ADHD IN THE CANADIAN CLASSROOM: TEACHING FROM A STRENGTHS-BASED PERSPECTIVE

by

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Abstract

This literature review investigated Attention-Deficit/Hyperactivity Disorder (ADHD) from two perspectives: strengths and deficits. First, ADHD deficits are investigated from a historical perspective and through the lens of the medical model of disability. ADHD deficits are discussed in relation to societal stigma and how this can impact teacher beliefs. Next, ADHD strengths are explored through the social model of disability and how socially constructed environmental barriers can impact an individual's ability to independently participate in a classroom. Finally, evidence-based classroom interventions are reviewed. This includes interventions that focus on proactive and reactive practices and concludes with a focus on strength-based supports in a classroom.

Introduction

"To be nobody but yourself in a world that's doing its best to make you somebody else is to fight the hardest battle you are ever going to fight. Never stop fighting."

E.E. Cummings

Michael Phelps is a retired American swimmer who is the most decorated Olympian of all-time with a total of 28 medals. Simone Biles is tied as the most successful American women's gymnast and is considered to be the greatest of all time in her sport. Richard Branson is a billionaire British entrepreneur who founded the global media company Virgin Group. Terry Bradshaw is a former Super Bowl champion quarterback for the Pittsburgh Steelers, and currently works as an on-air sportscaster for football. Justin Timberlake is a Grammy winning musician who has achieved individual success as a musician and actor. Dav Pilkey is the author of two best-selling book series for kids: Dog Man and Captain Underpants. Canadian comedic actor Jim Carrey has appeared in many successful Hollywood films and won Golden Globe awards for some of his performances. Each of these individuals has one thing in common: each has been diagnosed with attention-deficit/hyperactivity disorder (ADHD).

Attention-Deficit/Hyperactivity Disorder (ADHD) has been medically observed and recorded for the past 200 years and has been referred to by many names and terms. ADHD has been called "The Plague of the Nineties" (Zimmerman, 1999, as cited in Gerber, 2007, p. 522), referring to an increase in diagnostic cases in the 1990s. Children and adults that demonstrate difficulty with inattention have been called "space cadets" or "flight attendants" and are noted as appearing zoned out. They are often considered to be daydreaming and not paying attention.

Negative connotations associated with ADHD are one of the many societal stigmas attached to the disorder and can cause significant damage to diagnosed individuals and their families.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) explains that "the essential feature of attention-deficit/hyperactivity disorder (ADHD) is a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development" (American Psychiatric Association, 2013, p. 61). There are three subtypes of ADHD: Inattentive Subtype, Hyperactive/Impulsive Subtype, and Combined Subtype (American Psychiatric Association, 2013). An inattentive presentation "...manifests behaviourally in ADHD as wandering off task, lacking persistence, having difficulty sustaining focus, and being disorganized and is not due to defiance or lack of comprehension" (American Psychiatric Association, 2013, p. 61). A student in a classroom may appear to be daydreaming, perceived to be not listening, or appear to be forgetful. Hyperactivity is described as "...excessive motor activity (such as a child running about) when it is not appropriate, or excessive fidgeting, tapping, or talkativeness" (American Psychiatric Association, 2013, p. 61). This may present as an overly energetic child who has difficulty sitting still. The DSM-V (2013) provides the following description of impulsivity with ADHD.

> Impulsivity refers to hasty actions that occur in the moment without forethought and that have high potential for harm to the individual… Impulsivity may reflect a desire for immediate rewards or an inability to delay gratification. Impulsive behaviours may manifest as social intrusiveness (e.g., interrupting others excessively) and/or as making important decisions without consideration of long-term consequences (p. 61).

Combined Subtype ADHD is when criteria are met for both Inattentive Subtype and Hyperactive/Impulsive Subtype in the diagnostic process.

According to the Center for Disease Control and Prevention (CDC), the estimated prevalence rate of ADHD in American children is 8.8%. Boys who had ever received a diagnosis were 11.7% compared to 5.7% of girls (CDC, n.d.). The DSM-V (2013) states that "ADHD is more frequent in males than in females in the general population, with a ratio of approximately 2:1 in children" (p. 63). ADHD is known to afflict both boys and girls, yet girls are at risk of being misdiagnosed or undiagnosed. Some stated reasoning for this discrepancy in diagnostic rates is that "...girls with ADHD are more likely to present with predominantly inattentive symptoms, rather than the more potentially disruptive hyperactive/impulsive symptoms, as well as greater levels of internalising symptoms such as anxiety and depression which might lead to alternative diagnoses (Arnold, 1996; Quinn, 2008, as cited in Mowlem et al., 2019, p. 765).

The Canadian ADHD Resource Alliance (CADDRA) states that, "the general prevalence of ADHD is estimated to be between 5-9% for children and adolescents and 3-5% for adults" (CADDRA, p. 3). This statistic includes diagnostic rates and does not capture undiagnosed or misdiagnosed children and adults, which suggests that the actual prevalence rate could be higher than confirmed rates. Statistics reveal that "...ADHD is the most common psychiatric disorder in childhood" (Barkley, 1990; DSM-IV-TR 2000, as cited in Sherman et al. 2008, p. 348). These rates suggest that ADHD is widespread in Canadian children, resulting in a diverse classroom composition of students. Dr. Russell Barkley states that ADHD can be described as having executive dysfunction. He explains that "inabilities to self-regulate lie at the root of many challenges faced by individuals with ADHD. He explains that individuals with ADHD may be

unable to delay responses, thus acting impulsively and without adequate consideration of future consequences - beneficial or negative" (CHADD, n.d.).

Problem Statement

Existing research in the field of ADHD is expansive, with studies conducted on the deficits of ADHD, as well as on the educational, relational, and emotional failure rates. Limited literature exists on potential strengths associated with a diagnosis of ADHD. Executive dysfunctions can pose unique challenges for a child in a classroom setting with a diagnosis of ADHD. According to Orban et al. (2018), "children with ADHD complete fewer assignments correctly (DuPaul and Stoner, 2014; Molina et al. 2009; Rapport et al. 1994, as cited in Orban et al. 2018, p. 713-714)…. They solicit more negative attention from teachers and peers (Abikoff et al. 2002; Skansgaard and Burns 1998, as cited in Orban et al. 2018, p. 714), and exhibit higher rates of gross motor activity (DuPaul and Rapport 1993; Porrino et al. 1983; Vile Junod et al. 2006, as cited in Orban et al. 2018, p. 714)." ADHD can also be "...associated with lower academic performance, increased grade retention, increased rates of detention and expulsion, higher rates of school dropout, and strained social relationships with teachers, families, and peers" (Daley & Birchwood, 2010; Loe & Feldman, 2007, as cited in Blotnicky-Gallant et al., 2015, p. 5).

There are multiple explanations for why children with ADHD experience significant difficulty in school. Nigg & Barkley (2014) state that "several factors influence the ability of children with ADHD to sustain their attention to task performance, control their impulses to act, regulate their activity level, and/or produce work consistently" (p. 83). They found that children with ADHD have more difficulty performing tasks later in the school day, have difficulty

organizing tasks that require multiple steps, tasks and activities with low stimulation, lack of immediate gratification, and where adult supervision and feedback is minimal (Nigg & Barkley, 2014, p. 83).

In Armstrong's (2012) Neurodiversity in the Classroom, he writes about looking for each child's unique strengths and gifts.

> If our only knowledge about students with special needs is limited to the negatives in their lives - low test scores, low grades, negative behaviour reports, and deficit-oriented diagnostic labels - then our ability to differentiate learning effectively is significantly restricted. (p. 13)

A recent study conducted in the Canadian province of Nova Scotia found that teachers demonstrate a good understanding of ADHD (Blotnicky-Gallant et al., 2015). Researchers found that "...teachers believed that ADHD is a valid disorder and considered problem behaviours of students with ADHD to be out of the students' control" (Blotnicky-Gallant et al., 2015, p. 15). This article referenced previous studies that found "...that teachers generally believe that managing the behaviour of students with ADHD is difficult (Kos, 2008) and that students with ADHD have behaviours that negatively affect the classroom and friendships (Ohan et al., 2011). Blotnicky-Gallant et al. (2015) proposed that teacher professional development should focus less on the diagnostic criteria and description of ADHD, and more time on providing evidence-based strategies to support these students in classrooms (p. 17). This study proposes that teachers are aware of ADHD and its effects on teaching and learning but are unsure how to support these students in their classrooms.

How can we shift the way we view students with ADHD from a collective one size all approach, that is a deficit approach, and move towards a more humane individualized strength-based approach? If we can do this, Armstrong (2012) suggests that "the neurodiversity-inspired educator will have a deep respect for each child's unique brain and seek to create the best differentiated learning environment within which it can thrive" (p. 13).

Methodology

This meta-analysis of literature was conducted through the constructivist paradigm, which views research as a socially constructed reality based on a person's experiences. This paradigm was chosen as this study focused on how teachers can support the learning of students with a diagnosis of ADHD, with a recognition that educational barriers can be socially constructed. Literature was retrieved through library databases at Trinity Western University, and included JSTOR, ERIC, and Sage Journals with a focus on educational and psychological studies. Search criteria included studies from 2010 to present that were conducted within North America, with a focus on Canadian studies when available. Some studies prior to 2010 were included (Baydala et al., 2006; DuPaul & Weyandt, 2006; Rohde et al., 2005; Sherman et al., 2008; Sherman & Baydala, 2006), as their research was related to Canadian classrooms or the positive attributes of ADHD. Keywords included were ADHD, attention-deficit/hyperactivity disorder, ADHD strengths, ADHD deficits, and ADHD classroom strategies. Studies included primarily qualitative research (Wiener et al., 2012; Metzger & Hamilton, 2021; Ohan et al., 2011; Sedgwick et al., 2019; with some quantitative studies (Blotnicky-Gallant et al., 2015; Metzger & Hamilton, 2021). Research articles reviewed for this literature review and noted themes are listed in Appendix A.

Research Question

Based on the problem statement, the research question for this literature review is: What evidence-based teaching strategies exist for supporting a child's strengths at school with a diagnosis of ADHD? The sub question in this literature review is: What are the strengths of a child with ADHD? I argue that teaching children with ADHD from a strengths-based perspective is more beneficial in comparison to teaching from a deficit-based perspective. All children have strengths. By harnessing a child's strengths to support areas of difficulty can support children to feel independent and successful in their efforts.

Theoretical Framework

This literature review will view research on ADHD through the lens of constructivism. According to Mertens (2020), "the basic assumptions guiding the constructivist paradigm are that knowledge is socially constructed by people active in the research process and that researchers should attempt to understand the complex world of lived experience from the point of view of those who live it (Schwandt, 2000, as cited in Mertens, 2020, p. 16-17). In discerning ways to support a child with ADHD in the classroom, it will be imperative to keep the child's experience at the forefront of recommendations for evidence-based practice. A cultural perspective needs to be considered as part of the diagnostic process. This meta-analysis will view ADHD through the lens of North American culture and will focus on research conducted primarily within North America with a focus on Canadian studies where possible.

In focusing on a strength versus deficit-based view of children with ADHD, it is important to discuss the medical and social models of disability. The medical model of disability views disability as a deficit; that there is something inherently wrong with an individual that

needs to be fixed or cured. The social model of disability states that societal constructions create barriers for individuals with disabilities. Anastasiou & Kauffman (2013) provide the following explanation of the social model of disability.

> The concept of disability portrayed in the social model is captured succinctly by key phrases such as "disability is wholly and exclusively social" (Okliver, 1996a, 35) and "a social theory of disability can best be developed through the use of the concept of oppression" (Abberley, 1987, 7). (p. 441).

The social model of disability hinges on how society views everyone in comparison to one another, and what that society views as normal. Anything that varies from society's perception of normal is then considered to be the other, an outlier. Anastasiou & Kauffman (2013) state that "...a certain disability is conceptualized within a specific social context and characterized by a discrepancy between the individual's performance and the expectations or demands of the social group to which the person belongs" (p. 447). In an educational setting, this is often determined by grade level assessments and benchmarks. If a child is performing below expectations, further assessments are potentially suggested and pursued. "The fluid nature of constructivist learning requires teachers to adopt the view that each learner will construct knowledge differently and that these differences stem from the various ways that individuals acquire, select, interpret and organize information" (Adams, 2006 as cited in Adams, 2006, p. 245).

In discovering evidence-based practice for supporting children with ADHD in the classroom, it is important to consider that strategies and accommodations can benefit the learning of all students in the classroom. "Universal Design for Learning (UDL) is a teaching and

learning framework that encourages educators to make purposeful and appropriate decisions based on clear goals and the diverse nature of learners" (Edmonton Public Schools, 2020, p. 3). UDL recognizes that students need to be offered "...flexibility and choice in representation, engagement, and action and expression. UDL focuses on reducing barriers in the environment—the roadblocks that can prevent learners from accessing information" (Edmonton Public Schools, 2020, p. 3). Edmonton Public Schools (2020) provides the following definitions of engagement, representation, and action and expression.

> Multiple means of engagement, the why of learning, refers to providing opportunities to incorporate learners' interests in learning activities. Multiple means of representation, the what of learning, refers to providing learning resources in different formats. Multiple means of action and expression, the how of learning, refers to providing choice for how learners present what they know. (p. 3)

Universal Design for Learning aligns with the constructivist theory, as it recognizes the importance of a student-centred learning model. We could view UDL in education as assistive technology and devices that people use in other aspects of their lives. One comparison drawn is how "an airplane is a mobility aid for non-flyers in exactly the same way as a wheelchair is a mobility aid for non-walkers" (Oliver, 1996a, 108, as cited in Anastasiou & Kauffman, 2013, p. 451). Strategies and supports created to support one student could be used to support all students, similar to the airplane analogy.

Chapter One: The Medical Model of Disability and ADHD Deficits

"To tell a person who has ADD to try harder is about as helpful as telling someone who is nearsighted to squint harder"

Edward M. Hallowell

Introduction

In this chapter, I will discuss the medical model of disability, and how the definition and understanding of ADHD have evolved within the past 200 years. This is followed by a literature review on the deficits of ADHD and societal and teacher stigma relating to a diagnosis of ADHD.

Medical Model of Disability

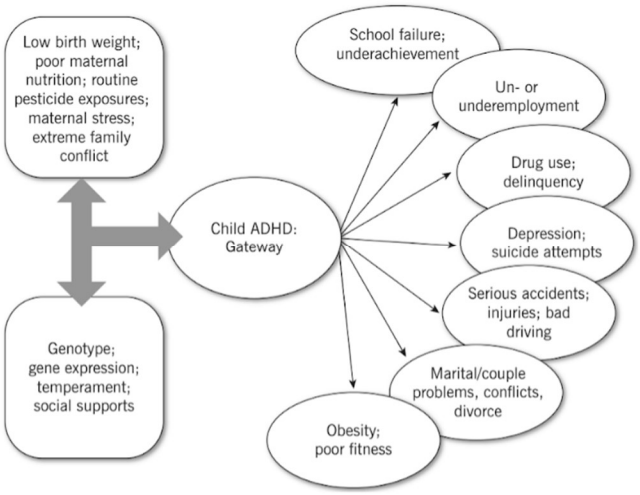
The medical model of disability believes a "... disabled person's autonomy is limited due to the impairment; therefore, if medical professionals cannot cure or rehabilitate the person, then she or he is considered as someone who as a consequence has a limited ability to participate in society" (Bunbury, 2019, p. 28). Ladau (2021) defines the medical model of disability as the following:

> The medical model, also known as the "individual model," focused on disability as a person-based issue. It's about defining disability as a diagnosis or impairment that has an effect on an individual… There are some big downfalls to the medical model; namely, the negative attitudes toward disability that it frequently perpetuates and the idea that disability is a problem needing to be fixed or cured. It also ignores the fact that the effects of disability aren't limited to just a person's body. (p. 39)

The idea of fixing or curing a person is a recurring theme in this chapter and is detailed again in the ADHD strengths section. The medical model focuses on the deficits that an individual experiences due to their diagnosis and does not consider socially constructed barriers.

ADHD is classified as a neurodevelopmental disorder in the DSM-V. This is because "...ADHD is often accompanied by other delays and has been associated with enduring alterations in neural development; it also often co-occurs or overlaps with other subtle problems in language, motor, and social development" (Nigg & Barkley, 2014, p. 77). ADHD deficits will be discussed in more depth later in this chapter, but it is important to highlight this topic in the discussion of the medical model of disability. ADHD is a medical disorder with many available treatment options. Figure 1 from Nigg & Barkley (2014) includes potential risks associated with ADHD.

Figure 1



From *Chapter 2: Attention-Deficit/Hyperactivity Disorder* (p. 76), by J.T. Nigg & R.A. Barkley, 2014, Guilford Publications. Copyright 2014 by Guilford Publications.

The left-side of figure 1 details diagnostic risk factors, followed by potential risks following a diagnosis of ADHD. Hamed et al. (2015) conducted a literature review on risk factors of ADHD. Their review determined that a diagnosis of ADHD was critical to ensure access to treatment. The authors concluded that "one of the major consequences of ADHD not being diagnosed is a lack of treatment" (Hamed et al., 2015, p. 5). If left "untreated, ADHD can pose a tremendous amount of psychological, financial, academic, and social burden to the individual and the community, which reflects the importance of diagnosing and treating the disorder" (Hamed et al., 2015, p. 5). The main consequences of untreated ADHD, according to this literature review, are as follows: academic underachievement, family/relationship issues, substance/alcohol abuse, financial/employment issues, criminal involvement, comorbidity, and mortality. For comorbidity, Hamed et at. (2015) explain that "longitudinal research that followed hyperactive children for 10 years has suggested that hyperactivity is a risk factor for increases in other psychiatric diagnosis" (p. 6). In addition to accessing treatment, a diagnosis of ADHD can also provide opportunities for educational accommodation and support. A subsection on stigma later in this chapter discusses potential drawbacks of a diagnosis and a label.

Evolving Understandings of ADHD

As discussed in the introduction and later deficits sections of this paper, ADHD can be associated with many significant difficulties, varying with each individual child. Medical understandings of ADHD have evolved over the past 200 years. The first modern recording of ADHD appears to have been made in 1798 by Sir Alexander Crichton in Scotland (Lange et al., 2010, p. 241). Many of his observations are consistent with current knowledge in the area of ADHD. From his book titled On Attention and its Diseases, Crichton noted that some individuals had "the incapacity of attending with a necessary degree of constancy to any one object" (Lange

et al., 2010, p. 242). Crichton stated that "it may be either born with a person, or it may be the effect of accidental diseases (Lange et al., 2010, p. 242).

Following Crichton's 19th century observations, a story was written called Fidgety Philip by Heinrich Hoffman in 1844 (Lange et al., 2010). Hoffman was a medical doctor in Germany and wrote Fidgety Philip about a restless boy sitting at the dinner table with his parents. Issues arise during the meal, culminating in Philip falling backwards and knocking items off the table (Lange et al., 2010). Lange et al. (2010) suggest that the character of Fidgety Philip is consistent with ADHD presentations in the DSM-IV. The authors also suggest observations of inattention and hyperactivity. See Appendix B for the story of Fidgety Philip.

Sir George Still continued to study attentional difficulties in the early 20th century in Britain. Still coined the term defect of moral control (Lange et al., 2010). He stated that a lack of moral control can present in the following ways: "(1) passionateness; (2) spitefulness – cruelty; (3) jealousy; (4) lawlessness; (5) dishonesty; (6) wanton mischievousness – destructiveness; (7) shamelessness – immodesty; (8) sexual immorality; and (9) viciousness" (Still, 1902, as cited in Lange et al., 2010, p. 245). The early 1900s focused on minimal brain damage (MBD), which was later revised to minimal brain dysfunction (Nigg & Barkley, 2014). The term MBD followed "...the encephalitis lethargica epidemic, which spread around the world from 1917 to 1928 and affected approximately 20 million people" (Lange et al., 2010, p. 246). Following infections, children experienced many difficulties, such as "...a significant change in personality, emotional instability, cognitive deficits, learning difficulties, sleep reversals, tics, depression, and poor motor control" (Conners 2000; Kessler 1980; Rothenberger and Neumarker 2005, as cited in Lange et al., 2010, p. 246). Post-infection, children were reported to have become ''hyperactive, distractible, irritable, antisocial, destructive, unruly, and unmanageable in school. They

frequently disturbed the whole class and were regarded as quarrelsome and impulsive, often leaving the school building during class time without permission" (Ross and Ross 1976, as cited in Lange et al., 2010, p. 246). Some of these difficulties suggest similarities to current understandings of ADHD. Lange et al. (2010) noted that many of the children "...would not have met the current ADHD criteria. The postencephalitic behavior disorder aroused, nevertheless, a broad interest in hyperactivity in children, and the findings were influential for the further scientific development of the concept of ADHD" (Rothenberger and Neumarker 2005, as cited in Lange et al., 2010, p. 246-247). In 1937, Charles Bradley administered stimulant medication to "...children with hyperactive behaviour and other attributes of MBD" (Nigg & Barkley, 2014, p. 78). This is the first recorded use of stimulant medication for hyperactivity.

Historical Definitions of ADHD

The Diagnostic and Statistical Manual of Mental Disorders (DSM) outlines criteria of symptoms that need to be met for a diagnosis of ADHD. The DSM-II in 1968 included Hyperkinetic Reaction of Children, which was "...defined with two sentences: ''The disorder is characterized by overactivity, restlessness, distractibility, and short attention span, especially in young children; the behavior usually diminishes by adolescence'' (American Psychiatric Association 1968, p. 50, as cited in Lange et al., 2010, p. 251). This was the first time that ADHD appeared in the DSM. This diagnosis focused primarily on "symptoms of excessive motor activity" (Epstein & Loren, 2013, p. 1). In 1980 in the DSM-III, "...the American Psychiatric Association renamed the disorder ''Attention Deficit Disorder (ADD) (with or without hyperactivity)'' (Barkley 2006a; Rothenberger and Neuma¨rker 2005, as cited in Lange et al., 2010, p. 252). In 1994, DSM-IV included recognition of the three subtypes of ADHD: inattentive, hyperactive/impulsive, and combined (Lange et al., 2010). The DSM-IV

"...recognized in the 1990s that ADHD was not exclusively a childhood disorder, which disappeared with age as was previously thought (Barkley 2006a), but rather a chronic, persistent disorder remaining into adulthood in many cases" (Dopfneret al. 2000, as cited in Lange et al., 2010, p. 252). This was a shift from the previous understanding that it was primarily a childhood disorder. DSM-V was published in 2013 and included some revisions to ADHD criteria. The three subtypes of ADHD remained, but the wording shifted from subtypes of ADHD to presentations (Epstein & Loren, 2013). This change was made because "... increasing evidence that symptoms are often fluid within individuals across their lifespan rather than stable traits. DSM-IV ADHD subtypes change across development due to the heterotypic continuity of symptom trajectories over time" (Epstein & Loren, 2013, p. 2). DSM-V also brought changes to diagnostic criteria for adolescents and adults (Epstein & Loren, 2013).

ADHD understandings have shifted over the past 200 years. Early understanding looked at minimal brain damage (MBD) and is today understood to be a neurodevelopmental disorder. The difficulties that a child experiences can significantly impact their functioning in school, friendships, and family relationships. A diagnosis of ADHD can provide an understanding of the difficulties experienced for the individual, as well as their family, friends, and educators. A diagnosis can also open opportunities to access treatment, as well as educational accommodations.

ADHD Deficits

Within the diagnostic label of Attention Deficit Hyperactivity Disorder includes the word deficit. It is important to note that "...postwar psychology has instead focused on pathology, with a greater emphasis on understanding how and why people struggle" (Seligman &

Csikszentmihalyi, 2000, as cited in Climie & Mastoras, 2015, p. 295). In contrast, "prior to World War II, broad psychological study had three primacy foci: alleviating mental illness, enhancing the productivity and satisfaction of the lives of all people, and supporting and building high talent" (Seligman & Csikszentmihalyi, 2000, as cited in Climie & Mastoras, 2015, p. 295). The authors are suggesting that the current diagnostic process focuses on what the difficulties are, and why they are occurring.

Prior to receiving a diagnosis of ADHD, a child would be presenting significant difficulties and potentially unexpected behaviours across multiple settings. As stated in the introduction, the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-V) defines three subtypes of ADHD: Inattentive, Hyperactive/Impulsive, and Combined. "...Symptoms would have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities" (American Psychiatric Association, 2013, p. 59). For both Inattentive and Hyperactive/Impulsive subtypes, nine symptoms are listed. To be diagnosed with ADHD as a child under the age of 17, six or more symptoms must be present across multiple settings (American Psychiatric Association, 2013, p. 59-60). Appendix C includes the diagnostic criteria used to diagnose ADHD.

Merriam-Webster dictionary provides two definitions of deficit when used as a noun. It is defined as a "deficiency in amount or quality" and as "a lack or impairment in an ability of functional capacity" (Merriam-Webster, n.d.). Lacking implies that something is missing. Impairment suggests that something is not working. When viewing ADHD from a deficit-based perspective, we are essentially looking for what is wrong with the child; what needs to be fixed.

When reviewing the symptoms of Inattentive ADHD in Appendix C, the following deficits are revealed: not paying attention, difficulty with sustained attention, appears not to be listening (can appear to be daydreaming), task initiation and completion, organization, difficulty with sustained mental effort, loses belongings, easily distracted, and forgetful. While these symptoms could describe most people on a day-to-day basis, a diagnosis of ADHD means that these are prevalent in daily lives. All these symptoms describe tasks and processes that a child has difficulty performing, and significantly impacts their academic learning and social relationships. Hyperactive/Impulsive ADHD presents unique symptoms that negatively impact a child. Table 1 discusses the following deficits for this subtype: fidgets, leaves seat, runs around, unable to play quietly, acts as if "driven by a motor," talks excessively, blurts out in discussions, difficulty waiting for turn, and interrupts. For a child diagnosed with Combined ADHD, a child would present with a combination of the above listed symptoms. The deficits of a child with ADHD are the symptoms that are identified within the diagnostic criteria.

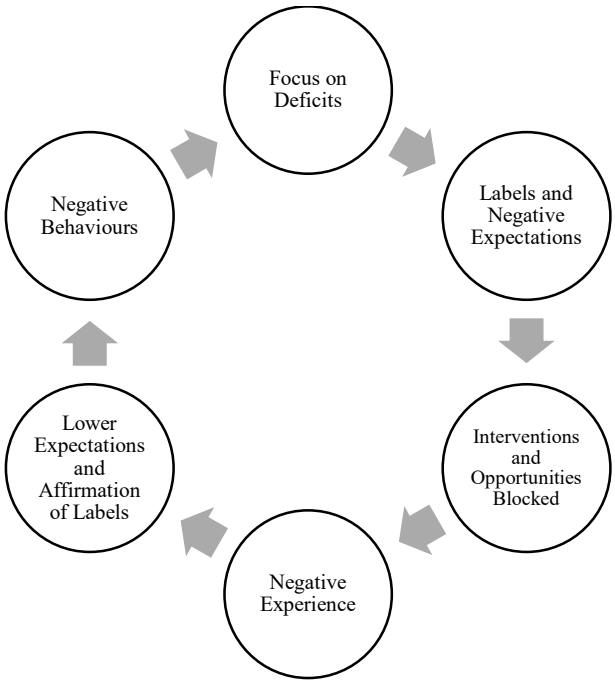
The symptoms of ADHD can impact how a child with ADHD is perceived by others. Hai & Climie (2021) cite existing research to emphasize the difficulties:

> Despite being a prevalent childhood disorder, children with ADHD are often seen in a negative light. They frequently display undesirable behaviours (Wolraich, 2005), have lower academic achievements (Biederman et al., 2004), struggle to maintain friendships (Hoza, 2007), and are at a greater risk for accident or injury (Lange et al., 2012). They often require additional support from parents and teachers, especially regarding the management of ADHD symptoms and behaviours (Nigg & Barkley, 2014). (p. 1).

The deficit model is illustrated in figure 2 on the following page. It begins by identifying a difficulty and recognizing that change is needed. With an initial focus on deficits, a cycle of challenge begins. As deficits are focused on for support and intervention, a cycle of negative experiences, behaviours, and lowered expectations occur.

Figure 2

The Deficit Cycle



Adapted from *Theoretical approaches - homeless hub*. (n.d.). Retrieved April 23, 2022, from https://www.homelesshub.ca/sites/default/files/K%20Theoretical%20Approaches_0.pdf

Blotnicky-Gallant et al. (2015) state that, “in addition to the challenges resulting from the core symptoms of ADHD, many individuals with ADHD also meet criteria for other conditions, such as learning disabilities, oppositional defiant disorder, anxiety, and mood disorders” (p. 5). More specifically, Gnanavel et al. (2019) conducted a literature review to determine comorbid

conditions with ADHD. They found that the following conditions were highly associated with ADHD: Autism Spectrum Disorder, Learning Disorders, Tic Disorders, Depressive Disorder, Bipolar Disorder, Anxiety Disorders, Conduct Disorders, and Oppositional Defiant Disorder (p. 2421-2422).

Shelley Moore (2021) advocates for a language shift from identifying a child's strengths and weaknesses to focusing on their strengths and stretches. The main difference between weaknesses and stretches is that a weakness will remain a weakness, and it is something that a person does not have control over. Alternatively, Moore (2021) suggests that a stretch is attainable. She likens this idea to exercise; the more that you practice, the better you can become. Stretches are intended to be difficult but achievable. This language is an important consideration when planning academic supports, accommodations, and modifications for a child with ADHD.

Stigma

Based on the previous discussion of ADHD symptoms, the following quote explains that the "the core symptoms of ADHD are bothersome to parents, teachers, and peers" (Greene, 1995; Harris, Milich, Corbitt, Hoover, & Brady, 1992; Johnston & Mash, 2001, as cited in Wiener et al., 2012, p. 217). Depending on the level of severity, ADHD symptoms can present challenges within the classroom. When viewing ADHD through a deficit lens, it is a reminder of what a child cannot do or has difficulty doing. It can also reinforce stereotypes and stigmas that exist in our society. For a child with ADHD, stigma can be the result of four aspects, as discussed by Hinshaw (2005), as cited in Wiener et al. (2012):

> First, as ADHD is not immediately visible, the reasons for the behavior of the individual may not be apparent to others in the environment. Second, ADHD is typically a lifelong

> problem; individuals who are viewed as having lifelong challenges are more likely to be stigmatized than individuals where the problems are viewed as short-lived. Third, the media may portray ADHD in a negative light. Finally, people in the environment of children with ADHD may perceive their behaviors as being controllable and stigmatization is less likely to occur when people attribute behaviors to uncontrollable causes. (p. 221).

Wiener et al. (2012) conducted a study in Toronto, Ontario, to discern three objectives. The first was to understand if "...9- to 14-year-old children with ADHD underestimate the number of ADHD symptoms they have compared with parent ratings" (p. 223). Secondly, researchers compared "...the attributions of children with and without ADHD for their self-reported most problematic behaviour" (p. 223). And finally, the authors looked "...to examine the degree to which children with ADHD viewed their problem behaviours and their disorder as stigmatizing" (p. 224). Researchers conducted individual academic and cognitive assessments for each child participant and had the participants and their parents respond to a variety of rating scales and questionnaires. The participants did not take their prescribed stimulant medication when information was being collected. The authors summarized their results in three areas: positive illusions, behavioural attributions, and stigma. Regarding positive illusions, this research revealed that children with ADHD overestimate their academic and social performance, as well as their ADHD behaviours, in comparison to parent and teacher reported rating scales (Wiener et al., 2012). Results for behavioural attributions suggested that "...children with ADHD viewed their most problematic behaviour as more uncontrollable than children without ADHD" (Wiener et al., 2012, p. 233). Results regarding stigma noted that children with ADHD were aware that their behaviours were problematic and disruptive for their peers, teachers, and parents (Wiener et

al. 2012). The children reported that "...they are treated differently as a result of their behaviour; and they and their parents are embarrassed because of their behaviour" (Wiener et al., 2012, p. 233).

Lebowitz (2016) completed a review of literature pertaining to the stigmatization of ADHD. The article investigates the stigmatization of ADHD from the perspective of both adults and children and looks at existing American studies. Lebowitz (2016) revealed that "...there is a significant stigmatization of adults, adolescents, and children with ADHD, and these negative attitudes appear to be present among individuals at all stages of the life span" (p. 203). In comparison to other medical conditions, Lebowitz (2016) notes "...that children with mental disorders, including ADHD, are stigmatized more strongly" (p. 203). This could be due to ADHD being an invisible disorder, leaving others to wonder why this child acts differently than expected. Including the perspectives of both adults and children towards children with a diagnosis of ADHD provides a concerning societal narrative of negative viewpoints. Appendix D is a visual depiction of what ADHD can be like, versus what people assume based on what they see.

Teacher Beliefs

In a Canadian elementary school classroom, students spend approximately 35 hours per week in school, resulting in a substantial amount of a child's week being spent with their teacher. How a teacher views a child, and what they expect for her child, can impact a child's educational experience both positively and negatively. Blotnicky-Gallant et al. (2015) conducted a study to understand teacher beliefs and knowledge about ADHD, and if they utilize evidence-based strategies to support students with ADHD in their classrooms. In the province of Nova Scotia,

113 teachers completed the following instruments in this quantitative study: Knowledge of Attention Deficit Disorders Scale (KADDS), Beliefs About ADHD (B-ADHD) and the Instructional Behaviour Management Approaches Survey (IBMAS) (Blotnicky-Gallant et al., 2015).

This study revealed that "as expected, teachers in the present study knew the most about the symptoms and diagnostic criteria of ADHD, less about treatment, and the least about general facts about ADHD" (Blotnicky-Gallant et al., 2015, p. 14). The researchers believe that this is because "symptoms and diagnosis are the most salient aspects of ADHD for teachers, who generally see children in challenging classroom environments and contribute crucial diagnostic information to parents, psychologists, and physicians during ADHD evaluations" (Blotnicky-Gallant et al., 2015, p. 14). Teachers are relied on to provide classroom observations and complete rating scales and questionnaires if a student is referred for assessment. Another finding from this study is that "teachers believed that ADHD is a valid disorder and considered problem behaviours of students with ADHD to be out of students' control" (Blotnicky-Gallant et al., 2015, p. 15). This is important based on the previous discussion on stigma, as ADHD is an invisible diagnosis and children can be negatively perceived based on their visible difficulties. The researchers note that these teachers "may be more likely to treat these students in a compassionate and patient manner and may also be more likely to attempt to use strategies to assist these students, as opposed to punishing them for perceived bad behaviour" (Blotnicky-Gallant et al., 2015, p. 15). The authors of this study state that "it is possible that having more accurate knowledge about ADHD leads to more positive beliefs regarding the expectations of students with ADHD and a better understanding of the diagnostic validity of ADHD" (Blotnicky-Gallant et al., 2015, p. 16).

Regarding classroom strategies, this study found that teachers were more likely to implement strategies that were easy to use and were not time consuming (Blotnicky-Gallant et al., 2015). Blotnicky-Gallant et al. (2015) notes the following regarding classroom management:

> Teachers were much less likely to use intensive behaviour management strategies (i.e., behaviour contracts, daily report cards, response cost) and were more likely to modify language for instruction and to use preferential seating, positive attention, and proximity control in the classroom. Teachers were also using nonverbal cues to refocus students' attention and were providing assistance during transitions on a frequent basis. (p. 16)

This study suggests that teachers have a good understanding of ADHD, and that training for teachers should focus primarily on evidence-based classroom strategies and interventions (Blotnicky-Gallant et al., 2015).

Metzger & Hamilton (2021) conducted a study in the United States, using data collected from the previously completed Early Childhood Longitudinal Study (ECLS-K:2011). This data is from children in kindergarten to grade five (Metzger & Hamilton, 2021). The researchers focused on students in grades two through four because these are "...the prime diagnosis years" (Metzger & Hamilton, 2021, p. 263). This study by Metzger & Hamilton (2021) revealed the following:

> We see that teachers rate students diagnosed with ADHD lower across subjects, with the averages falling between below and at grade level. ADHD-diagnosed students also have lower test scores than their non-diagnosed peers, on average. Those that are diagnosed are less likely to be female. Both white and black students face a higher likelihood of

> diagnosis, while Asian students and those categorized in another racial category have the lowest likelihood. (p. 266)

When looking across subjects, "...ADHD children are more likely to be rated as performing below grade level in all subjects" (Metzger & Hamilton, 2021, p. 269). Regarding above level achievement, this study found "...that when it comes to assigning positive academic attributes, perceptions of student behavior may lead teachers to withhold above grade-level ratings, even to high-achieving ADHD children" (Metzger & Hamilton, 2021, p. 272). This research shows concerning rates of lower expectations and negative labels associated with a child's diagnosis of ADHD.

In another Canadian study, Ohan et al. (2011) conducted a study with elementary school teachers and pre-service education students to see if a label of ADHD changed their perceptions of a child. This study utilized vignettes that described a child. Each participant received questionnaires that included vignettes. "A range of ADHD symptoms were evidenced across vignettes, and each vignette contained 6 of the 9 symptoms from each ADHD symptom cluster in accordance with an ADHD diagnosis (American Psychiatric Association, 2004 as cited in Ohan et al., 2011, p. 86). Some vignettes included the label of ADHD, and the vignettes varied in gender (Ohan et al., 2011).

This study "...found that teachers and education students reported different perceptions of an identical child depending on whether or not they were labeled "ADHD" (Ohan et al., 2011, p. 94). Regarding teacher expectations, "...participants had more negative expectations of children in ADHD labeled vignettes, rating them as having more serious problems and their behavior as more disruptive to the classroom and their peer relationships" (Ohan et al., 2011, p. 94). This is

similar to what was found in Metzger & Hamilton's (2021) article that noted a label of ADHD can have negative stigma attached in the perception that others have about children with a diagnosis of ADHD. A positive finding in the Ohan et al. (2011) study is the "one potential benefit of the "ADHD" label was that it significantly increased teachers' and education students' willingness to aid in implementing treatments" (p. 95). This suggests that a diagnosis of ADHD results in a school's requirement to provide academic accommodations to support a child. This varies by provinces in Canada, as provinces such as British Columbia do not specifically designate students for special education if they are diagnosed with ADHD. In Alberta, a child with a diagnosis of ADHD would be considered to have a physical or medical disability and would be coded as code 58. This is defined as a "child/student identified with a mild to moderate physical or medical disability is one whose physical, neurological, or medical condition interferes significantly with the ability to learn and requires adjustments to the learning environment" (Alberta Education, 2021, p. 9). ADHD is recognized within this code and allows for the implementation of an Individual Program Plan (IPP).

For differences between the child's gender, this study found that "education students reported a greater willingness to help implement classroom behavioral strategies for girls labeled with "ADHD," whereas teachers were more willing to help implement these strategies for boys labeled with "ADHD" (Ohan et al., 2011, p. 97). The researchers suggest that the teacher's willingness to support boys could be related to more experience working with boys diagnosed with ADHD compared to girls (Ohan et al., 2011). When examining teacher experience, this study found that "more training about ADHD was linked to a greater negative impact of label on ratings of emotional reactions" Ohan et al., 2011, p. 98). One reason that the researchers state for this could be that increased training on ADHD may focus primarily on the child's difficulties

(Ohan et al., 2011). The study by Blotnicky-Gallant et al. (2015) suggested shifting focus on in-service training on ADHD from difficulties related to the medical model to evidence-based strategies that could be implemented into the classroom related to the social model.

Sherman et al. (2008) completed a literature review about teacher beliefs about children with a diagnosis of ADHD. Their study had two goals. "The first goal was to determine how teacher factors influence education and health outcomes… in children who have been diagnosed with ADHD" (Sherman et al., 2008, p. 349). For the second goal, this study looked to "describe factors that influence teachers' acceptability, understanding and tolerance of ADHD and treatment options for their students, as well as teacher factors that relate to their likelihood to refer students for diagnosis" (Sherman et al., 2008, p. 349). This study reviewed literature from North America between 1966-2006 that included elementary-aged children with ADHD, focusing on themes related to their two stated research goals. The researchers concluded that "teachers who demonstrate patience, knowledge of intervention techniques, an ability to collaborate with an interdisciplinary team, and a positive attitude towards children with special needs can have a positive impact on student success" (Sherman et al., 2008, p. 347). Consistent with the results in Blotnicky-Gallant et al. (2015), this review found that "treatments involving less time are typically favoured over those that demand high amounts of supervision or teacher support, but students' gender can influence how acceptable teachers rate particular interventions" (Sherman et al., 2008, p. 357). The role of the teacher was highlighted as being of crucial importance and can have both positive and negative impacts on a child's perception of themselves. Sherman et al. (2008) notes that "...how teachers react to and view ADHD behaviours and various treatments can influence student behaviour, how the children view themselves in relation to their peers, and social and academic outcomes" (p. 357).

All three studies highlighted suggest the importance of an increase in in-service teacher training on ADHD. These studies found that teachers have a good understanding of ADHD, ADHD symptoms, and increasing willingness to support a student with a diagnosis of ADHD. Shifting training from discussing the deficits of a child with ADHD and focusing on evidence-based strategies that can support a child with ADHD in the classroom was a recommendation that each study made. Teachers currently suggest that they implement strategies that require minimal time and are easily utilized in the classroom. A detailed discussion on evidence-based classroom practices can be found in Chapter 3 of this study.

Conclusion

The magazine ADDitude has an infographic that explains ADHD to teachers. Appendix E depicts ADHD as an iceberg, and states that "only 1/8 of an iceberg is visible. Most of it is hidden beneath the surface" (Zeigler Dendy, 2022). The tip of the iceberg is labelled as behaviours that are visible, and beneath the surface are the underlying difficulties. Above the surface, teachers may see hyperactive behaviours: unable to sit still, fidgets, talks a lot, runs or climbs a lot, and is always on the go (Zeigler Dendy, 2022). Impulsive behaviours can be seen as: lacking self control, difficulty awaiting turn, blurting out comments or answers, interrupting others, and intruding the activities of others (Zeigler Dendy, 2022). Inattention can look like: being disorganized, not following through, not paying attention, being forgetful, not listening, losing items, and turning in homework late (Zeigler Dendy, 2022). On the surface, these behaviours are visible and can be disruptive or concerning in a classroom. The neurodiverse educator looks at the tip of the iceberg for a child and wonders, "what lies below the surface?" The ADHD iceberg shows that underneath the surface, could be neurotransmitter deficits, weak executive functioning, impaired sense of time, sleep disturbance, delayed brain maturation, not

learning easily from rewards and punishment, co-existing conditions (e.g., anxiety, depression, bipolar), learning problems, and low frustration tolerance (Zeigler Dendy, 2022).

In an interview with Sports Illustrated, Michael Phelps reflected on his educational experience as a child with ADHD. “I had a teacher tell me that I would never amount to anything and I would never be successful” (Dowd, 2017). He struggled academically and did not feel successful as a student. As an adult, this is what stands out for him as a main schooling memory. The words that a teacher speaks hold power and can shape a child’s self-concept.

Chapter Two: The Social Model of Disability and ADHD Strengths

"Why fit in when you were born to stand out?"

Dr. Seuss

Introduction

In this chapter, I will discuss the social model of disability, and a literature review on the strengths of ADHD. While investigating the strengths that individuals with ADHD may have, I recognize that ADHD can pose significant challenges for each individual. Focusing on strengths is not intended to ignore the difficulties of each individual person, but to shift focus to strengths while maintaining awareness of and support for difficulties.

Social Model of Disability

The social model of disability differs from the medical model of disability, as it focuses solely on the societal barriers that exist and exclude individuals from equal access and participation. Ladau (2021) states that "...people are disabled not by medical conditions but by environments, attitudes, and systems that create barriers" (p. 39). The social model of disability includes the following definition: "In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society" (Union of the Physically Impaired Against Segregation, 1976, as cited in Anastasiou & Kauffman, 2013, p. 442). In this model, an individual is disabled by the barriers that a society constructs.

Central to the social model of disability is an understanding of the differences in terminology between disability and impairment. Impairment is defined as "...the loss or lack of some functioning part (organ or mechanism) of the body" (Oliver, 1990, 1996a; Barnes, 1991,

1999, as cited in Anastasiou & Kauffman, 2013, p. 444-445). Disability is defined as "...a society that discriminates, disadvantages, and excludes people with impairments, as it does not make appropriate accommodations and gives preference to those without impairment" (Oliver, 1990, 1996a; Barnes, 1991, 1999, as cited in Anastasiou & Kauffman, 2013, p. 445).

The social model focuses on disability; the barriers that are socially constructed. This model does not acknowledge the biological factors of disability. "The model ignores the functional, physiological and cognitive elements, but rather focuses on the wider external environment, suggesting that disability is socially constructed" (Lang, 2001, as cited in Bunbury, 2019, p. 30). Advocates of the social model of disability note that "...many believe that it is not the physical, cognitive, sensory and emotional make-up of the individual that is the problem, but the social institutions and human made environments that were created without considering the differing characteristics of all people" (Asch, 2001, as cited in Bunbury, 2019, p. 29). Barkley (2007) provides the following explanation of societal environmental conditions and barriers:

> Behavioral treatments, like hearing aids, wheelchairs, ramps into public facilities, lower bathroom fixtures, glasses and large-print books, and prosthetic limbs for amputees, are artificial means of altering environments so as to reduce the adverse effect of a biological handicap on the performance of major life activities. No one would rationally claim that physical disabilities arise from the lack of wheelchairs and ramps. Similarly, no one would claim that using a wheelchair or associated ramps for a month or two would result in their either being internalized or so altering the social environment that they would be sustained by changes in naturally occurring contingencies after the chairs and ramps are withdrawn. And so no one should now rationally claim that ADHD arises from faulty learning or that several months of contingency management produces sustained benefits

> for ADHD once treatment is withdrawn. Behavioral methods are prostheses—means of rearranging environments by artificial means so as to yield improved participation in major life activities. (p. 281)

This model relies on society's perception and expectation of what is considered to be normal. Bunbury (2019) states that, "in order to eradicate exclusion among the disabled population, society should accept difference and recognize that individuals have vulnerabilities (Herring, 2013), in an attempt to change attitudes and promote inclusion" (p. 40). For barriers to be removed, a societal shift is needed. "Until society recognizes difference and accepts that the definition of 'normal' does not exist when tackling disability discrimination, social exclusion will still remain" (Bunbury, 2019, p. 40).

There has been research conducted to investigate whether there is cultural variability in ADHD diagnosis. Research included in this literature review focuses on North American studies, but it should be noted that research extends to many other countries and continents. One study conducted in Brazil looked at the social construction of ADHD, and if studies from other countries are consistent with Brazilian studies. The authors stated that "it is important to note that taking into account cultural aspects to better understand a disorder is not the same as defining it as a cultural construct" (Rohde et al., 2005, p. 1436). Their review examined seven previously conducted studies and found that Brazilian prevalence rates and presentations are similar to those in North American research. Rohde et al. (2005) stated the following:

> Data from studies on ADHD prevalence, symptom construct, etiology, and treatment findings seem to strongly suggest that ADHD is not best conceptualized as a cultural

> construct. Instead of this, findings in a different culture support the notion of a stable disorder across different cultures with important neurobiological correlates. (p. 1440)

In the province of Alberta, Canada, researchers looked at ADHD symptom prevalence in Indigenous children from Cree and Stoney populations in two Northern communities. Baydala et al. (2006) investigated how many children would present with ADHD symptoms based on rating scales, the Wechsler Intelligence Scale for Children–3rd edition (WISC-III), and the DSM-IV criteria for symptoms. They found that 32% of girls and 16% of boys met criteria for a diagnosis of ADHD (Baydala et al., 2006). The authors recognize that North American perceived deficits can be viewed as strengths in Indigenous communities. Researchers reference Hartmann's (1996) discussion on hunters and gatherers, detailing that the children in these communities could be perceived as advantageous hunters. The authors discussed that the "characteristics of the population we studied suggest that ADHD symptoms in Indigenous [sic] children may be representative of unique learning and behavioral patterns typical of Indigenous [sic] children rather than true ADHD" (Baydala et al., 2006, p. 646). They found that the cognitive profiles of the children included in this study were not consistent ADHD. Rather, "...the Indigenous [sic] children with ADHD symptoms performed more like other Indigenous [sic] children without ADHD symptoms than non-Indigenous [sic] children with ADHD" (Baydala et al., 2006, p. 646). The authors advocate for cultural awareness in the ADHD diagnostic process, as behavioural presentations in cultural populations could mimic ADHD. These differences "...suggest that the pattern of learning in some Indigenous [sic] children may represent a unique learning style that may erroneously lead to a diagnosis of ADHD" (Baydala et al., 2006, p. 646).

Sherman et al. (2006) explains that "the very name, which includes the word "disorder," does not reflect the variability among children diagnosed with ADHD, and may bias individuals

against realizing the potential, strengths, and gifts that many children with ADHD have (p. 197). American bestselling author Dav Pilkey, who himself was diagnosed as a child with ADHD and Dyslexia, suggests the alternate terminology of Attention Deficit Hyperactivity Delightfulness. In an interview with the Washington Post, he said that he wants "...kids to know that there's nothing wrong with you. You just think differently, and that's a good thing. It's good to think differently. This world needs people who think differently; it's your superpower" (Cavna, 2019). A suggested change in terminology is Variable Attention Stimulus Trait (VAST). This updated terminology "…allows us to "de-medicalize" ADHD and focus instead on the huge benefits of having an ADHD brain" (Hallowell & Ratey, 2022). I wonder how often kids who see the world differently are reminded that their differences can be strengths, and not deficits?

In a workshop hosted by Shelley Moore (2021), she discussed during a session on the role of place how she experienced a socially constructed barrier during a trip to the United States. While filling a rental car, she was required to pay for gas at the pump. To pay for gas at the pump, she needed to input a zip code. Being Canadian, she had a postal code, but no zip code, which prevented her from being able to fuel her vehicle. At one gas station, she noticed that a sticker had been affixed to the gas pump that visually explained how a postal code could be adapted to follow the zip code format. This visual allowed her to accurately input a zip code, and she was able to independently purchase fuel at the pump. She uses this example to illustrate how one accommodation could benefit many individuals, in this example benefiting Canadian tourists needing to purchase fuel. For ADHD, the question to be asked is, what barriers within a classroom cause a child with ADHD to significantly struggle, and how can these barriers be removed?

Specific to ADHD, Hartmann (2019) suggests that children with ADHD are hunters in a farmer's world. This topic will be discussed in the ADHD strengths section of this chapter but is relevant to include in this discussion of the social model of disability. Hartmann suggests that North American classrooms are structured or created to support the learning of neurotypical students. Hartmann (2019) describes ADHD as having the following characteristics:

> They constantly monitor their environment… They can totally throw themselves into the hunt; time is elastic… They're flexible, capable of changing strategy on a moment's notice… They can throw an incredible burst of energy into the hunt… They think visually… They love the hunt, but are easily bored by mundane tasks… They'll face danger that "normal" individuals would avoid… They're hard on themselves and those around them. (p. 33-35)

In comparison to the hunter, Hartmann (2019) describes the farmer in the following observations:

> Isn't easily distracted by his or her environment… Farmer's sustain a slow-and-steady effort… Farmers see the long-range picture… Farmers are not easily bored… Farmers are team players… Farmers attend to the details… Farmers are cautious… Farmers are patient with others. (p. 36-38)

Hartmann argues that classrooms are constructed with the farmer in mind. For a child with ADHD, a classroom can pose many barriers. Sitting and listening to multi-step instructions, visual and auditory distractions, and limited opportunities for movement are some of the constructed barriers that a child with ADHD may experience in their classroom.

In an educational context, Universal Design for Learning (UDL) complements the social model of disability, as it looks for ways to change the place to support all individuals. There are three principles for UDL: "...Multiple Means of Representation, Multiple Means of Action and Expression, and Multiple Means of Engagement" (Levey, 2021, p. 1). UDL suggests that supports that benefit one individual could benefit all students in a classroom. Levey (2021) notes that "UDL is an approach that accounts for the variability among learners, minimizes barriers to learning, and assures successful learning for all students within a classroom" (p. 7).

Criticism of the social model of disability includes three factors, according to Anastasiou & Kauffman (2013):

> First, the eliminated category of "body" glosses over the cognitive, emotional, and social problems that are the very defining characteristics of intellectual disabilities and autism and the brain malfunctions involving many disabilities. People may have disabilities because of severe cognitive, language, emotional, and social problems, not only because they have what is recognized immediately as a physical impairment. Second, denying the role of biology in disability also denies the daily experiences of people with disabilities…. Third, treating only part of the social context, proponents of a social model cannot face the interactive relationship between biology and society. Neither biological/individual differences nor social context alone can provide an adequate account of disabilities. (p. 450)

Ladau (2021) suggests that "in reality, neither the medical nor the social model can exist independently of each other" (Ladau, 2021, p. 39). Both models serve a purpose in society. The

medical model can serve a diagnostic purpose, and the social model can work to eliminate socially constructed barriers to increase inclusion and genuine participation.

ADHD Strengths

A shift appears to be occurring in the field of educational research and ADHD, with published studies beginning to focus on strengths versus deficits when supporting a child with ADHD. In articles that advocate for focusing on strengths, many of the authors state the importance of continuing to recognize the significant difficulties that children with ADHD experience. One article begins their paper by stating that "...this perspective does not deny or minimise the challenges faced by those with ADHD but rather underscores the need to pay equal and explicit attention to their strengths, resources, and successes" (Rhee, Furlong, Turner, & Harari, 2001, as cited in Climie & Mastoras, 2015, p. 296).

Thomas Armstrong (2012) dedicates a chapter to the Joys of ADHD in his book Neurodiversity in the Classroom. Armstrong (2012) begins this chapter by discussing how ADHD presentations could have proven vital for survival in prehistoric times, referencing a quote from Jensen et al. (1997):

> There is some evidence that ADHD traits actually fulfilled an important function in prehistoric times: An individual out in the wild needed to have relatively quick motor activity (hyperactivity) in order to forage for food, find shelter quickly, and attend to other important tasks. He also needed to rapidly shift his attention from one stimulus to another (distractibility), so that he could scan the environment for signs of predators and other potential threats. Finally, he had to be able to respond quickly to his instincts

(impulsivity) in order to meet whatever threats he encountered from animals, humans, weather, or other dangers. (p. 50)

This idea suggests that traits our society views negatively could also be recognized as helpful assets. This concept has been further explored by Thom Hartmann, who refers to people with a diagnosis of ADHD as being hunters in a farmer's world (Armstrong, 2012, p. 50). Traditional North American schools, argues Hartmann, have been designed for farmers. "The behaviours necessary for being a successful farmer - staying in one place, being patient, and focusing on the job at hand - are also associated with successful learning in a traditional classroom setting" (Armstrong, 2012, p. 50). This poses difficulty for children with ADHD in classrooms. "Unfortunately for children with hunter-like traits, modern North American cultures typically favour farmer characteristics over hunter traits, particularly in the classroom" (Sherman et al., 2006, p. 197). Students are expected to sit in one place for an extended period, take turns, and sustain attention which can be problematic for a child with ADHD.

Armstrong (2012) references researcher Bonnie Cramond, who suggests that ADHD traits and symptoms are consistent with creative individuals. She notes that "the only difference is that the words often used to describe ADHD characteristics - hyperactivity, distractibility, and impulsivity - are negative, while the terms used to describe creative people - vitality, divergency, and spontaneity - are positive" (Armstrong, 2012, p. 51). Children with ADHD can be inundated with reminders, redirections, and criticisms throughout the day. Pay attention! Sit still! Stop fidgeting! How many times do I have to remind you? Children hear the words that are consistently spoken to them and are aware of how they are perceived. Armstrong (2012) notes that developmentally, "...kids with ADHD develop normally, but they mature on average three years later than the brains of typically developing children" (Shaw et al., 2007, as cited in

Armstrong, 2012, p. 51). As we work towards reframing our language, Armstrong (2012) suggests that we could use "...a negative term onto this phenomenon and call it immaturity. But there is another, more positive, way of framing this developmental lag: neoteny" (p. 52). Neoteny is defined as "...the retention of youthful characteristics into adult development. Scientists have suggested that neoteny is a positive development in human evolution" (Gould, 1977; Montagu, 1988, as cited in Armstrong, 2012, p. 52). Youthful characteristics could be viewed as having many positive attributes for children. Examples of positive and reframed characteristics are "...imagination, playfulness, spontaneity, vitality, creativity, and wonder" (Armstrong, 2012, p. 52).

Providing children with the opportunity to see themselves as successful adults is something that Armstrong (2012) advocates for in his book. For children with ADHD, seeing adults similar to them can achieve important accomplishments is important. One historical figure that presented as having ADHD according to current medical diagnostic criteria is Mozart. "Although it can't be proved he had it, Mozart would be a good example of a person with ADD: impatient, impulsive, distractible, energetic, emotionally needy, creative, innovative, irreverent, and a maverick" (Hallowell & Ratey, 2011, p. 53). Other famous historical figures that potentially had ADHD experienced adversity in their educational years. "Albert Einstein, Edgar Allen Poe, George Bernard Shaw, and Salvador Dali were all expelled from school, and Thomas Edison was at the bottom of his class" (Hallowell & Ratey, 2011, p. 53). Despite negative schooling experiences, these individuals were able to excel in their field of work. Hallowell & Ratey (2011) state that "unfortunately, there is a longer list of those people whose spirits were broken in school, who therefore never got the chance to realize their potential (p. 53). Table 1 adapted from Armstrong (2012) provides a snapshot of individuals that society would view as

having successful careers in their field of work. He notes that he has included "...a few historical figures whose biographical details strongly suggest the presence of ADHD" (Armstrong, 2012, p. 53).

Table 1

Notable Individuals with Characteristics [sic] of ADHD

The Arts	Leonardo da Vinci, Walt Disney, Salvador Dali, Ansel Adams
The Sciences	Thomas Edison, Alexander Graham Bell, Albert Einstein, Michael Faraday
Business	Richard Branson, Paul Orfalea (founder of Kinko's), David Neeleman (founder of JetBlue Airways), Henry Ford
Entertainment	Justin Timberlake, Jim Carrey, Robin Williams, Stephen Spielberg
Sports	Michael Phelps, Terry Bradshaw, Pete Rose, Michael Jordan
Politics & The Military	James Carville, Winston Churchill, Napoleon, John F. Kennedy
Writers	Tennessee Williams, Mark Twain, Henry David Thoreau, Emily Dickinson

Adapted from *Neurodiversity in the Classroom: Strength-Based Strategies to Help Students with Special Needs Succeed in School and Life* (p. 53), by T. Armstrong, 2012. Copyright 2012 by ASCD.

Dale Archer is an advocate for identifying advantages of ADHD. In his book titled *The ADHD Advantage*, he devotes a section to success stories in the areas of entrepreneurship and athletics. After interviewing CEOs and entrepreneurs, he discovered that many of these successful individuals have ADHD. Many of these individuals share common traits that can be associated with ADHD: resilience and coping skills, impulsivity, hyperfocus, calm in chaos, and high energy (Archer, 2016, p. 179-180). In the section on athletics, Archer (2016) states

increased prevalence rates of ADHD for Major League Baseball (MLB) players. "…The incidence of ADHD among their ranks is twice as high as the general adult population, at about 9 percent versus 4.4 percent in the population of adults ages fourteen through forty-four, according to a study commissioned by the National Institute of Mental Health in 2006" (Archer, 2016, p. 193). Sport provides organized and consistent structure and provides an outlet for energy which are both beneficial for a child with ADHD.

Sherman et al. (2006) conducted a literature review to look at how characteristics of ADHD could be reframed as strengths within the classroom. The article begins by stating that "most, if not all, sources describe ADHD as a 'disorder,' and list the various deficits and difficulties that children with ADHD experience" (Sherman et al., 2006, p. 196). Because of this, "parents, teachers, health care professionals, and the children themselves can become discouraged as they learn about the negative aspects associated with a diagnosis of ADHD" (Sherman et al., 2006, p. 196). Their literature review seeks to find positive traits that could be supported for children with ADHD. The authors reference the following statement, that "having ADHD can be viewed either as a disorder defined by deficits, or as an advantage defined by unique characteristics and strengths that, in the appropriate contexts, are adaptive and advantageous (Hartmann, 2003, as cited in Sherman et al., 2006, p. 197).

One key point that the authors make is recognizing the heterogeneity of children with a diagnosis of ADHD (Sherman et al., 2006, p. 197). Sherman et al. (2006) state that "the very name, which includes the word "disorder," does not reflect the variability among children diagnosed with ADHD, and may bias individuals against realizing the potential, strengths, and gifts that many children with ADHD have" (p. 197). One strength discussed is that children with ADHD are polyactive (Sherman et al., 2006, p. 198). Polyactive suggests that children "...are

able to work on numerous tasks - and that they are often excellent brainstormers" (Alcock & Ryan, 2000, as cited in Sherman et al., 2006, p. 198). In addition to being polyactive, additional strengths identified for children with ADHD are that they can be "…excellent brainstormers, eager to please, energetic, and creative" (Sherman et al., 2006, p. 198). This is a strength that could be helpful within a classroom setting.

In their conclusion, the authors recognize that a diagnosis of ADHD can present significant challenges for a child (Sherman et al., 2006, p. 200). They further note that, "rather, we argue that thinking positively about ADHD and recognizing all children's unique strengths is important for helping children reach their social, emotional, and academic potential" (Sherman et al., 2006, p. 200). Sherman et al. (2006) summarize Hallowell & Ratey's research in the following statement:

> Although Hallowell and Ratey believe that ADHD is a serious condition that should be treated sensitively and appropriately when diagnosed, they also point out that many historical figures, including Albert Einstein, Edgar Allen Poe, Salvador Dali, and Henry Ford, displayed characteristics consistent with ADHD, and that every individual with or without ADHD carries within him or herself extraordinary potential. (p. 197)

Canadian researchers Climie & Mastoras (2015) looked at the impacts of positive psychology on recognizing strengths of children with ADHD. Positive psychology intends "to begin to catalyze a change in the focus of psychology from preoccupation only with repairing the worst things in life to also building positive qualities" (Seligman and Csikszentmihalyi, 2000, as cited in Climie & Mastoras, 2015, p. 295). Positive psychology can be subdivided into three areas: subjective experiences, individual level, and the group level (Seligman and

Csikszentmihalyi, 2000, p. 5). Subjective experiences include: "well-being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present" (Seligman and Csikszentmihalyi, 2000, p. 5). The individual level is defined by "...positive individual traits: the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom" (Seligman and Csikszentmihalyi, 2000, p. 5). Finally, the group level encompasses "...the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic" (Seligman and Csikszentmihalyi, 2000, p. 5). Seligman reflects on a personal exchange that he had with his young daughter, and how positive psychology can support and shift how we nurture children.

> Raising children, I realized, is vastly more than fixing what is wrong with them. It is about identifying and nurturing their strongest qualities, what they own and are best at, and helping them find niches in which they can best live out these strengths. (Seligman and Csikszentmihalyi, 2000, p. 6)

The mindset of fixing children who are perceived by society as different is a common theme in many of the reviewed articles discussing ADHD. A Google search asking the question, "how do you fix ADHD in children?" returned 8,220,000 results. Suggested search results included: ADHD treatment for child, how to help a child with ADHD without medication, and over the counter meds for ADHD child. Climie & Mastoras (2015) state that, "simply put, there is no 'cure' for ADHD. There is no quick fix that can ameliorate the difficulties encountered by these individuals (p. 296). Regarding quick fixes and cures, Armstrong (2012) writes that

"teachers should not seek to "cure," "fix," "repair," "remediate," or even "ameliorate" a child's "disability"" (Armstrong, 2012, p. 12).

When discussing strengths of children with ADHD, Climie & Mastoras (2015) discuss that some "...children with ADHD have been found to demonstrate cognitive strengths in the areas of logical thinking and reasoning (Ek et al., 2007), emotional intelligence (Climie, Saklofske, Schwean, & Mastoras, 2013), and creativity (Fugate, Zentall, & Gentry, 2013)" (as cited in Climie & Mastoras, 2015, p. 297). Their research advocates for a shift in assessment from deficit-based to strength-based, which "...recognizes that there are many components in their lives that are working and areas in which they are achieving successfully" (Climie, Mastoras, McCrimmon, & Schwean 2013, as cited in Climie & Mastoras, 2015, p. 295). A strengths-based assessment can determine areas of success for the child, and how teachers, parents, and medical professions can support a child's development.

Sedgwick et al. (2019) conducted qualitative research to determine which traits or aspects of ADHD were deemed to be helpful in successful adults. The researchers completed interviews of six adult males, and determined six themes: "cognitive dynamism, courage, energy, humanity, resilience and transcendence" (Sedgwick et al., 2019, p. 243). The interviews were viewed through the lens of phenomenology, "... because it is a research design founded in a paradigm of personal knowledge and lived experience (Husserl 1983; Giorgi 2008, as cited in Sedgwick et al., 2019, p. 242). Cognitive dynamism included "...divergent thinking, hyper-focus, creativity and curiosity" (Sedgwick et al., 2019, p. 244). Each participant described these sub-themes as positive traits that have helped them to be successful in their careers. The theme of courage included "...nonconformist, adventurousness, bravery, integrity and persistence" (Sedgwick et al., 2019, p. 244). Researchers noted parallels between the terms adventurousness and

impulsiveness, and how these symptoms are perceived by others. Sedgwick et al. (2019) discussed the following:

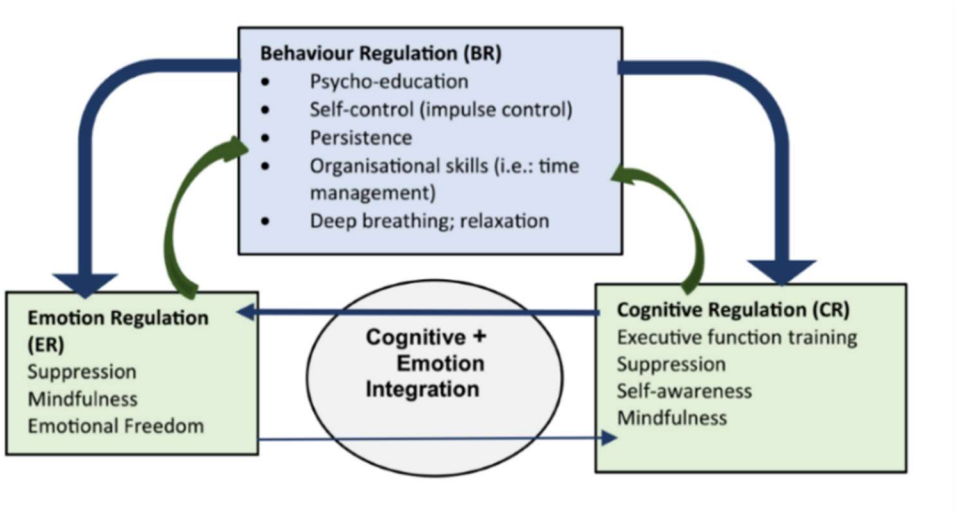
> The participants said that an action was judged as either impulsive or spontaneous depending on how other people reacted to it. If the reaction of others was negative, then the action (or behaviour) was viewed as impulsive, but when the reaction was positive, then the action was described as spontaneous (or intuitive). (p. 245).

This is an example of how reframing how we view ADHD can result in a negative or positive perspective. Regarding energy, participants reported always having lots of energy. Participants noted that energy was a benefit to them, as it helped them "...feel younger than their peers and being able to engage in different activities, such as sports, which certainly could have added to the participants positive sense of well-being" (Gráinne et al., 2015, as cited in Sedgwick et al. 2019, p. 246). The fourth theme in this study was humanity, which encompasses "...social intelligence, humour, self-acceptance and recognition of feelings" (Sedgwick et al., 2019, p. 246). As mentioned in the deficits section of this chapter, children with ADHD can have social or relational difficulties. This research shows that a diagnosis of ADHD and the theme of humanity can provide positive social strengths for a person. Interviews revealed that "all participants described an ability to initiate social conversations with relative ease" (Sedgwick et al., 2019, p. 246). Participants discussed the importance of humour in their social interactions, and that they were aware of the feelings and emotions of others (Sedgwick et al., 2019, p. 246-247). Resilience was the fifth revealed theme in this study. Resilience was described as "...the strategies they used to cope with their ADHD" (Sedgwick et al., 2019, p. 247). The authors included figure 3 to provide a visual representation for how the participants coped with their ADHD with the help of self-regulation (Sedgwick et al., 2019, p. 247). The participants noted

that the strategies included need to be learned and used to support their self-regulation (Sedgwick et al., 2019).

Figure 3

Model of self-regulation (SR) strategies and processes



From "The positive aspects of attention deficit hyperactivity disorder: a qualitative investigation of successful adults with ADHD," by Sedgwick et al., 2018, *ADHD Attention Deficit and Hyperactivity Disorders*, *11*(3), p. 247 (https://doi.org/10.1007/s12402-018-0277-6). CC

In this model, Emotion Regulation (ER) and Cognitive Regulation (CR) are the foundational processes that Behaviour Regulation (BR) relies upon (Sedgwick et al., 2019, p. 247). "The bidirectional relationship between CR and ER… suggests that maintaining balance between the CR and ER is essential for effective BR" (Murray et al., 2015, as cited in Sedgwick et al., 2019, p. 247). Within this model, "...the thicker arrow flowing from CR to ER suggests that top-down CR strategies have a stronger impact on ER" (Sedgwick et al., 2019, p. 248).

Throughout this article, the authors included excerpts from participant interviews. Regarding self-regulation, one participant explained the following:

> …it's a bit of a catch-22 because it is trying to find a balance between not being over aroused and not being bored… life is always about finding a good balance and so it is that sort of walking a tightrope and trying not to fall down on either side… one side is over arousal and one side is boredom. (Sedgwick et al., 2019, p. 247-248)

Finally, transcendence was discussed as being a common theme with the participants. Sedgwick et al. (2019) note that "its defining sub-theme is appreciation of beauty and excellence" (p. 249). Appreciation of beauty and excellent (ABE) "...describes a process of noticing talent or beauty in the environment and associated feelings of awe, wonder, elevation, and admiration" (Haidt and Keltner, 2004, as cited in Sedgwick et al., 2019, p. 249). This suggests that they can see the good in people, their situations, and their surroundings.

Conclusion

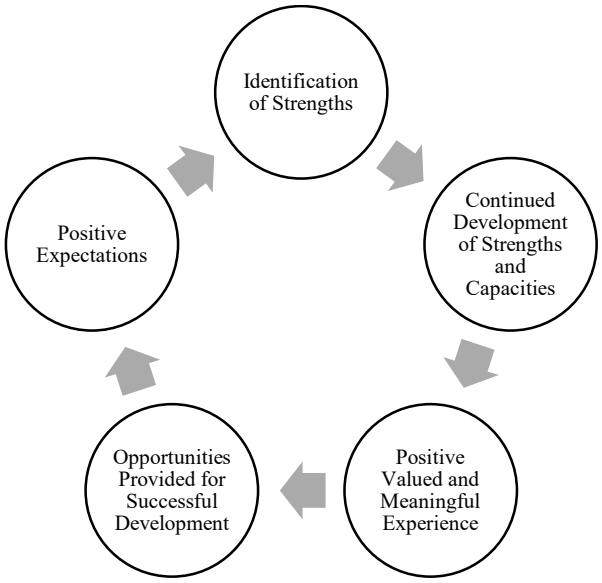
This chapter explored the sub-question of this study: what are the strengths of some child with ADHD? Each study reviewed in this chapter highlighted strengths that a child with ADHD may possess. These strengths can include being polyactive, creative, energetic, good brainstormers, humour, resilience, hyperfocus, curiosity, and spontaneity. Many of the terms associated with ADHD have negative connotations but can prove beneficial in specific settings, as explored by Hartmann's discussion on hunters and farmers. Armstrong (2012) advocates for the importance of children seeing themselves in successful adults. As discussed in this chapter, there are many individuals that North American society would consider successful and

accomplished that either present as having ADHD or have received a diagnosis. These could be shared as role models for all children, including children with ADHD.

Instead of identifying the deficit and tailoring interventions to target the deficit, the strengths-based cycle identifies strengths. This then leads to a development of strengths, meaningful experience, and positive expectations. Figure 4 depicts the strengths-based cycle.

Figure 4

The Strengths-Based Cycle



Adapted from *Theoretical approaches - homeless hub*. (n.d.). Retrieved April 23, 2022, from https://www.homelesshub.ca/sites/default/files/K%20Theoretical%20Approaches_0.pdf

The social model of disability can be presented as a challenge to classroom teachers. How can classrooms be adjusted to remove socially created barriers that impose difficulties for a student with ADHD? Could concepts and understandings be communicated in a variety of ways? Could student choice be provided when selecting books or topics to explore? What types of

flexible seating could be brought into a classroom to allow for more movement? Universal Design for Learning (UDL) can be a helpful construct for providing strategies and approaches that can benefit all students and help teachers navigate questions and challenges. As discussed in the theoretical framework section of this paper, UDL includes multiple means of engagement, representation, and action and expression. Of central importance in the UDL framework is that it "…aims to change the design of the environment rather than to change the learner" (CAST, 2021) which aligns with the social model of disability. Within multiple means of engagement, teachers can provide options for recruiting interest, sustaining effort and persistence, and self-regulation (CAST, 2021). Practical examples of multiple means of engagement are providing choice, opportunities for collaboration, and developing self-assessment and reflection (CAST, 2021). For multiple means of representation, teachers could provide options for perception, language and symbols, and comprehension. For multiple means of representation, options could include using closed captions on videos, pre-teaching vocabulary, and chunking information into smaller amounts (CAST, 2021). Finally, for multiple means of action and expression, teachers could provide options for physical action, expression and communication, and executive functions (CAST, 2021). Classroom options could include access to assistive technologies and providing explicit instruction for goal setting (CAST, 2021). All these options can support the learning of all students in a classroom and could specifically benefit the learning for a child with ADHD. An infographic on the Universal Design for Learning Guidelines can be found in Appendix F.

At the end of chapter one, I concluded with Michael Phelps' recollection of how his teacher viewed him. In response, his mother would pose the following question to his teachers. "Whenever a teacher would say, 'Michael can't do this,' I'd counter with, 'Well, what are you

doing to help him'" (Dutton, 2021)? Teachers are tasked with individually tailoring learning experiences to the unique needs of students and understanding their strengths.

Chapter Three: Evidence-Based Classroom Strategies

"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."

Albert Einstein

Introduction

In this chapter, I will discuss classroom strategies and interventions to support children with ADHD. Paired with an understanding of ADHD and respect for neurodiversity, teachers can implement these strategies in their classrooms to support the learning of all students. Armstrong (2012) states, "we don't pathologize a calla lily by saying that it has a "petal deficit disorder." We simply appreciate its unique beauty" (p. 9). These evidence-based strategies can provide teachers with ways to appreciate the unique beauty of all learners.

Classroom Interventions

The literature reviewed has shown that teachers have a good understanding of ADHD and the difficulties a child experiences, but the lack of evidence-based interventions has been identified as a main area of concern for teachers. This section will discuss evidence-based interventions for supporting a child with ADHD in a classroom. These interventions will be viewed through the lens of the social model of disability, recognizing that classroom barriers are socially constructed. Instead of looking for ways to "fix" the child, these interventions will look at fixing the environment. When implementing interventions, "...it is important to provide consistent and ongoing behavioural supports until children are able to internalize self-control strategies, both at home and at school" (Miranda et al., 2006; Rajwan et al., 2012, as cited in Elik

et al., 2015, p. 43). Consistent and open communication between school and home is required to effectively support a child with ADHD.

Understanding how ADHD can impact a child's ability to learn in a classroom is critical knowledge for a teacher. "Some psychological processes — processing speed, working memory, and longterm recall — are crucial for nearly all types of academic learning (Dehn, 2014; as cited in Dehn, 2013). Academic learning examples in this study include basic reading skills, reading fluency, reading comprehension, mathematics calculation, mathematics problem solving, written language, oral expression, and listening comprehension (Dehn, 2013). For all these types of academic learning, the only task that does not involve working memory is reading fluency. The only task that does not include long-term recall is listening comprehension, and processing speed is not part of reading comprehension. For a child with ADHD, executive functions are required for reading comprehension, mathematics problem solving, written language, oral expression, and listening comprehension (Dehn, 2013). The psychological processes required to complete classrooms tasks can be daunting for a child with ADHD. Dehn (2013) states that "when a particular process is deficient, the types of academic learning it supports are likely to be affected" (p. 124). Understanding the psychological processes involved in academic learning can help inform the teacher's instructional planning.

DuPaul & Weyandt (2006) explain that school interventions are either proactive or reactive. "Proactive treatment strategies involve a change in conditions (e.g., teacher behavior) before a specific behavior occurs… antecedent events are modified to increase (or decrease) the probability that a specific behavior will occur" (DuPaul & Weyandt, 2006, p. 345). Suggested proactive treatments are providing choice for assignments, peer tutoring, and computer-assisted instruction (DuPaul & Weyandt, 2006, p. 345-347). Regarding task choice, Dunlap et al. (1994)

found that "when students were provided with assignment choices, they showed higher rates of task engagement and lower frequency of disruptive behavior relative to class sessions when teachers chose the specific assignments" (DuPaul et al., 2011, p. 37). Daley & Birchwood (2010) also advocate for peer tutoring. The authors state that for academic support, finding that "research has shown that peer tutoring improves classroom behaviour and academic performance (DuPaul et al., 1998, as cited in Daley & Birchwood, 2010, p. 460). To support homework and test-taking, Daley & Birchwood (2010) advocate that "changes could also be made to the examination (assessment) environment to ensure students ADHD behaviours do not impact on exam performance" (p. 461). They suggest reducing the length of the task, alternate and flexible environments, and providing fidget tools (Daley & Birchwood, 2010, p. 461). DuPaul et al. (2011) also include task-length reduction in their research. The authors explain that "reducing the length of an assignment to match students' attention spans, may reduce off-task, disruptive behavior… As students demonstrate success with shorter assignments, the length of assignments can be gradually increased thereby shaping task-related behavior to match classroom norms" (DuPaul et al., 2011, p. 36).

In contrast to proactive strategies are reactive strategies. "Reactive strategies are interventions that involve a change in environmental conditions following a specific behavior in order to alter the frequency of that behavior in the future" (DuPaul & Weyandt, 2006, p. 348). Examples of reactive strategies include token reinforcement, daily report cards, and response cost economy (DuPaul & Weyandt, 2006, p. 348-349). The authors state that "…an exclusive reliance on punishment-based interventions rarely is effective for children with AD/HD and related disruptive behaviors" (DuPaul & Stoner, 2003, as cited in DuPaul & Weyandt, 2006, p. 348). One of the reasons for this is because of delayed gratification being a challenge for a child

with ADHD. DuPaul & Weyandt (2006) explain that "…immediate contingencies frequently are necessary to change behavior effectively," (p. 349) and this must be considered as part of classroom strategies. "Research supports the use of both proactive and reactive classroom interventions to help improve the academic, behavioral, and social performance of children and adolescents with AD/HD" (DuPaul & Weyandt, 2006, p. 353). When implementing reactive strategies, research suggests three guidelines. "First, reinforcement should be provided as frequently as possible, given that children with this disorder may experience difficulties demonstrating consistent behavior under conditions of partial reward or intermittent reinforcement schedules" (DuPaul et al., 2011, p. 37). When determining rewards, they "…should be individualized based on student preferences and interests. Further, specific rewards should be rotated or varied over time so that children do not become bored or complacent with the same reinforcers" (DuPaul et al., 2011, p. 37). Finally, "…reinforcement should be provided as close as possible in time to the occurrence of a target behavior (i.e., provided as immediately as possible following a desired behavior)" (DuPaul et al., 2011, p. 37).

Elik et al. (2015) suggests evidence-based interventions and discuss five levels of interventions based on their level of effectiveness. Level one is defined as "effective (well-established) interventions" (Elik et al., 2015, p. 44), with level five being ineffective interventions (Elik et al., 2015). Levels three to five include medical interventions that would not be applicable to the content of this review. The types of interventions in level one are: stimulant medication, behavioural classroom management, combination of medication and behavioural interventions, and organizational training (Elik et al., 2015, p. 44). Within these interventions, ones that can be implemented within the classroom are behavioural classroom management and

organizational support. Elik et al. (2015) outlines the following classroom management interventions:

> Behavioral classroom management includes both classroom-wide and individually administered behavior management strategies, such as praise, individual attention, material rewards, tokens, removal of privileges, consistent and clear contingencies, specific goals, identifying functions of behaviors, avoiding inadvertent reinforcement of misbehaviors, etc. Daily report cards are often part of a behavioral program. (p. 44)

The authors state that these interventions are evidence-based for elementary-aged students (Elik et al., 2015). When considering interventions, the authors suggest answering the following questions prior to implementation. The first question is, "what are the antecedents (causes) of behaviour" (Elik et al., 2015, p. 44)? The next question is, "what are the consequences of behaviours (rewards or punishment by adults, or natural consequences, such as being cold when not putting mittens on)" (Elik et al., 2015, p. 44)? The final question to consider is, "what are the functions of behaviors (the purpose they serve) such as skipping a difficult class by misbehaving, because the child knows he or she will be sent out of the classroom when they misbehave" (Elik et al., 2015, p. 44)?

Organizational support includes "teaching children how to organize their belongings, track and monitor assignments, and plan for completion of evening homework" (Elik et al., 2015, p. 44). Examples could include writing in a daily agenda, utilizing apps to track deadlines, and explicit instruction on goal setting for upcoming assignments or tests. The authors state that interventions specific to organizational supports have "...been found to be most effective for children with higher IQ" (Elik et al., 2015, p. 44).

The second level proposed by Elik et al. (2015) includes "probably efficacious interventions" (p. 44). For school-based interventions, Elik et al. (2015) includes the following non-behavioural interventions:

> Classroom-based non-behavioral interventions involve strategies that are implemented by teacher to make changes in the overall structure of the classroom, adaptations in lessons, and teaching children self-monitoring strategies. Some of these adaptations include seating the student near the teacher and a positive role model, teacher proximity to student when giving directions, simplifying directions, giving written outlines, allowing the student to have an extra set of books at home, pairing a student with another student to check work, breaking long tasks into smaller amounts, and taking frequent breaks. (p. 44)

Barkley's (2020) research points toward executive dysfunction for children with ADHD, which can lead to academic difficulties. Interventions need to be implemented to support the executive functioning for children with ADHD. Johnson & Reid (2011) discuss executive functioning supports in their research, and found that direct instruction and planning, goal setting, and persistence are important for supporting a student with ADHD. For instructional strategies, they state that for students with ADHD, instruction should "…(a) directly and explicitly teach the steps in the strategy, (b) provide students with information on the value of the strategy…, and (c) continue until the student has mastered the strategy and can use it independently" (p. 63). Strategies could include structure for planning a writing passage, solving a mathematical word problem, or for remembering important dates in history. Goal setting needs to be explicitly taught, as "students with ADHD may be unaware of the goal associated with an academic task or may also have difficulty remembering goals (Barkley, 2006, as cited in Johnson

& Reid, 2011, p. 64). Johnson & Reid (2011) explain that for goal setting, "teachers need to explain the importance of setting goals, require that the student set goals, and provide students with the means to monitor their progress toward their goal" (p. 64). Goals need to be achievable, and within a shortened period of time. "Proximal goals are critical for students with ADHD, as these students often need more frequent reinforcement" (Johnson & Reid, 2011, p. 64). The authors caution against setting goals that are too easily attainable for the student, as "an easy goal does not serve to maintain a student's motivation" (Johnson & Reid, 2011, p. 64). Daley & Birchwood (2010) examined goal-setting and self-monitoring, finding that "…these strategies help to improve the academic performance of ADHD individuals (particularly older children and adolescents), especially in combination with stimulant medication" (Raggi & Chronis 2006, as cited in Daley & Birchwood, 2010, p. 460). Persistence and perseverance can present challenges for a child with ADHD, and "…a task posing even a small amount of challenge may cause a child with ADHD to quit" (Johnson & Reid, 2011, p. 65). To support persistence, "…teachers can help reduce frustration by ensuring that students have sufficient instruction and opportunities for practice to enable them to successfully master the skills needed to perform a task" (Johnson & Reid, 2011, p. 65). Additionally, teachers can teach "…students self-monitoring strategies that can increase their academic performance. Self-monitoring involves self-assessing academic performance or behaviour (e.g., number of correct answers, whether the student was attending to the task) and self-recording the results" (Reid, Trout, & Schartz, 2005; Reid, 1996; as cited in Johnson & Reid, 2011, p. 65). In the conclusion of their research, the authors summarize effective classroom supports for children with ADHD as the following: "(a) linked directly to the curriculum, (b) taught systematically and explicitly, and (c) supported through the use of

scaffolding and collaborative practice" (Meltzer, Pollica, & Barzillai, 2007, as cited in Johnson & Reid, 2011, p. 65).

Climie & Mastoras (2015) suggest a shift from behaviour focused interventions to strength-based interventions. They state that "...the most frequently recommended school-based intervention strategy for children with ADHD involves behaviour management programs, with a focus on reducing problem behaviours to a level more comparable to their typically developing peers (e.g., token response systems, daily report cards; Barkley, 2014; DuPaul et al., 2011)" (Climie & Mastoras, 2015, p. 298). They advocate considering positive psychology and providing opportunities for students with ADHD to further develop their strengths within the classroom. Prior to implementation, a strengths-based assessment would need to be completed. This would follow a diagnosis of ADHD and would include "...interviews and/or strengths-based rating scales to probe positive areas" (Nickerson & Fishman, 2013, as cited in Climie & Mastoras, 2015, p. 298). One benefit of implementing strengths-based interventions is that it "...may also help children to recognise each other's strengths, thereby enhancing peer perceptions and relationships" (Climie & Mastoras, 2015, p. 298). The authors suggest that by "...using collaborative group activities, a child with ADHD might be valuable in contributing out-of-the-box ideas, whereas he or she may be less successful in a role of organizing group tasks, taking notes, or creating the timeline" (Climie & Mastoras, 2015, p. 298). In addition to specific interventions, the authors suggest that focusing on fostering positive relationships is crucial when looking at strengths-based interventions (Climie & Mastoras, 2015). This extends to both peer relationships, as well as relationships with adults in the child's life. It is important that adults "...recognise the child's strengths and successes, as well as using parents' and teachers' own strengths in developing the interventions they provide, has the potential to

decrease feelings of frustration and ineffectiveness often experienced by those working with these children" (Terjesen et al., 2004, as cited in Climie & Mastoras, 2015, p. 299). Strengths-based interventions are unique to each child's needs, and an initial assessment is needed to determine appropriate classroom interventions to support each child's unique strengths.

Hallowell & Ratey (2011) provide strategies for teachers to support a child with ADHD in their classrooms. Of the 50 suggested points, they close with the following suggestion:

> Always be on the lookout for sparkling moments. These kids are far more talented and gifted than they often seem. They are full of creativity, play, spontaneity, and good cheer. They tend to be resilient, always bouncing back. They tend to be generous of spirit, and glad to help out. They usually have a "special something" that enhances whatever setting they're in. remember, there is a melody inside that cacophony, a symphony yet to be written. (p. 326)

Figure 5

The Moral

Pilkey, D. (n.d.). *The Moral*. Retrieved April 10, 2022, from https://pilkey.com/userFiles/uploads/pdfs/dav-pilkey-bio.pdf

Conclusion

This chapter focused on evidence-based strategies and interventions that teachers can use in their classrooms to support students with ADHD. With an understanding of ADHD subtypes, deficits, and strengths, this chapter explored this study's research question: What are evidence based teaching strategies for supporting a child's strengths with a diagnosis of ADHD at school? Many of the articles focused on proactive and reactive interventions and provided effective and practical examples of both. Climie & Mastoras' (2015) research is shifting educational interventions towards strength-based supports, and away from a reliance on behaviour modification strategies. Hallowell & Ratey (2011) provide the following reminder to educators on the immense influence that they can have on the lives of the children that they teach in their classrooms:

> Keep those faces in mind, the little girls and boys in the early grades, all trusting the adults to show them the way, all eager and excited about life and what will come next, and then just follow those faces over time. Follow the face of a little girl who doesn't read very well and is told to try harder; who tends to daydream and is told she better pay attention; who talks out in class when she sees something fascinating, like a butterfly on the windowpane, and is told to leave the class and report to the principal; who forgets her homework and is told she will just never learn, will she; who writes a story rich in imagination and insight and is told her handwriting and spelling are atrocious; who asks for help and is told she should try harder herself before getting others to do her work for her; who begins to feel unhappy in school and is told that big girls try harder. This is the brutal process of the breaking of the spirit of a child. I can think of no more precious resource than the spirits of our children. Life necessarily breaks us all down somewhat,

> but to do it unnecessarily to our children in the name of educating them -- this is a tragedy. To take the joy of learning -- which one can see in any child experimenting with something new -- to take that joy and turn it into fear -- that is something we should never do. (p. 207-208)

Conclusion

"If we are to achieve a richer culture, rich in contrasting values, we must recognize the whole gamut of human potentialities, and so weave a less arbitrary social fabric, one in which each diverse gift will find a fitting place."

Margaret Mead

In this study, I have focused on how ADHD is defined and viewed within our North American culture, through both the medical (scientific) and social (cultural) models of disability. ADHD has historically been defined and understood through the lens of the medical model of disability. Deficits are identified, and interventions are established to fix the deficits. ADHD poses significant difficulties for each diagnosed individual and their families, and the individual's stretches need to be supported. The medical model of disability provides access to a diagnosis for an individual, which can open treatment options for ADHD. In contrast, the social model of disability shifts the focus from the individual to the environment by asking the question, "what barriers need to be removed?" How these models impact viewing ADHD through a deficit or strengths lens was detailed, including how perspectives can impact stigma and teacher beliefs about a child with ADHD. The medical and social models of disability exist separately, but a cohesive lens should be considered. There are neurological differences that a child with ADHD experiences, and these need to be respected and understood. Understanding those differences should then inform how the environment is set-up to support differentiated learning for all students. Discussions about ADHD stigma and teacher beliefs highlighted deep-rooted societal stereotypes that continue to persist. Teachers are tasked with respecting each child's neurodiversity and harness their strengths to help them feel independent and successful at school.

Studies reviewed in chapter one revealed the deficits of ADHD, stigmatization of ADHD, and teacher beliefs regarding students with a diagnosis of ADHD. With an estimated 8.8% of American children that have received a diagnosis of ADHD (CDC, n.d.), many classrooms will include students with ADHD. When teachers teach based on the deficit cycle, the initial identification of deficits is followed by supports and interventions that focus solely on improving these deficits. A child is not provided with the opportunity to work on areas in which they currently succeed, which can lead to negative outcomes. Wiener et al. (2012) revealed that the stigmatization of ADHD can be the result of four factors which include ADHD being an invisible diagnosis, a lifelong problem, negative media portrayals, and the perceptions of others (p. 221). Lebowitz (2016) had similar findings and noted that ADHD stigmatization occurs across one's lifespan (p. 203). Teacher beliefs about a student with ADHD were investigated in this review, and a common theme in the studies was that teachers are willing to support a child with ADHD, and favour interventions that do not require a lot of time (Blotnicky-Gallant et al., 2015; Sherman et al., 2008). One study found that students diagnosed with ADHD achieve lower academically in comparison to their peers and could result in lowered teacher expectations (Metzger & Hamilton, 2021).

Chapter two focused on the social model of disability and ADHD strengths. Hartmann's (2019) metaphor of hunters and farmers in the classroom opened a discussion around socially constructed barriers within a classroom environment, and how teachers could organize their physical environments and teaching practices to be more accessible for all students. Existing literature on ADHD includes a focus on deficits (Wiener et al., 2012; Lebowitz, 2016; Metzger & Hamilton, 2021; Sherman et al., 2006; Lange et al., 2010, Daley & Birchwood, 2010). More research has started to focus on an identification of strengths for a child with ADHD, and how

their strengths can be highlighted in the classroom to support the child (Armstrong, 2012; Sherman et al., 2006; Climie & Mastoras, 2015; Sedgwick et al., 2019; Hai & Climie 2021). Some of the strengths for children with ADHD identified in the studies reviewed are neotony (Armstrong, 2012), polyactive, excellent brainstorms, energetic, creative, (Sherman et al., 2006), "cognitive strengths in the areas of logical thinking and reasoning (Ek et al., 2007), emotional intelligence (Climie, Saklofske, Schwean, & Mastoras, 2013), and creativity (Fugate, Zentall, & Gentry, 2013)" (as cited in Climie & Mastoras, 2015, p. 297), as well as cognitive dynamism, courage, humanity, resilience, and transcendence (Sedgwick et al., 2019). By supporting students through the strengths-based cycle, teachers can identify a child's strengths which can lead to positive outcomes for the child.

This literature review concluded with a discussion on school-based interventions. Much of the research reviewed emphasized the importance of behavioural interventions when supporting a child with ADHD in the classroom (DuPaul & Weyandt, 2006; Elik et al., 2015; Johnson & Reid, 2011). More recent research has shifted focus towards identifying, supporting and developing the strengths of a child with ADHD (Climie & Mastoras, 2015). By focusing on the deficits or difficulties of a child, they are constantly reminded that they are not good enough when measured against their peers. By understanding a child's strengths and using those to help support their learning can create a more positive learning environment for the child. Universal Design for Learning is a lens through which teachers can view their classrooms. By looking for opportunities to increase access and reduce barriers for all students in the classroom and across subject areas can allow for students to feel like a genuine member of the classroom community.

The implication of this literature review aimed to build upon previously conducted studies that found teachers were not aware of evidence-based practices for supporting students in

their classroom with ADHD. Many of the articles reviewed concluded that Canadian teachers have a good understanding of ADHD but have difficulty implementing successful interventions in their classrooms. Chapter three detailed classroom strategies that a teacher could implement to support the learning of students with ADHD and aimed to fill the gap in lack of teacher knowledge. Future research could continue to focus on strengths-based interventions for children with ADHD in the classroom, and tools for teachers to discern the strengths of each of their students.

To solely view an individual by the areas that are lacking can result in missing their strengths; those unique strengths are what make them shine. Teachers are challenged with supporting a child's stretches and developing a child's strengths. An awareness of vocabulary can have a profound impact for how a child views themself. Adopting Dav Pilkey's reimagined definition of ADHD can be one way to reframe ADHD from a disorder to a delightfulness.

In the introduction of chapter three, I referenced a quote by Thomas Armstrong about appreciating the beauty of a calla lily. The full metaphor is detailed below by Armstrong (2011), and ties together the idea expressed throughout this literature review that one's individuality and uniqueness should be respected and valued, not "fixed:"

> Imagine for a moment that our society has been transformed into a culture of flowers. Now let's say, for the sake of argument, that the psychiatrists are the roses. Visualize a gigantic sunflower coming into the rose psychiatrist's office. The psychiatrist pulls out its diagnostic tools and in a manner of a half hour or so has come up with a diagnosis: "You suffer from hugism. It's a treatable condition if caught early enough, but alas, there's not too much we can do for you at this point in your development. We do, however, have some strategies that can help you learn to cope with your disorder." The sunflower

receives the suggestions and leaves the doctor's consulting room with its brilliant yellow and brown head hanging low on its stem. Next on the doctor's schedule is a tiny bluet. The rose psychiatrist gives the bluet a few diagnostic tests and a full physical examination. Then it renders its judgment: "Sorry, bluet, but you have GC, or growing disability. We think it's genetic. However, you needn't worry. With appropriate treatment, you can learn to live a productive and successful life in a plot of well-drained sandy loam somewhere." The bluet leaves the doctor's office feeling even smaller than when it came in. Finally, a calla lily enters the consulting room, and the psychiatrist needs only five minutes to decide what the problem is: "You have PDD, or pedal deficit disorder. This can be controlled, though not cured, with a specially designed formula. (p. 1-2)

Study Limitations

I recognize that treatment of ADHD is multimodal: with medication, behavioural, and academic supports. This literature review focuses on the supports and practices that teachers can implement in their classrooms to support the learning of children with ADHD. I acknowledge that medication can play an important role in the treatment of ADHD but is not suggested or included in this review. Articles reviewed for this study were specific to North America and may not be representative of other geographical areas.

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Appendices

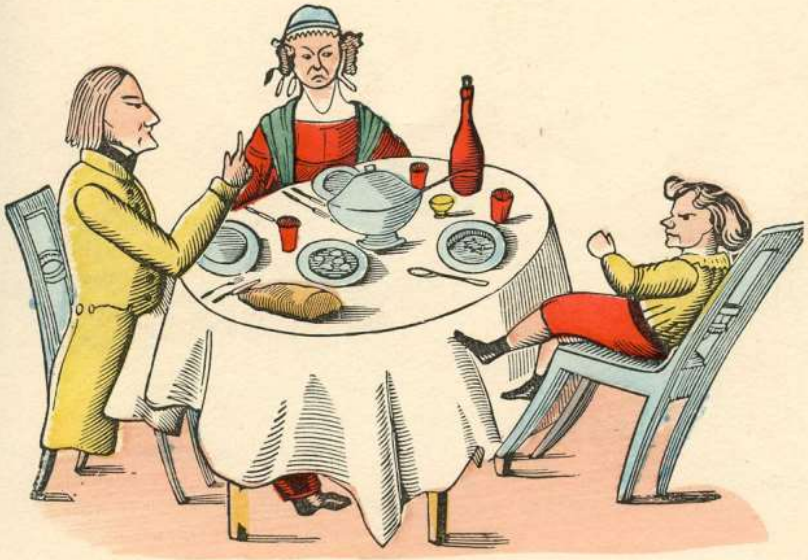
Appendix A. Article Matrix

#	Article	Themes							
		ADHD Stigma	ADHD Strengths	ADHD Deficits	Teacher Beliefs	Medical Model	Social Model	Classroom Interventions	History of Inclusive Education
1	Anastasiou (2013) The social model of disability: Dichotomy between impairment and disability						X		
2	Barkley (2007) School interventions for attention deficit hyperactivity disorder: Where to from here?					X		X	
3	Baydala (2006) ADHD characteristics in Canadian aboriginal children.		X			X	X		
4	Blotnicky-Gallant (2014) Nova Scotia Teachers' ADHD knowledge, beliefs, and classroom management practices.				X			X	
5	Bunbury (2019) Unconscious bias and the medical model: How the social model may hold the key to transformative thinking about disability discrimination.					X	X		
6	Climie (2015) ADHD in schools: Adopting a strengths-based perspective.		X					X	
7	Daley (2010) ADHD and academic performance: Why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom?			X					
8	Dehn (2013) Enhancing SLD diagnoses through the identification of psychological processing deficits.					X	X	X	
9	DuPaul (2006) School-based Interventions for Children and Adolescents with Attention- Deficit/Hyperactivity Disorder: Enhancing Academic and Behavioral Outcomes.							X	
10	DuPaul (2011) ADHD in the classroom: Effective intervention strategies.							X	
11	Elik (2015) Overcoming the Barriers to Teachers' Utilization of Evidence-Based Interventions for Children with ADHD: The Teacher Help for ADHD Program.							X	
12	Gerber (2007) What Child is This? Christian Parental Virtues and Attention Deficit Hyperactivity Disorder	X		X					
13	Gnanavel (2019) Attention deficit hyperactivity disorder and comorbidity: A review of literature.					X			
14	Hai (2021) Positive Child Personality Factors in Children with ADHD		X			X	X		
15	Hamed (2015) Why the diagnosis of attention deficit hyperactivity disorder matters.					X			
16	Johnson (2011) Overcoming executive function deficits with students with ADHD.							X	
17	Lange (2010) The History of Attention Deficit Hyperactivity Disorder	X		X		X			
18	Lebowitz (2013) Stigmatization of ADHD	X							

#	Article	Themes							
		ADHD Stigma	ADHD Strengths	ADHD Deficits	Teacher Beliefs	Medical Model	Social Model	Classroom Interventions	History of Inclusive Education
19	Levey (2021) Universal Design for Learning.							X	
20	Metzger (2020) The stigma of ADHD: Teacher ratings of labeled students	X			X				
21	Mowlem (2019) Do different factors influence whether girls versus boys meet ADHD diagnostic criteria? sex differences among children with high ADHD symptoms.					X			
22	Ohan (2011) Teachers' and education students' perceptions of and reactions to children with and without the Diagnostic label "ADHD."	X			X			X	
23	Orban (2017) Inattentive behavior in boys with ADHD during classroom instruction: The mediating role of Working Memory Processes.								
24	Rohde (2005) Attention-deficit/hyperactivity disorder in a diverse culture: Do research and clinical findings support the notion of a cultural construct for the disorder?								
25	Schatz (2021) Twenty-year trends in elementary teachers' beliefs about best practices for students with ADHD.				X			X	
26	Sedgwick (2018) The positive aspects of attention deficit hyperactivity disorder: A qualitative investigation of successful adults with ADHD.	X	X						
27	Sherman (2008) The impact of teacher factors on achievement and behavioural outcomes of children with attention deficit/hyperactivity disorder (ADHD): A review of the literature.				X			X	
28	Sherman (2006) Thinking positively: How some characteristics of ADHD can be adaptive and accepted in the classroom.		X	X					
29	Wiener (2012) Children's Perceptions of Their ADHD Symptoms: Positive Illusions, Attributes, and Stigma.	X			X				
30	Wills-Jackson (2019) A historical perspective of the field of emotional and behavioral disorders: A review of literature.					X			X
31	Winzer (2006) Confronting difference: An excursion through the history of special education.					X			X

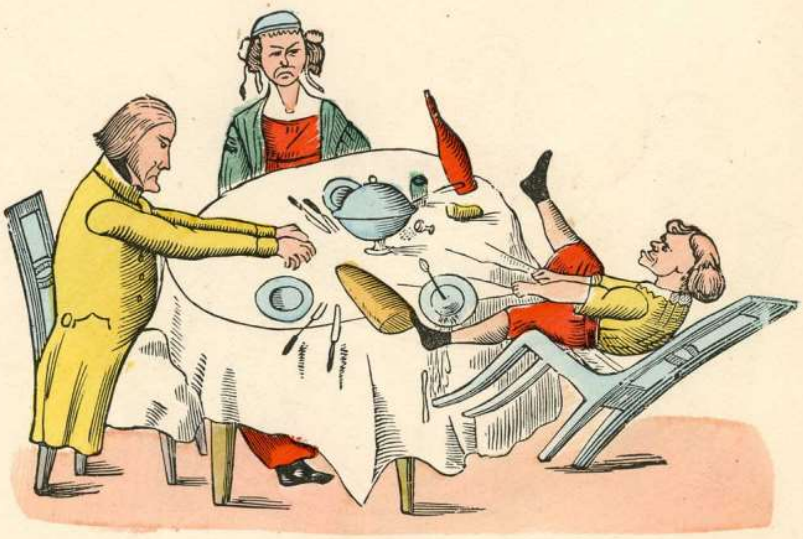
Appendix B. Fidgety Philip

THE STORY OF FIDGETY PHILIP.



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

THE STORY OF FIDGETY PHILIP.



See the naughty, restless child,
Growing still more rude and wild,
Till his chair falls over quite.
Philip screams with all his might,
Catches at the cloth, but then
That makes matters worse again.
Down upon the ground they fall,
Glasses, bread, knives, forks and all.
How Mamma did fret and frown,
When she saw them tumbling down!
And Papa made such a face!
Philip is in sad disgrace.

THE STORY OF FIDGETY PHILIP

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

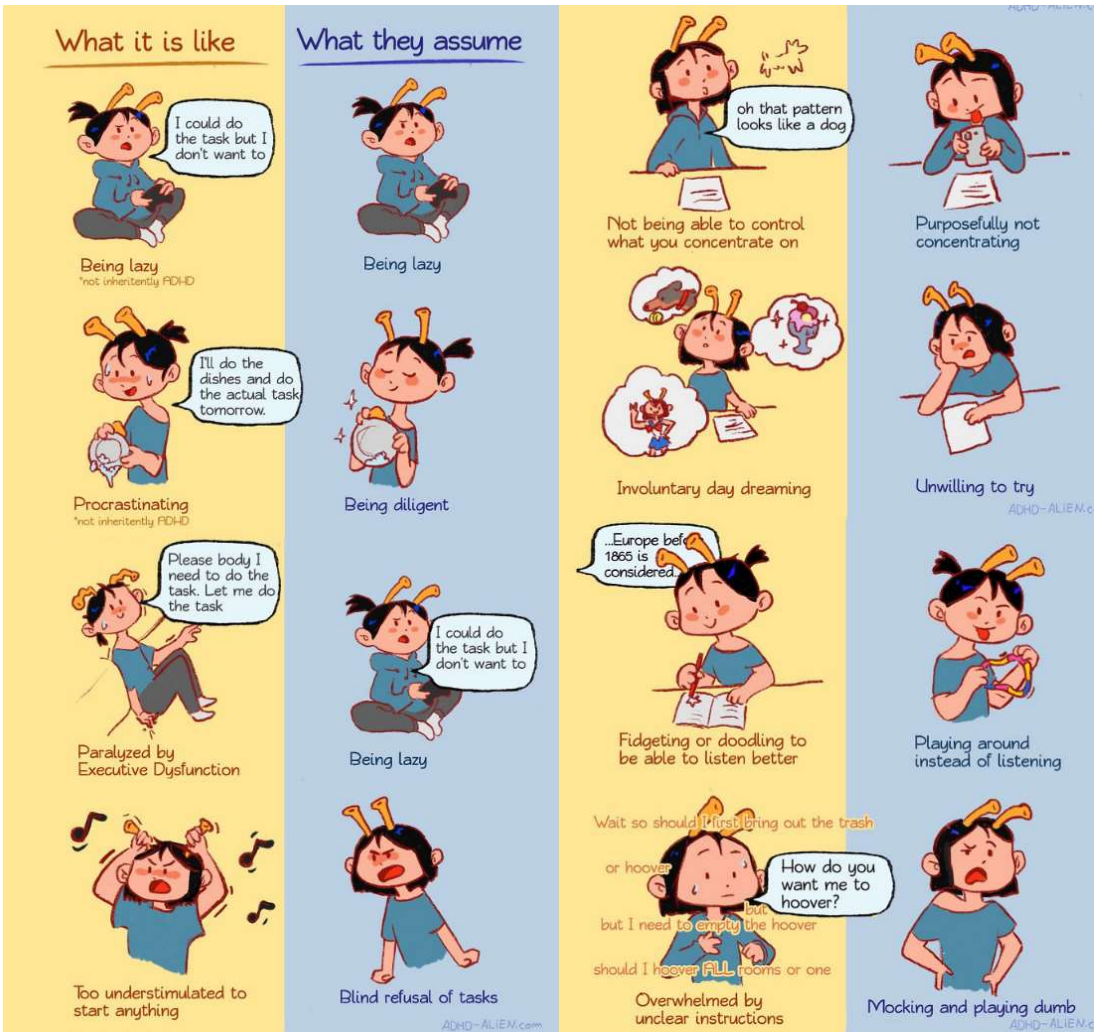
Appendix C. ADHD Subtypes and Symptoms

ADHD Subtype	Symptoms
Inattentive ADHD	Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate). Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading). Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction). Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked). Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines). Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers). Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones). Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts). Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments.
Hyperactivity and Impulsivity ADHD	Often fidgets with or taps hands or feet or squirms in seat.

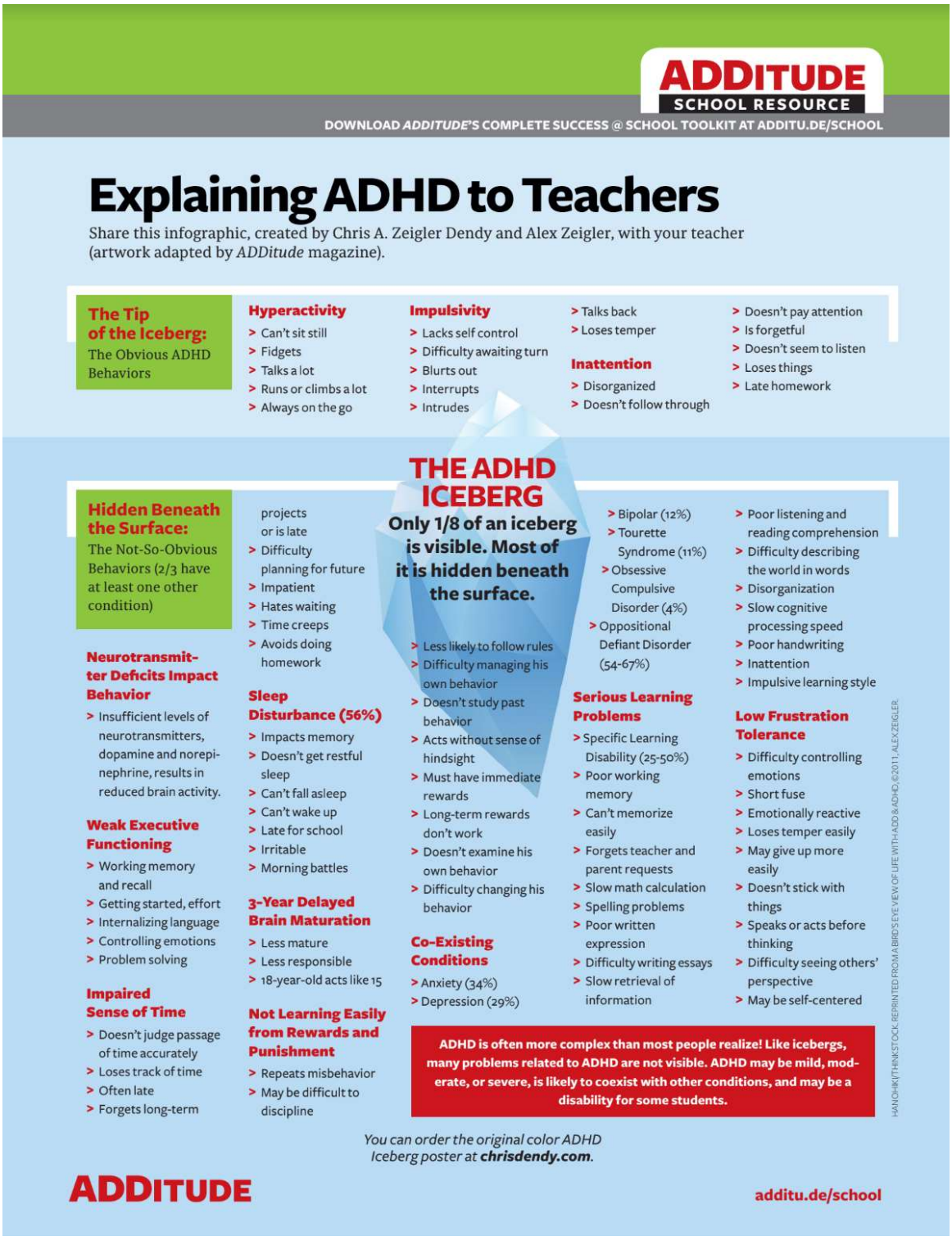
	Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place). Often runs about or climbs in situations where it is inappropriate. (Note: in adolescents or adults, may be limited to feeling restless). Often unable to play or engage in leisure activities quietly. Is often "on the go," acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with). Often talks excessively. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation). Often has difficulty waiting his or her turn (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).
Combined ADHD	If both Inattentive and Hyperactivity and Impulsivity criteria are met

Note. Adapted from American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

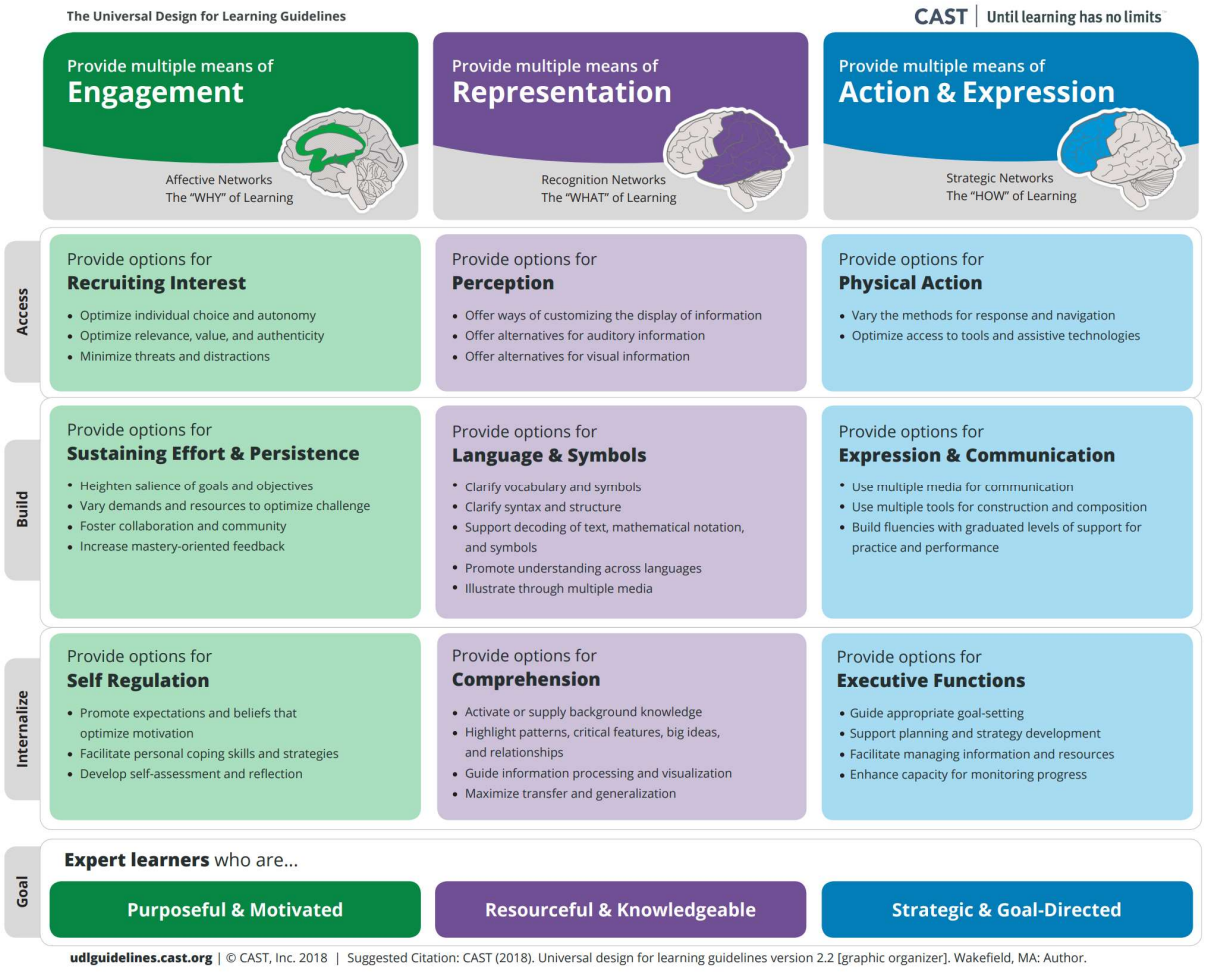
Appendix D. What It's Like vs. What People Assume



Appendix E. Explaining ADHD to Teachers.



Appendix F – Universal Design for Learning Guidelines



Appendix G – Types of Classroom Accommodations

CADDAC
CENTRE FOR ADHD AWARENESS, CANADA
CSTC - Centre de sensibilisation au TDAH Canada

Types of Classroom Accommodations

Accommodations come in three distinct categories; instructional, environmental, and assessment. The following lists are examples of interventions that may impact the success of the ADHD student.

Instructional Accommodations

- High structure, quiet classroom
- Avoid open concept classrooms
- Direct instruction
- Reduced/uncluttered format
- Spatially-cued formats
- Repetition of information
- Rewording rephrasing of information
- Pair written instructions with oral – Use multi-sensory approach
- Extra time for processing
- Non-verbal signals, gesture cues
- Word retrieval prompts
- Reinforcement incentives
- Frequent breaks
- Physical activities
- Organizational coaching
- Time management aids
- Tracking sheets
- Visual cueing/scheduling
- Mind maps
- Graphic organizers
- Use concrete hands-on materials
- Manipulatives
- Dramatize information
- Ability grouping
- Buddy/peer tutoring
- Duplicated notes
- Note-taking assistance
- Chunking of assignments
- Reduced homework/course load

- Computer options with voice to text software
- Use humor not sarcasm
- Augmentative and alternative systems (FM) communication

Environmental Accommodations

- Alternative work space
- Strategic seating/preferential seating
- Proximity to instructor
- Reduction in audio/visual stimuli
- Study carrel
- Minimizing background noise
- Quiet setting
- Use of headphones
- Special lighting
- Supervise transition times with care and cueing 5-10 minutes before changes
- Assistive devices

Adaptive Equipment such as:

- squeeze balls
- play dough
- chewing gum
- sour candies
- straws
- tennis balls on all chair and desk legs
- FM system
- tape recorder
- computer

Assessment Accommodations

- Extended time limits
- Alternative settings, a quiet room free of distractions
- Space tests and assignments to prevent feelings of being overwhelmed
- Reduction in the number of tasks used to assess a concept or skill
- Extra time for processing the questions as well as the answers
- Prompts to refocus
- Reduced/uncluttered format
- Reading of test or exam to student
- Assistive devices or adaptive equipment such as calculators, reference charts, spell checkers, computers, voice to text software
- Verbatim scribing
- Alternative test formats including audiotapes, oral, computer, type of exam or test