiveness of the ADHD workshop, PIRS questions were not included on the pre-intervention survey in this current study, as the teachers would not have had the intervention at that point. These questions only appeared on the survey after the groups had the ADHD workshop.

Intervention

The intervention was an approximately 1-hour training workshop delivered to teachers in each school 7 days after the survey was administered to teachers online by invitation from the researcher. It was presented with presentation slides and included time for discussion. As the workshop was brief, it focused on three main points of ADHD: (a) defining ADHD, (b) how attention works in an ADHD brain, using the concept of the "interest-based nervous system" from William Dodson (Dodson, 2024), and (c) executive dysfunction, using the concept of an "intention deficit" from Russell A. Barkley (Barkley, 2024). These topics were given 20 minutes each in the presentation as follows:

1. The researcher taught about the concept for 8–10 minutes.
2. She gave a prompt to teachers and provided 2–4 minutes for them to respond to the prompt in written form.
3. She asked teachers to discuss their responses in small groups for 3 minutes.
4. Following small-group discussion, she presented expert recommendations in the presentation slide deck for 2–4 minutes (slides were shared with teachers, and were also provided handouts that addressed the topics discussed in the workshop).

The workshop topics including the following: (a) dispelling common myths about ADHD; (b) explaining ADHD characteristics and common strengths and challenges; (c) providing actionable steps teachers can take to capitalize on strengths and account for challenges; and (d) a review at the end to assist in maintaining knowledge. Ward et al. (2020) found that problem-solving discussions made workshops more effective. As such, the workshop included time for problem-solving discussions and to practice skills.

The workshop was conducted by the researcher, a school psychology graduate student who presented material, answered questions, and provided feedback to participants during breakout sessions. At the conclusion of the workshop, participants received a digital library of handouts to cover useful information from the workshop, including common ADHD behaviors, classroom management strategies, and links to additional information. The handouts were also emailed to all participants after the workshop to increase the likelihood that participants were able to access the information when needed.

Data Collection

The researcher requested teachers complete their survey 7 days before their scheduled workshop. Teachers were then provided with the in-person ADHD workshop in their respective

settings. Similar to Latouche and Gascoigne's study (2019), teachers were asked to complete a final survey within 5 days after the completion of the workshop. Data collection occurred in November and December of 2022. All handouts, slides, and materials were identical in both workshops.

A pre–post design was chosen because it provided multiple measures to judge the effects of the ADHD workshop across different school populations (demographics) and cultures (faculty and school). At the first survey, the researcher was able to get an understanding of ADHD knowledge, attitudes, and efficacy in general based on experience and prior knowledge of the teachers. Once the ADHD workshop was given to each group, followed by post-training survey for both groups, the researcher measured differences in ADHD knowledge, attitudes, and efficacy. It was expected that both groups would increase in knowledge, attitudes, and efficacy, strengthening the validity of the workshop at the same rate, with no differences between the two groups. Change was expected over time, but no significant differences between groups was expected (null hypothesis).

Research Design

A conceptual replication of Latouche and Gascoigne's study (2019) was conducted to measure the effectiveness of ADHD training on teachers' efficacy and ADHD knowledge with the adaptation of target audience, which were secondary educators. Additionally, the present study adapted Latouche and Gascoigne's study by running two pre-tests and post-tests. One feature that was not implemented was the wait-list control design (with an intermediate survey). This feature was considered prohibitive for teachers in our settings. Latouche and Gascoigne's study was chosen because its format produced the largest ADHD knowledge gain in published research while requiring the least amount of time and resources (one facilitator at each school

location conducting one brief workshop). The current study was a repeated measures research design with replication across settings measured by mixed methods.

A within-participants repeated-measures design assisted in answering the research questions through surveys at pre-workshop and post follow-up after the workshop. Open-ended survey question responses were analyzed to answer all questions.

Data Analysis

Each survey question measuring knowledge was given a score of 1 if the correct item was selected. “I don’t know” and incorrect answers were given a score of 0. A total score of 26 was possible.

Inferential statistical methods were used to determine changes following the intervention. A *t*-test was calculated to compare mean scores across pre- and post-intervention surveys. Unfortunately, the respondents who took the pre-surveys were not necessarily the same respondents who took the post-surveys. This was verified by the inclusion of a simple code to identify individuals completing the survey without disclosing personal information. Therefore, all surveys were combined from both schools to create expected results based on the pre-surveys ($n = 30$). This expected-results *t*-test mean was compared to the results in the combined post-surveys to determine if a change had occurred.

Open-ended responses were analyzed using Consensual Qualitative Research (CQR; Hill & Knox, 2021) analytic methods. Open-ended responses were read by the author who derived and generated themes. The second step was an expert audit (by Dr. Gabrielsen) and review of the themes identified in the first step, making any changes deemed to strengthen findings in terms of consistency and fit with existing literature. Novel themes were also included. Final themes were then reviewed by both and agreed upon for inclusion in these results.

CHAPTER 4

Results

This study sought to answer the following questions:

1. In what ways does professional development training change teacher knowledge about ADHD?
2. In what ways does professional development training change teacher self-efficacy?
3. What knowledge of ADHD do teachers retain over time?
4. What is the social validity of professional development training for ADHD?

Changes in Teacher Knowledge about ADHD

Results from the pre- and post-surveys show there was a significant difference between pre- and post-scores regarding knowledge with a medium effect size (see Table 1). Because the same participants did not take the pre- and post-surveys, the pretest mean was used as the expectation mean. The pre-test scores were compared to the post-test scores, which showed a significant difference in ADHD knowledge from pre-training to post-training.

Table 1

Pre-Test Post-Test Score Comparisons

ADHD Scales	Pre-Workshop *M*(*SD*), range	Post-Workshop *M*(*SD*), range	*t(df)*	*p*	Cohen's *d*
Knowledge	18.8 (3.5) 11–24 *n* = 30	21.1 (2.9) 12–25 *n* = 54	*t*(53) = 5.79	<.001	.72
Negative attitude	26.2(4.3) 17–35 *n* = 29	23.5 (6.1) 10–36 *n* = 49	*t*(48) = -3.05	.004	-.51
Positive attitude	33.1 (3.0) 26–40 *n* = 29	36.0 (5.6) 24–48 *n* = 51	*t*(50) = 3.66	<.001	.65
Efficacy	36.8 (6.4) 24–50 *n* = 28	38.8 (5.5) 29–50 *n* = 24	*t*(23) = 1.77	.090	.34

Responses to open-ended questions also showed a qualitative difference. Prior to the workshop, teachers responded to the prompt, "Children who have ADHD affect the teaching process in the following ways:" with words that suggest students with ADHD are disruptive and negatively impact the teacher or classroom:

"disruption, confusion, non-attentive."

"They can be disruptive and it can be hard to manage the disruptions."

"can make it hard to manage the class as a whole if they are being overly disruptive."

"Can impact the pacing of the lesson and draw unnecessary attention to themselves."

"by distracting other students' learning."

Following the workshop, some teachers still shared that students are distracting, but they added a level of positivity that did not exist in the questions during the surveys taken before the workshop:

"can be distracting but also add to depth of learning."

"Distract other students and can come up with great ideas and connections"

"(unmedicated ADHD) cause distractions, sometimes add insight"

Additionally, following the workshop, teachers noted that students with ADHD require adjustments in instruction. They used positive words, like "they encourage differentiated instruction," and they detailed the ways in which teachers improve as a result of teaching students with ADHD:

"Make the teacher more deliberate and better."

"They encourage me to think on my feet and vary lessons in order to keep everyone interested and learning."

"Provide greater detail and clarification which helps the whole class."

"expand possibilities for differentiated instruction, require targeting multiple senses, diversify the lessons we teach, the way we partition information."

"Help teachers build character"

"They make classroom diverse and interesting because we do fun things to increase engagement."

Qualitative data showed that after the workshop, respondents noticed both the reality of ADHD challenges as well as the strengths of students with ADHD. For example, in response to the prompt "Children with ADHD are…", respondents shared after the workshop:

"still trying their best to be successful."

"children that have trouble paying attention or focusing on one task."

"kids who may need more support at school but also have their own personality traits that are awesome."

"capable of learning and behaving appropriately with behavior modification and medication (if necessary)."

"intelligent, fun, caring, and they truly want to do the right things."

"creative, resourceful, and whole, and benefit from supportive accountability."

Changes in Teacher Self-Efficacy

Efficacy scores showed an increase of 2 points in the mean score immediately following the workshop. This increase showed a small effect size, indicating that teacher efficacy did increase following the workshop, but not at a statistically significant level in the analysis.

Qualitative data showed a willingness in some respondents to adjust teaching to better meet the needs of students with ADHD, however, suggesting that respondents feel an ability to manage the challenges presented by students with ADHD. For example, in response to the question, "Children who have ADHD affect the teaching process in the following ways," respondents shared after the workshop:

"[They] Make the teacher more deliberate and better."

"They encourage me to think on my feet and vary lessons in order to keep everyone interested and learning."

"[They] provide greater detail and clarification which helps the whole class."

"[They] help teachers build character."

"They make classrooms diverse and interesting because we do fun things to increase engagement."

"[They] can be distracting but also add to depth of learning"

Knowledge of ADHD Retained Over Time

Because we received a low response rate for matched surveys, we did not have a way to measure the ADHD knowledge teachers retain over time through an additional survey. Because an additional survey would not have been informative, we had to eliminate this question from analysis.

Social Validity of the ADHD Training

Participants' responses on the social validity portion of the post-survey showed an overall mean of 4.93(*SD* = .091) with 5 representing "strongly agree" (indicating very positive responses to the following statements on a Likert-type scale of 1–5:

1. I would suggest this workshop to other teachers
2. I plan to use information from the workshop in my classroom
3. I have already used information from the workshop in my classroom
4. I feel more prepared to work with students with ADHD after attending this workshop
5. I enjoyed the workshop

Table 2

Social Validity Means

Question	*M*	*SD*
"I would suggest this workshop to other teachers."	5	1.02
"I plan to use this information from the workshop in my classroom."	5.05	.99
"I have already used information from the workshop in my classroom."	4.72	1.12
"I feel more prepared to work with students with ADHD after attending this workshop."	4.88	1.02
"I enjoyed the workshop."	4.94	1.2

Note. Scale: 1 = Strongly Disagree – 5 = Strongly Agree

These results indicate that participants, on average, agreed with the statements, with the lowest average score for the question, "I have already used information from the workshop in my classroom" and the highest average for "I plan to use information from the workshop in my classroom. These results indicate that the workshop was socially valid and that participants felt prepared to take the information to their classrooms.

Qualitative data from post-intervention surveys showed that some respondents seemed to feel hopeful about their future approaches to students with ADHD. For example, in response to the question, "When I think about teaching children with ADHD, I feel," respondents responded with the following:

"Motivated"

"Confident"

"Excited to help them grow emotionally and academically"

"More confident that I can help them"

"Overwhelmed, but understanding"

"Confident that I can build a positive relationship with them"

"Determined to figure out how to support them"

Attitudes About ADHD

While our original research questions did not address attitudes about ADHD, we did detect a change in both positive and negative attitudes about ADHD within our data. Results from the pre- and post-intervention surveys indicate a statistically significant change in both negative and positive attitudes about ADHD (see Table 1), with negative attitudes decreasing and positive attitudes increasing after the workshop. Negative attitude change and positive attitude change both showed a medium effect size.

Qualitative data showed that respondents saw the strengths of students with ADHD. For example, in response to the question, "Children with ADHD are…" respondents shared:

"bright."

"creative, resourceful, and whole, and benefit from supportive accountability."

"fun to work with."

"intelligent and busy and capable of doing more than one thing at a time."

"fun, non-judgmental, creative."

"so creative and fun to work with."

Summary

Overall, the results showed an increase in ADHD knowledge, no change in teacher self-efficacy, and an increase in positive attitudes about ADHD with a decrease in negative attitudes about ADHD. The social validity results of this workshop showed that the participants found the workshop to be a valid form of learning information about ADHD.

CHAPTER 5

Discussion

This study examined how an ADHD training workshop would impact teacher knowledge and teacher efficacy, as well as teacher attitudes about ADHD. It also attempted to understand the social validity of an ADHD workshop.

Findings

Overall, this research study found that an ADHD workshop presented to teachers resulted in increased ADHD knowledge for teachers. While the study did not find a statistically significant increase in teacher efficacy, it did find suggestions that teachers felt more prepared to teach children with ADHD following the ADHD workshop. The study also found a statistically significant increase in positive attitudes about students with ADHD, as well as a statistically significant decrease in negative attitudes about ADHD. Social validity questions showed that the workshop was found to be valid and worthwhile.

Teachers' Knowledge About ADHD

The quantitative and qualitative results from the present study demonstrate that an ADHD workshop improves teacher knowledge of ADHD. Our results align with Latouche and Gascoigne's (2019) results, which also found an increase in ADHD knowledge after a brief in-service training using the same scale that was used in this study (KADDS). These results are also in line with other studies that found an increase in knowledge about ADHD after brief in-service trainings about ADHD (Niznik, 2005).

Considering the research that demonstrates teachers do not have adequate knowledge about ADHD (Kos et al., 2006b; Mulholland et al., 2015), these findings add value to the idea that brief ADHD workshops are worthwhile for teachers, as they appear to increase knowledge

about ADHD. Additionally, research has shown that children with ADHD benefit in the classroom when teachers are aware of ADHD and use ADHD-friendly approaches with students with ADHD (Murphy, 2014).

This lends strength to the value of an ADHD workshop, suggesting that students with ADHD will fare better in a classroom with a teacher who recognizes ADHD and uses appropriate approaches. Indeed, as studies have found that teachers want more training about ADHD to understand ADHD behavior and needs of such students (Greenway & Edwards, 2020; Murphy, 2014; Ward et al., 2021; Yarde-Leavett, 2018), a brief workshop seems like an approachable way to meet the needs of teachers, thereby directly increasing teacher ADHD knowledge and indirectly improving the functioning and behavior of students with ADHD. For example, prior to a workshop, teachers may feel as if students with ADHD need to try harder to focus on their schoolwork (Mulholland et al., 2015). A workshop that teaches about ADHD symptoms, like inconsistent motivation and challenges with executive functions, as this workshop did, can help teachers dismiss that myth and work to help students with ADHD in ADHD-supportive ways.

Teacher Efficacy

Results from the pre- and post-surveys demonstrate a small increase in teacher efficacy following the workshop. This is similar to the findings of Latouche and Gascoigne (2019), who found that self-efficacy improved after teachers received ADHD training. One reason the effect size may have been small may be the post-Covid climate in which the current study was performed. It is possible that teachers were currently experiencing a heightened level of stress, anxiety, and burnout. One study found that teachers had lower self-efficacy scores on the TSES, the same self-efficacy scale used in the current study, post-Covid when compared to studies

completed before the COVID-19 pandemic (Pressley, 2021). Another study found that teachers felt "devalued and disregarded" because of the COVID-19 teaching climate (Sokal et al., 2021). As the current study was conducted in 2022, it is possible that self-efficacy scores could have continued to be impacted by the experiences and climate of post-Covid teaching.

While results found a small effect size for the change in self-efficacy in the current study, qualitative data also showed results to suggest that teachers felt more confident following the workshop**.** Prior to the workshop, participants responded to the question, "When I think about teaching children who have ADHD, I feel…" with words like concern, inadequate, stressed, and overwhelmed. Following the workshop, participants responded to the same question with words including motivated, confident, excited, and hopeful. One participant wrote that they were "determined to figure out how to support them" and another wrote: "more confident that I can help them." Qualitative data lends strength to the indication that participants felt more positively about their teaching abilities following the workshop.

Attitudes About ADHD

More knowledge of ADHD has been shown to reduce stigma towards students with ADHD (Toye et al., 2018). The results of the present study add strength to that conclusion, as the results of the pre- and post-surveys showed a statistically significant increase in teachers' positive attitudes toward students with ADHD and a statistically significant decrease in teachers' negative attitudes toward students with ADHD after taking the workshop.

Likewise, as research demonstrates that teachers tend to feel pessimistic about teaching students with ADHD (Kos et al., 2006a), that students with ADHD experience poorer relationships with teachers with ADHD (Zendarski et al., 2020), and that students with ADHD face stigma from adults in schools (Gwernan-Jones et al., 2016), it can be inferred that without

training, teachers' attitudes about ADHD trend negatively. Following the workshop in the present study, attitudes improved, which suggests the value of providing ADHD training to teachers.

As research has shown that supportive relationships with the classroom teacher can help students with ADHD function better in school (Baker, 2006; Roorda et al., 2011), this outcome—that an ADHD workshop can improve teacher attitudes about ADHD—suggests that ADHD training may be beneficial to the teacher/student relationship, thereby facilitating in helping to improve academic outcomes of students with ADHD. Indeed, in the present study, qualitative data showed that teachers had a greater depth of understanding about children with ADHD following the ADHD training. Qualitative data also showed that respondents saw the strengths of students with ADHD.

Through both qualitative and quantitative data, the present study demonstrates that an ADHD workshop is an effective way to improve attitudes about ADHD in teachers, helping teachers to recognize the strengths of students with ADHD as they pertain to their own teaching, to students with ADHD, and to the classroom climate.

Social Validity of the ADHD Workshop

Data from the PIRS indicated that the social validity of the workshop was acceptable to participants. Qualitative data from post-surveys showed that some respondents seemed to feel hopeful about their future approaches to students with ADHD. These quantitative and qualitative data suggest that participants liked and saw value in the ADHD workshop. Given the brief nature of the training (approximately one hour), social validity may also reflect the brevity of the training, but that was not specifically asked in the PIRS.

Limitations

The current study experienced limitations in terms of logistics. Despite an effort to create a code to anonymously identify pre- and post-intervention completers, we were not able to match pre- and post-intervention surveys to determine changes at an individual level. However, by using the pre-survey results as the expected mean, we were able to determine several changes at a group level, as outlined above, among participants before the workshop and after the workshop. Sources of bias (other than reactivity) are not easily determined in our sample, as all data gathered were anonymous. The presence of the experimenter may have impacted results, as participants may have had positive or negative feelings toward the presenter. The number of participants was lower than hoped for, but sufficient for analysis, although it did not allow for comparisons of changes between the two groups.

Implications for Future Research

Future research could match respondents in the pre-workshop survey and the post-workshop survey to more thoroughly determine specifics of how attitudes, knowledge, and efficacy change within individuals. Additionally, as efficacy did not significantly change when it was expected to, future research could determine how the lingering effects of the COVID-19 pandemic may continue to impact teacher efficacy. Future research could also follow up with additional surveys at more distal time points to determine what knowledge of ADHD is retained, as well as how attitudes about students with ADHD change over time.

Conclusions

The results of this study indicate that teachers can benefit from ADHD-specific training, as it has been shown to improve ADHD knowledge and attitudes about students with ADHD. This will positively impact students with ADHD, as their needs were more adequately addressed,

and it can positively impact teachers as they reported feeling more confident in working with students with ADHD. Additionally, our results included teachers reporting more hopeful and positive feelings about teaching children with ADHD following the workshop, suggesting that it is worthwhile to provide ADHD training to teachers to assist with teacher wellbeing. University programs should incorporate education about ADHD within their programs, and school administrators should make ADHD training a priority. Additionally, teachers should advocate for ADHD training in their schools.

Teachers do not receive enough training about ADHD in their university or professional training and this may impact student's functioning in the classroom (Murphy, 2014; Zendarski et al., 2020). As a result, they are not equipped to manage the unique behaviors and learning needs of students with ADHD. Additionally, teachers have shown negative perceptions of the behavior of students with ADHD, even feeling pessimistic about teaching them (Kos et al., 2006a). This was also demonstrated in the present study, in which teachers held more negative attitudes about their students with ADHD prior to the workshop. Yet, this is not a criticism of teachers, as teachers report a desire to receive training about ADHD (Greenway & Edwards, 2020; Murphy, 2014; Yarde-Leavett, 2018).

The current study found changes in teacher efficacy to have a small effect size following teacher training. It also showed that ADHD training, in the form of a workshop, is a helpful tool to improve self-reported teacher knowledge and attitudes about ADHD. Teachers also reported enjoying the workshop, which corresponds with other research indicating that teachers want ADHD training (Greenway & Edwards, 2020; Murphy, 2014; Ward et al., 2021; Yarde-Leavett, 2018). This suggests that administrators should make ADHD training a priority within their schools.

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APPENDIX A

Institutional Review Board Approval Letter and Consent Form

Memorandum

To: Terisa Gabrielsen
Department: BYU - EDUC - Counseling, Psychology, & Special Education
From: Sandee Aina, MPA, HRPP Associate Director
Wayne Larsen, MAcc, IRB Administrator
Date: October 12, 2022
IRB#: IRB2022-405
Title: Effects of ADHD Professional Development on Teacher Efficacy

Brigham Young University's IRB has approved the research study referenced in the subject heading as exempt level, Categories 1 and 2. The study is approved as of 10/12/2022. Please reference your assigned IRB identification number in any correspondence with the IRB.

Continued approval is conditional upon your compliance with the following requirements:

1. A copy of the approved informed consent statement can be found in iRIS. No other consent statement should be used. Each research subject must be provided with a copy or a way to access the consent statement.
2. Any modifications to the approved protocol must be submitted, reviewed, and approved by the IRB before modifications are incorporated into the study.
3. All recruiting tools must be submitted and approved by the IRB prior to use.
4. Instructions to access approved documents, submit modifications, and report adverse events can be found on the IRB website, iRIS guide: https://irb.byu.edu/iris-training-resources
5. All non-serious unanticipated problems should be reported to the IRB within 2 weeks of the first awareness of the problem by the PI. Prompt reporting is important, as unanticipated problems often require some modification of study procedures, protocols, and/or informed consent processes. Such modifications require the review and approval of the IRB. Please refer to the IRB website for more information.

Title of the Research Study: Effects of ADHD Professional Development on Teacher Efficacy
Principal Investigator: Terisa Gabrielsen, PhD
IRB ID#:IRB2022-405

Introduction

This research study is being conducted by school psychology student/researcher Rebecca Brown and Terisa P. Gabrielsen, PhD, NCSP at Brigham Young University to determine educators' knowledge about ADHD. You were invited to participate because you are a middle school or jr. high teacher who has been invited to attend a one-hour ADHD workshop being held at your school, approved by your principal.

Procedures

If you agree to participate in this research study, the following will occur:
• you will complete the following survey now, before the workshop
• you will be asked to complete one additional survey following the workshop
• time commitment of each survey should be about 15 minutes

Risks/Discomforts
Discomfort may be experienced by some of the questions in the survey, but we expect that this would not be different from the kinds of things you discuss with family or friends.

Benefits
Participating in this study may benefit you directly as you learn about ADHD behaviors and how to manage them in the classroom. Additionally, your participation will help the researchers learn how to best deliver ADHD information to educators.

Confidentiality
We will keep the information we collect about you during this research study for analysis. It will be stored on a password protected computer. Your name and email address will be collected only for entry into a drawing for a gift card (see below), but that information cannot be tied to your survey answers in any way. Data (not including your contact information) from this study may be shared with the research community, with journals in which study results are published, and with databases and data repositories used for research.

Compensation
At the completion of your participation (completing this survey before and after the workshop), you will receive a $5 electronic gift card and be entered into a drawing to receive a $50 Amazon gift card for your participation in this study. Odds of winning the $50 card are estimated to be 1 in 100.

Participation
Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or standing at your school.

Questions About the Research If you have questions, concerns, or complaints, you can contact the Principal Investigator, Terisa_gabrielsen@byu.edu or 801-422-5055.

Questions About Your Rights as Research Participants
If you have questions regarding your rights as a research participant contact Human Research Protections Program by phone at (801) 422-1461; or by email: BYU.HRPP@byu.edu. Statement of Consent I have read, understood, and received a copy of the above consent and desire of my own free will to participate in this study.

APPENDIX B

Instrument – Survey

True/False/I don't know

1. Most estimates suggest that ADHD occurs in approximately 15% of school age children. (False)
2. ADHD is a neurobiological, developmental disorder. (True)
3. It is possible for an adult to be diagnosed with ADHD. (True)
4. Most children with ADHD outgrow their symptoms by the onset of puberty and subsequently function normally in adulthood. (False)
5. There are different subtypes of ADHD which can present with different behaviors. (True)
6. If a child with ADHD is able to demonstrate sustained attention to video games or TV for a period of time, that child is also able to sustain attention for the same amount of time on classwork or homework. (False)
7. ADHD can be inherited. (True)
8. Children with ADHD generally experience more problems in novel situations than in familiar situations. (False)
9. Children with ADHD can present with hyperactive behaviors, inattentive behaviors, or a combination of both. (True)
10. The majority of children with ADHD evidence some degree of poor school performance. (True)
11. Children with ADHD are easily distracted. (True)
12. One symptom of children with ADHD is that they have been physically cruel to other people. (False)

13. Children with ADHD benefit from stricter parenting and schooling. (False)
14. Children with ADHD often fidget or squirm in their seats. (True)
15. ADHD is caused by too much sugar in the diet. (False)
16. It is common for children with ADHD to have an inflated sense of self-esteem or grandiosity. (False)
17. Children with ADHD often talk excessively and have difficulty staying in their seat. (True)
18. Current research suggests that ADHD is largely the result of ineffective parenting skills. (False)
19. Willful defiance is common in children with ADHD. (False)
20. Children with ADHD have a history of stealing or destroying other people's things. (False)
21. Children with ADHD often fail to give close attention to their work and make careless mistakes. (True)
22. Children with ADHD often have difficulties organizing tasks and activities. (True)
23. Parent and teacher training is not an important component of effective ADHD treatment when medication is used. (False)
24. Children who present with ADHD behaviors, regardless of ADHD diagnosis, can benefit from individualized behavior management strategies. (True)
25. When treatment of a child with ADHD is terminated, it is rare for the child's symptoms to return. (False)
26. Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD. (False)