Examining Intra-Personal and External Support Factors Supporting Academic Success in Post-Secondary Students with ADHD

by

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Abstract

Young adults with ADHD are less likely to graduate from high school and pursue post-secondary education than young adults without ADHD (Barbaresi et al., 2007; Barkley, 2006; Molina et al., 2009). University students with ADHD, given their enrollment in postsecondary education, have likely experienced relatively greater academic success and have good compensatory skills (Glutting, Monaghan, Adams, & Sheslow, 2002). Yet, little is known about those students with ADHD who persist in school and do well academically, specifically with regard to understanding their lived experiences with academic persistence and success. To begin to address current gaps in research in this area, this study explored the question "What is the experience of persisting in school with a diagnosis of ADHD?" Factors influencing the experience of academic success were explored from a developmental assets framework, specifically, potential internal and external assets that helped students with ADHD to persist through high school and university, despite the academic challenges and high dropout rates in this population (Young, Toone, & Tyson, 2003). Purposeful sampling was used to recruit ten undergraduate students with a confirmed adult diagnosis of ADHD, who completed semi-structured interviews. An exploratory, qualitative interpretative phenomenological analysis (IPA) design was used to explore the research objectives in the transcripts (Smith, Flowers, & Larkin, 2009). Analysis of the data revealed six superordinate themes emerging from the participants' interviews, three reflecting internal assets: interest in academic subjects and love of learning, awareness of learning style and individual study strategies, and internal drive and perseverance, and three reflecting external assets: technology as a double-edged tool, engagement in treatment (e.g., medication, therapy), and supportive relationships and environment.

Preface

This thesis is an original work by Erin Sulla. This research project, of which this thesis is part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name, "Examining Internal and External Assets Supporting Academic Success in Post-Secondary Students with ADHD," No. Pro00053307, January 2, 2015.

Dedication

I would like to dedicate this work to the resilient students with ADHD at the University of Alberta with whom I had the privilege of hearing their stories.

Acknowledgements

I would like to thank my husband, Kris, for his unconditional positive support and for moving across the country with me both for my Ph.D. and for my internship. Without his support and encouragement, I would be lost. I would also like to thank my parents, who are always in my corner and push me to be the best person that I can be. I would also like to thank my co-workers at Springboard Clinic in Toronto, Ontario, an ADHD clinic with a multi-disciplinary approach. Their support and input into both my clinic work and research has been incredibly helpful.

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Finally, I would like to thank the participants in this study. Their stories of resilience inspire me in my work with clients in my practice as a clinician. Thank you.

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Chapter One: Introduction

"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." Edward M. Hallowell, Driven To Distraction: Recognizing and Coping with Attention Deficit Disorder from Childhood Through Adulthood [Paperback]

Attention deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental disorder characterized by age-inappropriate behavioural symptoms of inattention, impulsiveness, and hyperactivity, which often interfere with academic, occupational, and social performance

(DSM-5; American Psychiatric Association, 2013). ADHD is associated with functional impairments in both educational and health domains (Currie & Stabile, 2006), including academic and occupational underachievement (Barkley, Fischer, Smallish, & Fletcher, 2006; Biederman et al., 2006) and higher rates of mental health conditions over the lifespan (ref) . These outcomes have implications for both quality of life and economic security of individuals with ADHD. Over the years, postsecondary educational institutions have seen increases in the enrollment of students with ADHD; however, little is understood about the previous academic experiences of university students with ADHD who have been successful academically (Meaux, Green, & Broussard, 2009; Rabiner, Anastopoulos, Costello, Hoyle, & Swartzwelder, 2009). University students with ADHD may represent an especially resilient group as evidenced by enrollment and persistence in university, and there is at present a gap in understanding the factors associated with their academic success (Wilmshurst, Peele, & Wilmshurst, 2011). This research study proposes a phenomenological investigation of the experience of academic resilience in university students diagnosed with ADHD. The study will explore, from their own perspective, internal and external assets that helped students with ADHD to persist in school despite the academic risk factors associated with ADHD (Barbaresi, Katusic, Colligan, Weaver, & Jacobson, 2007; Janosz et al. 2000). There is much to be learned from the voices of academically resilient undergraduate students with ADHD. Only a small portion of the literature provides an opportunity to learn how young adults make meaning from their school experiences, and almost none of this qualitative research has been conducted in Canada, where enrollment of students with ADHD in university programs is on the rise.

Rationale for the Study

Attention deficit hyperactivity disorder (ADHD) is the most common neurodevelopmental disorder in childhood worldwide (Bloom, Cohen, & Freeman, 2011; Boyle, Boulet, Schieve et al., 2011). Its clinical presentation can span a lifetime; approximately two thirds of children with ADHD continue to present with significant symptoms and impairment into adulthood (Faraone, Biederman, & Mick, 2006). Adolescents and young adults with ADHD, as a group, achieve lower grades, complete less schooling, and have more failed classes than typically developing peers (Mannuzza, Klein, Bessler, Malloy, & Hynes, 1997; Weiss & Hechtman, 1993). An extensive body of research exists on the academic struggles of students with ADHD (Barkley, 2006; Biederman et al., 1996, Molina et al., 2009), however, not all children with ADHD experience poor academic outcomes (Sonuga-Barke, Auerbach, Campbell, Daley & Thompson, 2005).

There is a paucity of research examining successful cases of students with ADHD who have persisted in school (Rabiner, Anastopoulos, Costello, Hoyle & Swartzwelder, 2008). University students with ADHD may represent an especially resilient group, and research is needed to investigate the competencies of students who have achieved success against the odds (Wilmhurst, Peele & Wilmhurst, 2011). The present study investigated internal and external assets among academically successful university students with ADHD from the perspective of resilience factors that have facilitated their progress. This chapter will review the clinical presentation of ADHD across the lifespan and academic/occupational outcomes, theories of its etiology, theories and indicators of resilience, and outline the need for research in the area of academically successful university students with ADHD.

Background

To explore ADHD in the context of postsecondary education, it is important to first discuss clinical aspects of the disorder, for example, how it is diagnosed and treated in children, and how the disorder specifically affects academic performance.

Diagnostic criteria. Diagnostic criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) specify that ADHD is a neurodevelopmental disorder that presents as a persistent pattern of inattentive and/or hyperactive/impulsive behavioural symptoms that interfere with functioning as characterized by at least six out of nine symptoms of symptoms of either 1) inattention or 2) hyperactivity and impulsivity (American Psychiatric Association, 2013). Inattention manifests in ADHD as off-task behavior, lacking persistence, having difficulty sustaining focus, and being disorganized or having difficulty following through with plans and commitments at work. Hyperactivity refers to excessive motor activity when not appropriate, for example, excessive fidgeting, tapping objects, moving hands and feet while sitting, or excessive talking. In adults, hyperactivity may manifest as extreme restlessness or inability to stay seated during work. Impulsivity refers to difficulty inhibiting impulses, intruding or interrupting, and difficulty awaiting turn and may include hasty decision-making or actions that occur in the moment without forethought. These issues often reflect a desire for immediate rewards or gratification, and may also have potential to harm the individual, for example if engaging in high risk activities. Individuals who are impulsive have difficulty delaying gratification, and their symptoms may present as social intrusiveness, excessive interruptions, or difficulty making important decisions without considering the consequences.

In order for a diagnosis to be made, the symptoms of inattention and/or hyperactivity/ impulsivity must persist for at least six months, in multiple settings, to a degree that is inconsistent with developmental level, and to a degree that negatively impacts social and academic/occupational activities. The onset of symptoms must occur during childhood and the symptoms must follow a chronic course. At least six symptoms from either (or both) the inattention or hyperactivity/impulsivity criteria must be confirmed in children, while individuals over the age of 17 must present with at least five. Beyond the core symptoms of the disorder, functional impairment in at least two settings is integral to the diagnosis. Functional impairments arising from the behavioural symptoms associated with ADHD in home and school are typically the basis of clinical referral for assessment. The DSM-5 uses specifiers for *current presentation* symptom profiles at the time of the assessment. Current symptom profiles include a combined presentation (both inattention and hyperactivity/impulsivity symptoms are present), a predominantly inattentive presentation, or a predominately hyperactive/impulsive presentation.

ADHD is a heterogenous disorder and there is no single clinical profile that fits all individuals with the diagnosis. What is well established is that individuals with ADHD may experience different clinical presentations of ADHD across their lifetime (Lahey et al., 2005). The literature suggests that younger children present with more symptoms of hyperactivity/impulsivity (Willcutt, 2012), however most children with ADHD have difficulties with both symptom clusters (i.e., Inattention and Hyperactivity/Impulsivity), even if one is more prominent. The severity of symptoms and the degree of associated impairment may also vary across the disorder. Symptoms of ADHD generally fluctuate across development, tasks and settings (Barkley, 2006). Brown (2013) considers intra-individual variability of symptoms and performance across time, as well as the demands of the context, as part of the disorder.

With regard to a traditional diagnostic perspective, ADHD is most often conceptualized categorically, in terms of individuals either having met or not met diagnostic criteria. However, an alternate perspective is that the disorder should be conceptualized dimensionally (Frick & Nigg, 2012; Lahey & Willcutt, 2002), with symptoms and features of the disorder existing on a continuum. For example, common features of ADHD, such as difficulty paying attention or regulating activity levels are present in many children who do not meet criteria for the disorder. According to the dimensional view, children who are diagnosed with ADHD are at the extreme end of the continuum, and most importantly, their challenges cause significant impairment in their own, or caregiver's lives. Yet, there is no perfect dividing line to categorize children as typically developing or as having a diagnosis of ADHD. It is thus critical to ensure during the diagnostic process that symptoms are excessive for their age and gender and associated with significant impairment (Sparrow & Erhardt, 2014).

Executive function deficits in ADHD. Executive functions (EFs) are often described as top-down cognitive processes that include a number of related but potentially independent cognitive processes that are necessary for thinking and goal directed behavior (Miyake and Friedman, 2012). Whereas deficits in executive functioning, are not listed as required criteria in the DSM-5, many individuals with ADHD exhibit lifelong executive dysfunction (Mahone & Silverman, 2008). Scientists and psychologists are motivated by the search for the core dysfunctions of ADHD, and deficits in executive functioning (EF) are a large focus of this literature (Sonuga-Barke, 2005). For example, Barkley's (1997) influential conceptualization of ADHD proposes that the essential impairment in ADHD is a deficit in behavioural response inhibition leading to secondary impairments in EFs, referred to as the *executive function deficit theory*. Willcutt, et al. (2005) conducted a comprehensive meta-analysis of cognitive deficits in

ADHD, and found that most individuals exhibit impairments with response inhibition and vigilance. Other deficits have been found in working memory, planning (Rhodes, Coghill, & Matthews, 2005), and cognitive flexibility (Vance, Maruff, & Barnett, 2003).

Generally, EFs can be thought of as embodying the cognitive constructs that organize higher order thought, facilitate judgments and decisions, and initiation and self-regulation of purposeful behavior. Definitions of EFs vary from the effortful guidance of behaviour (Banich, 2009), to the maintenance of a problem-set for goal-attainment (Welsh & Pennington, 1998) or self-preservation (Koziol & Lutz, 2013), to all goal-directed cognition (Best & Miller, 2010). Indeed, the very term executive implies a function that controls, plans, and executes behaviour. For example, McClosky, Perkins, and Van Divner (2009) conceptualize EFs as multiple processes that govern our thoughts, feelings and actions, and which act as a collection of *co-conductors*, each responsible for a distinct function but working collaboratively.

There are two dominant models of EF deficits in ADHD in the field (Barkley, 2013; Brown, 2006). Barkley's model highlights deficits in behavioural inhibition, which comprises inhibition of prepotent responses, stopping of ongoing responses, and interference control, as the fundamental EF construct upon which development and functioning of all other EFs depend (Barkley, 2013). Brown, however, views behavioural inhibition as just one of multiple EF deficits in ADHD that are interactive and interdependent (Brown, 2006). Based on the executive function deficit theory, Barkley (2013) and Brown (2006) posit that all individuals with ADHD exhibit significant impairments in EFs, and that these form the essence or core deficit of the disorder and its associated impairments. Fewer than half of children diagnosed with ADHD exhibit significant impairments on any specific EF task (Nigg & Casey, 2005). However, the procedures used to operationalize executive function in clinical settings employ either

performance-based or informant rating measures; it is unclear to what extent these assess the same underlying construct (Toplak, West & Stanovich, 2013).

Based on the research, theories implicating executive function as a causal mechanism underlying ADHD, have been unable to provide a complete account of ADHD and its outcomes (Nigg & Casey, 2005). EF deficits may not be the only causal pathway leading to ADHD (Marije Boonstra, Oosterlaan, Sergeant, & Buitelaar, 2005). Yet, it is clear that executive dysfunction, particularly behavioural disinhibition, is implicated in the disorder in many diagnosed individuals.

Another model is the *motivation-based dysfunction model* (Sonuga-Barke, 2005), which proposes that ADHD behavioural symptoms are the outcome of dysfunction of the system that signals the contingency between action and future rewards. Children with ADHD often struggle with waiting for motivationally salient outcomes or working effectively over extended periods of time (Kuntsi, Oosterlaan, & Stevenson, 2001). Difficulty delaying gratification is considered to be independent of inhibitory deficits (Sonuga-Barke et al. 1994), suggesting that other processes outside of the executive function model play a role in explaining behavior and functioning in ADHD

A third model of ADHD, *the triple pathways model*, posits that there are multiple deficits such as temporal processing, inhibitory control, and delay aversion (Sonuga-Barke, Bitsakou, & Thompson, 2010).). This model attempts to account for the heterogeneity of ADHD, with research indicating that 20-40% of children with ADHD do not score in the clinically significant impairment on a range of EF measures (Wåhlstedt, Thorell, & Bohlin, 2009), in contrast with the categorical, behavioural symptom-based diagnosis of ADHD and the common theoretical

contention that EF deficits are a core underpinning of ADHD. EF difficulties and motivation-based dysfunction appear to be part of several important weaknesses in individuals ADHD.

Many adults with ADHD struggle with complex tasks in both academic and occupational settings, which require skills in organization, synthesis, and self-monitoring, which are dependent on EFs (Martel, Nikolas, & Nigg, 2007). For example, most jobs require independent work, self-monitoring, organization and synthesis of information, and many adults with ADHD and poor EF have been found to struggle to struggle more than their co-workers to meet deadlines, plan and organize projects, and organize paperwork (Barkley, Murphy, & Fischer, 2008). Nonetheless, there appear to be multiple presentations of ADHD, varying in symptomatology, functional outcomes and executive function profiles. The presentation of these deficits also varies across the lifespan and is modified by different environmental demands, for example, the in classroom or in the community.

Prevalence. According to a recent meta-analysis conducted by Willcutt (2012), ADHD is prevalent in most cultures in approximately 5.9-7.1% of children and adolescents. The inattentive subtype was found to be the most common subtype, although individuals who meet criteria for the combined subtype were more likely to be referred for clinical services. Moreover, no significant cross-cultural prevalence differences were found after controlling for differences used to define ADHD (Polanczyk, De Lima, Horta, Biederman & Rohde, 2007). Although these results should be interpreted with caution due to the small number of studies conducted in some countries, the pattern of results indicates that ADHD is observed across the world (Willcutt, 2012).

Neuropsychological and Neurophysiological Aspects of ADHD. There is evidence from neuropsychological and neurophysiological research that ADHD is a neurobiological disorder. Neuro-imaging studies have found that ADHD is associated with dysfunction in the frontostriatal region of the prefrontal cortex, involving imbalances, dysregulation, or deficiencies in neurotransmitters such as dopamine and/or norepinephrine (Dickstein, Bannon, Castellanos, & Milham, 2006). In a meta-analysis of 55 fMRI studies, Cortese and colleagues (2012) found that dysfunction in large-scale neuronal networks, including the frontoparietal, dorsal and ventral attention, sensorimotor, visual, and limbic networks, is involved in the observed behavioural and attention difficulties of children with ADHD. Other meta-analyses of fMRI studies have found reduced activation in areas typically involved in timing, such as the insula, cerebellum, and left inferior parietal lobe (e.g., Hart, Radua, Mataix-Cols, & Rubia, 2012; Noreika, Falter, & Rubia, 2013). These findings suggest that the underlying neurobiology of ADHD is exceedingly complex and involves several networks connecting several brain structures rather than being situated only in frontal lobe or prefrontal cortex brain regions.

Etiology: The literature does not support a single cause for ADHD, however most experts assert that the most common causes of ADHD are genetic and environmental. Faraone and colleagues (2015) asserted that ADHD is a heterogenous disorder: individuals with ADHD show marked variation in profile of symptoms, impairments, neuropsychological weaknesses, and underlying causes. ADHD runs in families, with parents and siblings of individuals with ADHD showing an increased risk of developing the disorder. Moreover, environmental risk factors play a part through interactions with genes and DNA variants that regulate gene expression.

Research suggests that ADHD has a strong genetic vulnerability factor, with heritability estimated at .76, which means that while there is an influence exerted by environmental factors, the major portion of the influence is exerted by genes (Faraone, et al., 2005; Thapar, Langley, O'Donovan & Owen, 2006). Biological vulnerabilities to the disorder operate through certain key neurological systems, particularly those served by dopamine and norepinephrine (Vaidya & Stollstorff, 2008). For those with ADHD in childhood, approximately 80% will continue to have symptoms that qualify for a diagnosis in adolescence, and 60% will continue to have symptoms that qualify for a diagnosis in adulthood (CADDRA, 2013; Faraone, Biederman, & Mick, 2006). Although the majority of research on etiology is comprised of childhood and adolescent research, the conceptualization of ADHD as a developmental disorder with a coherent trajectory suggests that this literature may be applied to understanding the nature of ADHD among young adults, for example, university students (Barkley et al., 2007).

Assessment and treatment. Current clinical practice suggests the use of DSM-5 criteria to diagnose ADHD based on a multi-component diagnostic process (American Academy of Child and Adolescent Psychiatry, 2007). This process involves establishing symptom counts and impairment in more than one setting, which are most commonly assessed using parent and teacher informant structured behavior rating scales (e.g. Conners Rating Scales-3rd Edition, 2008), observations, a developmental history, and objective tests including cognitive and assessment measures to assist in the assessment of the disorder (Pelham, Fabiano, & Massetti, 2005). Psychological testing consists of a standardized assessment of intellectual ability (IQ) to determine the possibility of low cognitive ability and to better understand the child's overall cognitive profile (American Academy of Child and Adolescent Psychiatry, 2007). Since lower scores on standardized testing of academic achievement are common in individuals with ADHD

(Rucklidge, & Tannock, 2002), the clinician must determine whether this reflects a general performance versus capacity deficit, whether there is impairment secondary to ADHD, if there is a comorbid learning disability (LD), and whether or not the ADHD or the LD are primary factors underlying problems with underachievement. Comorbidities and associated problems that often stem from having, such as lowered self-esteem, symptoms of anxiety, and academic difficulties, should be investigated during clinical assessment (American Academy of Child and Adolescent Psychiatry, 2007).

Adolescent and adult assessment. The process for adolescent and adult diagnosis of ADHD is similar to that used for children. Adolescents and adults are typically more involved in the clinical interview and filling out questionnaires than are young children; however, challenges to reliable assessment of adolescent and adult ADHD include: 1) difficulty finding an accurate informant of functioning in the secondary school environment, 2) the inability to establish childhood symptoms in an adolescent presenting for a first time diagnosis, and 3) using a symptom threshold that is not developmentally sensitive to the typical presentation of ADHD in adolescents (Sibley et al., 2012). First, secondary school teachers spend significantly less time with their students than elementary school teachers. Consequently, most secondary school teachers possess insufficient opportunities to be able to accurately fill out a questionnaire about student behavior. Second, a history of ADHD symptoms that caused impairment during childhood is required to diagnose ADHD; however, it is unclear whether parent or self-reports provide reliable retrospective accounts of childhood ADHD (Powers, Marks, Miller, Newcorn, & Halperin, 2008). Third, adolescent symptoms of ADHD may more closely resemble adult-like manifestations. For example, symptoms of hyperactivity/impulsivity may manifest as feeling restless, or acting without thinking, rather than motor overactivity. Therefore, care must be taken

by assessors to consider all of these limitations, and cross-battery assessment tools should be used in order to come to a diagnostic impression. Sibley et al. (2012) recommend using parent reports of symptoms and impairment combined with one core academic teacher in an area where the adolescent struggles most, corroborating parent retrospective reports with object records from childhood, such as past report cards and assessments, and consideration of adult-like manifestations of the disorder in the symptom threshold.

Comorbidities. In addition to the core features of ADHD, ADHD frequently co-occurs with specific learning disabilities such as dyslexia, developmental language disorders, disruptive behaviour disorders such as oppositional defiant disorder and conduct disorder, and psychiatric conditions such as anxiety and depression, (Elia, Ambrosini, & Berrettini, 2008; Larson, Russ, Kahn, & Halfon, 2007; McGrath, Hutaff-Lee, Scott, Boada, Shriberg, & Pennington, 2008). Moreover, up to a third of individuals with ADHD have two to three co-occurring diagnoses, which affect functioning in multiple domains. Individuals with ADHD and comorbidities experience greater challenges across a range of school, family and social functioning (Barbaresi, Katusic, Colligan, Weaver, & Jacobsen, 2007; Strine, Lesesne, Okoro, et al., 2006).

Treatment. The most common treatment of ADHD for children and adults, and therefore the most frequently studied, is pharmacological interventions (AACAP Official Action, 2007; Molina et al., 2009). The Canadian ADHD Resource Alliance (CADDRA) recommends multi-modal treatment for ADHD, comprising psychoeducation, an initial medication trial followed by titration to find the individual's ideal dosage, an assessment of residual symptoms, and long-term community follow-up (Jain, Hechtman, Quinn et al., 2006). Current research suggests that augmentation with skills-building individual and group therapy is often beneficial in

combination with medication (Safren, 2006; Rostain & Ramsey, 2006). Non-pharmacological interventions such as cognitive behavioural therapy (CBT) (Rostain & Ramsay, 2006), parent training, and behavioural therapy treatments both at home and at school (MTA Cooperative Group, 1999) have been found to help manage symptomatology. Even though medication is often an effective treatment of the disorder, training in the acquisition of adaptive life skills may offer additional benefit (Weiss, Murray, Wasdell, Greenfield, Giles & Hechtman, 2012). Given the heterogeneity of the disorder, treatment is highly individualized. Not all children can tolerate pharmacological interventions, and some parents may elect not to medicate their children.

Academic Impairments in Individuals with ADHD. A diagnosis of ADHD in and of itself does not prevent a child from reaching educational goals; however, as a group, children and adolescents with ADHD show chronic academic underachievement, which is a significant risk factor for subsequent mental health and occupational outcomes (Breslau et al., 2010; Janosz, Le Blanc, Boulerice, & Tremblay, 2000). Common issues in school-aged children with ADHD include academic difficulties (reading, writing, and math), with poor scores on standardized achievement tests (DuPaul, Morgan, Farkas, Hillemeier & Maczuga, 2016), social communication deficits, and disruptive classroom behavior. Children with ADHD also often exhibit specific deficits in the academic setting that relate to executive problems and self-regulation, such as poor organizational skills, and difficulty completing and returning assigned work (Power et al., 2006).

Although there are relatively fewer studies on adolescents with ADHD than elementary grade children, it appears that academic and behavioural difficulties persist, and may even worsen in middle school and high school (Barbaresi et al., 2007; Kent et al., 2011). Adolescents

with ADHD experience significant difficulties in high school relative to comparison adolescents, including lower overall grade point averages, higher rates of course failure, and academic underachievement (Kent et al., 2011). Moreover, adolescents with ADHD are more likely to be expelled, and have higher rates of absenteeism, often due to serious comorbid behavioural conditions, such as ODD (Barbaresi et al., 2007).

Adolescents with ADHD are also significantly more likely to drop out of high school than adolescents without ADHD. Barbaresi and colleagues (2007) found that among 301 individuals with ADHD, 22.9% dropped out of high school, compared to 10% of 609 controls (Barbaresi et al., 2007). Kent and colleagues (2010) found that by the end of 12th grade, adolescents with ADHD were 8.1 times more likely to drop out of high school than students without ADHD; 98.6% of the comparison participants reported being in high school, while only 85.9% of adolescents with ADHD reported remaining in high school. Faraone, Hyder, Day and Biederman (2013) found that even after adjusting for SES, IQ, and presence of learning disabilities, participants with ADHD were more likely to have repeated a grade or failed to complete high school compared to participants without ADHD. Furthermore, Breslau and colleagues (2010) reported that among childhood and adolescent cases with psychiatric and substance use disorders, those with ADHD showed the greatest risk of high school dropout.

Individuals with ADHD are also less likely to pursue post-secondary education. Kuriyan and colleagues (2013) used data from the Pittsburgh ADHD Longitudinal Study (PALS) to compare educational and occupational outcomes of young adults diagnosed with ADHD with those of controls. Significant group differences were found such that educational attainment was lower for adults with ADHD compared to adults without ADHD. Only 15% of the young adults

with ADHD held a four-year degree compared to 48% of the control group. Moreover, 0.06% of the ADHD group held a graduate degree compared to 5.4% of the control group.

For those university students with ADHD who persist in school, many have academic difficulties such as problems with time-management, note-taking, short and long-term planning, organization, and sustaining attention in long lectures (Kaminski et al., 2006). Moreover, with regard to persisting cognitive deficits in young adults with ADHD Gropper and Tannock (2009) found that University students with ADHD show poorer working memory performance than their non-ADHD peers. They are also at greater risk than typically developing peers for academic underachievement, mental health problems, and dropping out (Heiligenstein et al., 1999; Lee, Oakland, Jackson, & Glutting, 2008). This approach to the research focuses our attention towards areas of impairment rather than areas of strength or success. Yet, it is important to consider that students with ADHD who are attending university may represent an especially resilient group that has persisted in their academic careers despite the risk of dropout associated with the disorder. Few studies have looked at factors associated with their positive academic achievements and ability to cope with the demands of university (Teeter Ellison, 2002).

Study Purpose and Objectives

The purpose of this study was to acquire a deeper understanding of the experiences and perspectives of university students diagnosed with ADHD with respect to their experience of academic resilience and school persistence. The study will explore how post-secondary students with ADHD make sense of and give meaning to their past experiences leading up to university entrance, the challenges and successes they faced, and which internal and external assets were

the most useful in their journey. A key goal was to discover individual mechanisms and supports used by students to persist in school though interpreting their lived experiences.

The study sought to help fill gaps in the literature surrounding academic resilience of university students with ADHD: specifically, the external supports and intra-personal characteristics that participants perceive helped them persist through high school and continue to university (Young, Toone, & Tyson, 2003). Improved understanding of these factors could help with development of strategies and supports for younger students and those presently attending university programs.

Research Questions

The primary questions under investigation were:

1) How do university students with a diagnosis of ADHD make sense of their experiences of academic success and school persistence?

2) What are the internal assets that students with ADHD in university describe that underlie their academic success and school persistence?

3) What are the external assets that students with ADHD in university describe that underlie their academic success and school persistence?

Organization of the Dissertation

The dissertation has been organized into five chapters, including the current introductory chapter, in order to present the research process and conclusions about the lived experiences of

individuals with ADHD who have been academically successful. Chapter two will review the

literature related to ADHD across the lifespan and strengths-based research. Chapter three will

present the design of the study, with an overview of Interpretative Phenomenological Analysis.

Chapter four will present the results as grouped into separate domains: internal and external

assets and the themes associated with each one. Finally, chapter five will discuss the results of

the study and provide concluding reflections and consideration to the potential practical,

educational, and social implications that can be gleaned from the narratives of the participants.

Chapter Two: Review of the Literature

This chapter presents a discussion of selected literature specific to university students with ADHD and a theoretical framework for the present study of the lived experience regarding persisting in school with a diagnosis of ADHD. Given that the literature in this area is in its infancy, the literature reviewed highlights the developmental trajectory of the disorder and outlines the relevance of a strengths-based research perspective. The constructs discussed within this chapter cover a selection of interrelated concepts related to resilience and the developmental assets, both internal and external factors, that contribute to academic outcomes.

Moving Towards a Strengths-Based Perspective

It is well established that individuals with ADHD struggle with varying degrees of functional impairments across the lifespan (Turgay et al., 2012). However, a small percentage of children with ADHD manage to transition and adjust reasonably well into adulthood (Teeter Ellison, 2002). Relative to the focus on impairments in ADHD, considerably less research has examined more positive outcomes in individuals with ADHD (Owens et al., 2009). What is understood about positive outcomes has been gleaned mainly through studies of risk factors, in terms of more successful outcomes associated with absence of risk factors. An alternative approach is to better understand the potential facilitative factors within the child, family and environment that help to predict better outcome. If these factors can be identified, perhaps the lessons learned from these individuals can help to generate treatment approaches that facilitate adaptive behaviours and compensatory skills that support resilience in others with ADHD, whose outcomes in adulthood have been found to be less than optimal (Goldstein & Rider, 2013).

This chapter will briefly present the traditional model of risk and protective factors used to discuss outcomes for at-risk youth, and the recent shift in resilience research towards ordinary normative functions of human adaptational systems, rather than extra-ordinary processes. The importance of using a strengths-based framework for approaching ADHD research will then be outlined, and the developmental assets model will be presented, which categorizes assets into two major categories: internal and external assets

Resilience

Resilience in human development has been defined as "positive adaptation in the context of significant challenges, variously referring to the capacity for, processes of, or outcomes of successful life-course development during or following exposure to potentially life-altering experiences" (Masten, Cutuli, Herbers & Reed, 2009, p. 119). The meaning of resilience and the methods of operationalizing the construct have been the subject of considerable debate over the years (Curtiz & Cicchetti, 2003; Luthar, 2006; Masten, 1999). Early literature on resilient children described them as being "invulnerable" or "stress-resistant," and who developed quite well in spite of being "at risk" for serious problems. More recently, resilience has been conceptualized as a developmental phenomenon reflecting positive adjustment despite negative events or conditions (Luthar & Zelazo, 2003). Masten (2001) concluded that resilience in children is more common than was previously thought, and arises from ordinary normative functions of human adaptational systems, rather than extra-ordinary processes. She posited that resilient children have basic human protective systems that are operating in their favour. Rather than being viewed as a remarkable trait, resilience is now conceptualized as normal functioning of human adaptational systems. When these systems function optimally, development persists in

the face of adversity (Masten, 2001). Further, Neihart (2006) found that resilience can be acquired, and is a learned behavior, which means that parents and educators can help a child who has ADHD to achieve academic success in the face of adversity.

The various conceptualizations of resilience (see Luthar, Cicchetti & Becker, 2000 for a review) tend to focus on explaining developmental trajectories of individuals who were exposed to significant early adverse experiences and who still achieved positive adaptations or outcomes. Different criteria have been used to define what is meant by positive outcomes in the resilience literature, as the range and types of positive outcomes will vary across individuals. Masten, Cutuli, Herbers and Reed (2009) define positive outcomes as individuals' ability to meet age-related standards of behavior, referred to as *developmental tasks*. These are social milestones for development, which may vary from one culture to another, and are based on societal goals, such as achieving at school, behaving appropriately, and getting along with other children. Another debate in the resilience field is whether to define resilience in children as being able to function in the average range, relative to peers, or excelling beyond what is expected. Typical measures of good outcomes in the research literature focus on academic achievement, staying in school, graduating from high school, good conduct, peer acceptance, good mental health, and involvement in age-appropriate activities. Academic resilience, in particular, has implications for other life outcomes such as occupational success and adult mental health.

Resilience perspectives are grounded in bio-psychosocial models of human functioning, emphasizing the importance of both internal and external systems of influence (Luthar et al., 2000). These perspectives on resilience incorporate aspects of ecological systems theory (Bronfenbrenner, 1977), in which the individual's development is influenced by the interaction

of multiple layers, or systems, of influence. Bronfenbrenner argued that successful development

is a function of the individual's interactions within multiple supportive contexts, and that the

child's unique development cannot be examined without seeing the child in his or her broader

familial, societal and cultural context. Bronfenbrenner's model of nature and levels of context

provides a framework that takes into account five systems of influences on development: (1) the

microsystem (i.e., the child's interactions with other people, such as a teacher or parent), (2) the

mesosystem (i.e., the direct or indirect interactions of two of more microsystems, such as a

parent interacting with their child's tutor), (3) the exosystem (i.e., peripheral influences that

directly or indirectly influence a child's development, such as a parent losing their job), (4) the

macrosystem (i.e., broader influences on a child's development, such as religion or culture) and

(5) the chrono-system (i.e., the change in society over time and the major events in an

individuals life; Bronfenbrenner, 1986). Each of these levels is communally related to the levels

beside them, where they all affect each other.

Recent resilience research has identified factors across three levels of influence that are

central to identification of reliance: 1) biological and individual personality features within the

individual, 2) factors in the family, and 3) external supports in the broader community (Luthar et

al., 2000).

Positive Youth Development Research and the Developmental Assets Model

Lerner et al. (2013) defined resilience from the viewpoint of Positive Youth Development

(PYD), as a dynamic attribute that reflects adaptive influences regarding individual youth within

their context. PYD is an orientation aimed to provide services and opportunities that support

youth development. It is not a theory or intervention, but rather a policy perspective that uses

prevention and intervention strategies to develop skills, provide opportunities, and reinforce prosocial behavior. As such, resilience, from this perspective, is not in the person or the context, but in their connection and relation to each other. Sesma, Mannes and Scales (2013) outline focal characteristics of Positive Youth Development (PYD) research, which examines youth outcomes from various perspectives. PYD is an umbrella term for approaches that share four common features. Firstly, *Strength-based approaches* focus on factors associated with thriving, rather than problematic behavior, in contrast to risk or deficit-models, (which make up a large portion of research on ADHD). Second, *Ecological approaches* acknowledge that children develop in the context of schools, families, neighborhoods and in the context of multiple relationships, reflecting the various settings in which development occurs. Thirdly, a *relationships focus* highlights meaningful and intentional relationships, where an external individual acknowledges that young people have a voice and something to contribute. Fourth, *community-based approaches* focus on the community's role and responsibility in facilitating positive outcomes in the lives of youth.

The developmental assets model falls under the umbrella of PYD and aims to capture these four elements through examining interrelated experiences, skills, relationships and values that have shown to enhance youth outcomes. Thus, the asset framework aims to identify correlates of short and long-term positive outcomes in order to guide theory on developmental strengths, and inform future interventions (Sesma et al., 2013). A protective factor is any influence that decreases the probability of a negative outcome, whereas an asset promotes positive developmental outcomes and decreases negative developmental outcomes regardless of risk (Sameroff & Fiese, 2000). In their publication geared towards summarizing research conducted by Search Institute on adolescent positive development, (Benson, 2003; Edwards et

al., 2007) Scales and Leffert (1999) differentiated between internal and external assets, both

considered protective assets that augment resilience. The research resulted in a compilation of 40

developmental assets, in contrast to traditionally defined resilience factors, involving internal and

external assets that enhance resilience. Internal assets are internally functioning, such as a

positive sense of self or values, whereas external assets are outside of the individual and

compromise a set of experiences and relationships across multiple contexts, such as family

support or positive environment. Scales et al. (2006) defined developmental assets as important

relationships, opportunities, skills and values that guide young people away from risky behavior

and promote resilience and thriving. Both internal and external assets may contribute to

academic resilience, since school achievement is an important developmental task, and may vary

for each individual. Scales and Leffert (1999) have emphasized the importance of examining

developmental assets in explaining developmental trajectories, rather than focusing on risk

factors, such as risk of academic underachievement.

Resilience Perspectives Applied to ADHD

A resilience perspective shifts focus from the standard deficit-perspective that is most

often used in clinical research with individuals with ADHD, to one that gives equal consideration

to strengths (Climie, Mastoras, McCrimmon, & Schwean, 2013), including factors both within

the individual and his/her environment (Modesto-Lowe, Yelunina, & Hanjan, 2011). The major

difference between resilience and risk paradigms is the focus on positive vs. negative outcomes.

Given the well-documented risks and negative outcomes associated with having ADHD, the

disorder itself is often considered as a form of adversity that must be endured, and those that

successfully persist in school despite high risk of dropout could be considered as more resilient

(Deault, 2010). In contrast, a strength-based perspective to understanding ADHD promotes acceptance of the disorder rather than focusing on functional impairments and treatments.

Researchers studying resilience tend to be concerned with identifying risk factors for non-resilient individuals, and protective factors. Wilmshurst, Peele and Wilmshurst (2011) made the case for studying *protective factors* for college students with ADHD, factors that shield or buffer against adverse consequences. A resilience paradigm used to understand ADHD requires a major shift in emphasis from the standard deficit-perspective that is most often used in clinical and research settings, to one that gives equal consideration to strengths (Climie et al., 2013). A protective factor is any influence that decreases the probability of a negative outcome, whereas an asset promotes positive developmental outcomes and decreases negative developmental outcomes regardless of risk (Sameroff & Fiese, 2000). Rather than seek to identify risk factors, a developmental assets model shifts focus to positive outcomes, agents or characteristics of the individual and his or her environment contributing to increased probability of positive outcomes, or of thriving.

When investigating resilience in individuals with ADHD, it is important to consider developmental continuity and discontinuity. Resilience factors at play during one phase of development may not serve the same function at other stages (Rutter, 1993), and both short and long term effects of experiences may differ across and within individuals. For example, popularity with non-parental adults was associated with lower levels of externalizing behaviour in female children with ADHD (Mikami & Hinshaw, 2003), however popularity with adults did not significantly protect against female adolescent problem behaviours (Mikami & Hinshaw,

2006). During certain developmental life stages or "turning points," individuals may be more or less susceptible to factors of risk or protection (Kim-Cohen, 2007).

Academic Risk Factors. What is understood about positive outcomes has been gathered through studies of risk factors, in terms of more successful outcomes associated with the absence of risk factors. Thus, it is appropriate to first outline risk factors associated with having ADHD. Most children with ADHD are diagnosed in early to mid-elementary school age as they are usually referred because of disruptive or inattentive classroom behaviour and/or academic difficulties. While hyperactivity and impulsivity are more likely to lead to referrals for assessment, there is a significant negative association between core symptoms of reading, writing and mathematics, with a more pronounced relationship for inattentive symptoms and EF deficits (Daly & Birchwood, 2010). When broken down into symptom presentation, symptoms of inattention and deficits in executive functioning predict academic difficulties for children with ADHD (Diamantopoulou et al., 2007). Children with ADHD tend to have greater impairments in academic achievement, family interactions and peer relationships, as well as elevated rates of co-occurring conditions, or comorbidities (e.g., learning disabilities, anxiety) when compared to typically developing peers (Barkley, 2006). Moreover, poor EF continues to be a presenting problem in many school aged children with ADHD. Sergeant, Geurts, and Oosterlaan (2002) reviewed studies of EF in school aged children with ADHD, and found evidence for inhibitory deficits in ADHD, although they also found that children with other clinical disorders such as ODD or learning disabilities (LD) exhibited similar deficits in EF. Biederman et al. (2004) found that having poor EF and ADHD was associated with poor academic achievement. The combination of ADHD symptom severity and poor EF has emerged as a significant predictor of impairment (Wåhlstedt, Thorell, & Bohlin, 2008). Children with ADHD and poor EF were found

to be more at risk for grade retention and lower academic achievement compared to children with ADHD and no EF deficit, performing worse on academic achievement tests in areas including reading comprehension and written expression. Meltzer and Krishnan (2007) found that children with EF deficits are viewed as inefficient learners because they do not use self-regulatory strategies, such as checking and revising during learning tasks. They may also have limited strategies for efficient problem solving, and weaknesses in cognitive flexibility. Children with poor EF also have difficulty demonstrating their knowledge (e.g., in classroom assessments) because of difficulty organizing, self-monitoring and prioritizing information.

School-aged children with ADHD are more likely to have poor grades, and lower reading and mathematics performance than their peers (DuPaul et al., 2009; Loe & Feldman, 2007), although some children may do reasonably well in the early grades. Academic demands of the curriculum increase significantly in higher grades, and many children with ADHD who were previously successful in early elementary school may begin to struggle in secondary school (Meltzer & Krishnan, 2007). However, it is important to note that individuals with ADHD do not lack the intellectual capacity to learn (Reaser, Prevatt, Petscher, & Proctor, 2007); instead, they require various types of instructional supports and teachers' instructional strategies to enable them to achieve their academic potential (Martinussen, Tannock, McInnes, & Chaban, 2005). These findings highlight the importance of exploring assets that may help children with ADHD to overcome or avoid the academic difficulties associated with ADHD.

Children with ADHD often exhibit poorer social functioning and communication skills than typically developing peers (Klimkeit, Graham, Lee et al., 2006). Findings from the Multimodal Treatment Study of Children with ADHD found that 52% of children fell in the

"rejected" category of peer acceptance (MTA Cooperative Group, 1999) compared to 14% of typically developing peers. Even following treatment, there were no treatment related differences with respect to peer rejection, and all treatment groups had fewer friends than their classmates. Diamantopoulou, Rydell, Thorell and Bohlin (2007) examined ADHD and social functioning in school-aged children and found that high levels of ADHD symptoms and poor EF were related to social functioning. They also found gender differences whereby girls with poor EF were less accepted by peers than boys. Early severity of behavioural symptoms in school-aged children with ADHD also predicted lower levels of social competence and emotional regulation problems (Wåhlstedt et al., 2008). These findings are important because positive peer relationships are important for all children and peer rejection places children at risk for a series of negative outcomes such as school dropout and later substance use (Hoza, 2007). A history of regular acceptance by peers could therefore be considered as an external developmental asset in children with ADHD.

Research suggests that adolescents with ADHD continue to struggle in school as academic demands increase and inattention becomes the biggest challenge (Daly & Birchwood, 2007; Rogers, Hwang, Toplak, Weiss & Tannock, 2011). Symptoms of inattention continue to increase or become more apparent, as the degree of hyperactivity-impulsivity symptoms decreases during middle-childhood/early adolescence (Lahey et al., 2004). Furthermore, the demands for well-developed EFs increase in high school, as students are exposed to multiple teachers and classes, the amount of assigned homework increases, and students are expected to independent self-regulated learners (Barkley et al., 1991). Adolescents with ADHD are more likely to procrastinate and show poor time management skills than their same aged peers, become more easily distracted in complex school tasks, and have difficulty tracking and

completing their projects, especially when the task requires a great deal of effort (Langberg, Epstein, Girio-Herrera, Backer, Vaughn, & Attaye, 2011). Adolescents with ADHD are often criticized as being "lazy", which can contribute to feelings of low academic self-esteem (Meltzer & Krishnan, 2007). Breslau et al., (2010) found that high school students with ADHD were more likely to drop out if they had high inattentive symptoms, regardless of comorbid disorders or other risk factors such as drug or alcohol abuse.

Certain risk factors may be associated with greater academic challenges. In a longitudinal study, McGee et al. (1992) found that 15-year olds who were rated as hyperactive in pre-school displayed poorer reading abilities than controls and were more likely to have a reading disability. Moreover, deficits in EF in individuals with ADHD remain prevalent in adolescence and are similar to those seen in children with the disorder (Martel, Nikolas, & Nigg, 2007). Barkley (2013) found that these deficits in EF are associated with lower academic achievement, lower socioeconomic status, and increased functional impairment beyond the diagnosis of ADHD alone. Students with poor EF are thought to experience higher levels of frustration and anxiety in response to their challenges (Barkley, 2013) contributing to lowered motivation, effort and academic persistence. One study of adolescents with and without ADHD found that those who displayed poor EF also presented with poor social adjustment (Clark, Prior & Kinsella, 2002). In addition, poor EF in adolescents has been associated with physical aggression after controlling for ADHD behavioural symptoms and intelligence. (Seguin, Boulerice, Harden, Tremblay, & Pihl, 1999). Moreover, individuals with ADHD often have deficits in working memory, which refers to the cognitive temporary storage and manipulation of information and comprise one of the executive functions, which are associated with academic underachievement in reading and mathematics (Rogers et al., 2011)

With regard to enrolment in post-secondary education, Kuriyan and colleagues (2013) found that individuals with ADHD (29.5%) enrolled in 4- year postsecondary education programs significantly less than their peers without ADHD (76.8%) in the United States. While the exact number of students with ADHD attending postsecondary institutions is unknown, in a sample of over 34,000 Canadian postsecondary students, 4.6% indicated that they have ADHD (The American College Health Association, 2013). Nevertheless, recent data in the United States indicate that 5.9% of incoming first year students reported a diagnosis of ADHD, suggesting that students with ADHD represent a meaningful minority of postsecondary students in North America (Eagan et al., 2014). There has been a dramatic increase in the number of young adults with ADHD successfully gaining entrance to university and completing post-secondary education (Wilmshurst et al., 2011).

Compared to the average university student, students with ADHD are at greater risk for academic underachievement, mental health issues, and dropping out (Heiligenstein et al., 1999; Lee, Oakland, Jackson, & Glutting, 2008). Research suggests that young adults with ADHD, on average, achieve lower grades, complete less schooling, and are more likely to be on academic probation than their peers (DuPaul, Weyandt, O'Dell, & Varejao, 2009; Kuriyan et al., 2013). In one study, when university students with ADHD were asked to describe the challenges that affected their academic productivity in university, 95% of participants described experiencing procrastination, 86% gave examples of frequent fidgeting (motor restlessness), and 61% described memory issues such as forgetting appointments (Gray, Fettes, Woltering, Mawjee, & Tannock, 2016). A prospective longitudinal study of 59 college students with ADHD found that many students had low and failing grades and frequently withdrew from classes. Specifically, they found that on their spring academic report card, 25% of students had at least one D and 24%

had at least one F with 44% of the sample having at least one D or F. Furthermore, 21% of the sample was placed on either "academic warning" or "academic probation," and 29% of the sample withdrew from at least one course during the second semester (Dvorsky, & Langberg, 2014). Their study found that ratings of EF deficits were the strongest predictors of overall impairment. In the regression models predicting overall impairment, self-reported motivation and parent reported regulation of emotions were found to be the most important predictors, along with parent- rated ADHD symptoms, and that self-rated organization was a significant predictor of grade point average (GPA). This study points to the importance of motivation and organizational skills in predicting the impairment of college students with ADHD. Moreover, the Self-Motivation subscale of the self-report *Barkley Deficits in Executive Functioning Scale* (BDEFS) used in the study included items related to resisting immediate rewards to work longer-term or delayed rewards. Thus, reward processing also seemed to play a role in the outcomes of individuals with ADHD (Dvorsky, & Langerg, 2014).

With regard to mental health factors, college students with severe ADHD symptoms have been found to show greater frequency of depression and lower learner self-esteem than their typically developing peers (Norvilitis, Ingersoll, Zhang, & Jia, 2008). Further, Heiligenstein and Keeling (1995) found that half of their sample of individuals with ADHD exhibited comorbid disorders such as depression (25%) anxiety (5%) drug and alcohol dependency (26%) and eating disorders (2%). Grenwald-Mayes (2002) found that relative to typically developing students, university students with ADHD reported lower quality of life ratings, which may be due in part to negative self-evaluations. These individuals are often criticized as being unmotivated, and experience higher levels of frustration and anxiety in response to challenges (Barkley, 1997) that can contribute to feelings of low academic self-competence (Meltzer & Krishnan, 2007).

University students with ADHD are at risk for academic low self-competence, negative self-evaluations, and comorbid mental health conditions.

Current trends in both research and practice often consider students with ADHD and students with Learning Disabilities (LD) as a unified group, having similar needs for academic supports (Prevatt & Young, 2014). There are several reasons for this trend, including: 1) high comorbidity rates between ADHD and LD (45%; DuPaul et al., 2013), 2) common cognitive processing impairments involving working memory and processing speed (Katz, Brown, Roth & Beers, 2011), 3) similar functional impairments associated with both groups, such as lower grades and high rates of drop-out (Prevatt & Young, 2014), and 4) common internal assets associated with school success, such as attitude and motivation (Reaser, Prevatt, Petscher, & Proctor, 2007). Nevertheless, there are many important differences associated with having an LD and/or ADHD. For instance, individuals with ADHD (with or without a comorbid LD) have been found to have more challenges with time management, ability to focus on their work, reading comprehension for academic texts, and ability to use study guides than students with LD (Reaser et al., 2007). Furthermore, they have lower sense of self-efficacy as learners, and have lower grades overall than students with only an LD diagnosis (Budd, Fichten, Jorgensen, Havel, & Flanagan, 2016). These factors may reflect the extra influence of poor executive functioning affecting academic performance, and not lack of ability (Huie, Winsler & Kitsantas, 2014). For students with ADHD (with or without a comorbid LD), those who are better able to self-regulate during learning (e.g., organize tasks, develop effective study skills, and manage time effectively) are more likely to have better grades (Huie, Winsler & Kitsantas, 2014). Existing studies highlight the need for evidence-based executive functioning and self-regulation interventions for students with ADHD, such as coaching programs (e.g., cognitive behavioural therapy with

psychoeducational techniques; Prevatt & Yelland, 2015). Moreover, evidence suggests that students with comorbid ADHD and LD may have worse outcomes than do those with LD or ADHD alone, emphasizing the importance of distinguishing these three groups: those with ADHD, LD and comorbid ADHD and LD, and providing appropriate supports for each group in university support services (Tsagris & Muirhead, 2012).

University students with ADHD are of great interest because adults with ADHD typically have histories of poorer academic outcomes than their typically developing peers. University students with ADHD who have persisted in school despite the odds should be a research focus (Wilmhurst, Peele & Wilmshurst, 2011).

ADHD and Resilience

It is likely that many of the factors that protect typically developing children from mental health concerns also protect children with ADHD. Living in a supportive family and household, above the poverty level, with parents without mental health problems who are consistent in their parenting style and available for their children seem to be the most powerful external factors predicting resilience in all children (Goldstein & Rider, 2013).

Internal factors, such as positive self-perceptions, may contribute to positive adjustment. For example, child self-perceptions of their strengths and areas of weakness may have implications for the adjustment of children with ADHD. Some children with ADHD, despite parent and teacher reports of significant impairments, overestimate their competence in academic, behavioural and social domains (Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007; Hoza, Murray-Close, Arnold, Hinshaw, & Hechtman, 2010). What is termed *positive*

illusory bias may serve as another internal protective factor that may help to preserve self-esteem. For example, Mikami and Hinshaw (2006) examined the impact of self-perceived academic competence among peer-rejected girls with ADHD and found that self-perceived academic confidence predicted better adolescent functioning, and less anxiety and depression, regardless of actual achievement. Moreover, interest in an activity is particularly important for children with ADHD and helps to elicit focus, motivation and perseverance (Barkley, 2014).

External protective factors may also serve to contribute to positive academic outcomes. For example, positive classroom experiences may help to keep children engaged in school (Martinussen et al., 2005). Sherman, Rasmussen, and Baydala (2008) found that teachers' positive attitude towards children with ADHD and knowledge about interventions, combined with supports such as use of gestures when communicating helped these children to be successful. Having knowledgeable and supportive school and teachers have been found to serve as protective factors for children with ADHD (DuPaul, Weyandt, & Janusis, 2011).

Other external positive assets such as early positive parenting practices of using frequent praise and positive affect have been found to be moderate predictors of emotional and behavioural adjustment of school-aged children (Dvorsky & Langberg, 2014). Moreover, Greenwald-Mayes (2002) found that family dynamics continue to play a prominent role in the quality of life for university students with ADHD compared to their non-ADHD peers. For example, university students with ADHD who rated themselves higher on measures of quality of life reported more positive family variables during their upbringing, such as positive emotional climate and time spent on family recreational activities. This relationship was not significant for

controls in the study, suggesting that family variables may be a particularly important protective factor regarding quality of life for these individuals.

Positive academic experiences may additionally serve as a protective factor for children with ADHD. Sherman et al. (2008) found that teachers' patience, knowledge of interventions, ability to collaborate with colleagues, use of gestures when communicating, and most importantly, having a positive attitude towards children with ADHD were associated with better outcomes. Some research has shown that peer tutoring and providing one-on-one instruction, can improve classroom behavior and academic performance (DuPaul et al., 2016). Homework-focused interventions have been found to benefit both children and adolescents with planning, organization, prioritizing, filtering out distractions, and forgetfulness (Raggi & Chronis, 2006). Although parents usually implement homework-focused interventions, Sonuga-Barke (2002) noted that maternal ADHD reduced the effectiveness of these interventions due to their own difficulties with organization and planning. Thus, parent training and/or ADHD treatments may be beneficial for parents as well.

There has been some research on academic interventions for adolescents with ADHD, such as organization and study skills training, which have been found to be effective in supporting academic success (Bikic, Reichow, McCauley, Ibrahim, & Sukhodolsky, 2017). Moreover, a recent study by Martin (2012) looked at the benefits of helping high school students with and without ADHD to set "personal best" goals (e.g. getting a higher mark at the end of year exams than in the half-yearly exams). The authors looked at the association between personal best goals, academic achievement, motivation, and engagement in more than 3400 Australian high school students. They found that personal best goals were positively associated

with student achievement, homework completion, planning and persistence, were associated with higher levels of academic engagement for students with ADHD. In some cases, the benefits of personal best goals were greater for students with ADHD compared to their same aged typically developing peers. Thus, adolescents with ADHD can benefit from specific external instructional supports provided in the classroom.

It is well documented that university students with ADHD experience academic struggles (Barkley, 2006; Biederman et al., 1996, Molina et al., 2009), yet little is known about those who do well academically. University students with ADHD, given their enrollment in postsecondary education, have likely experienced academic success and have good compensatory skills (Glutting, Monaghan, Adams, & Sheslow, 2002). DuPaul et al. (2009) found that those individuals with ADHD attending college differ from those who do not in that they show higher intellectual ability, better-developed coping skills, and a history of academic success prior to college. For example, Kaminski, Turnock, Rosen and Laster (2006) employed a quantitative study using checklists and student grade point averages and found that certain compensatory strategies, such as structuring time and engaging in time-intensive and effortful studying may be more predictive of academic success than intellectual abilities or symptom severity. They found that individual resources for coping differentiated academically successful college students with ADHD from less successful students. This study also found that freedom from financial concerns and time management skills were associated with academic success; therefore, ability to structure and manage time, and a lack of external stressors may be key determinants of academic success (Kaminski et al., 2006).

Some research on the challenges and risk factors associated with ADHD often highlight possible assets as well. Dooling-Litfin and Rosén (1997) found that although college students with ADHD scored lower on ratings of self-esteem than controls, within-group comparisons revealed that those who reported factors commonly conceptualized as protective in the resilience literature, such as better social skills, having a special talent, or a mentor, reported higher levels of self-esteem than individuals with ADHD who did not report these factors. Wilmshurst, Peele and Wilmshurst (2011) examined internal risk and protective factors with college students with ADHD and compared self-concept and psychological well being relative to controls. They found no significant differences between college students with and without ADHD on measures of academic performance, total self-concept or psychological well being. However, two different aspects of well being by each group predicted self-concept. For students with ADHD, environmental mastery, or competence in managing their environment and making effective use of available opportunities for success was predictive of positive self-concept. Alternatively, in the control group, positive relationships with others were the strongest predictor of positive self-concept. Moreover, Wilmshurst et al. (2011) reported differing views of emotional and academic support. There were differences in views of the effects of emotional and academic supports that they received. For example, individuals with ADHD rated their fathers as the most supportive, whereas controls rated friends as the most positive supports (Wilmshurst et al., 2011). This study suggests that fathers may be an important support for academic resilience.

Another mixed-methods study found that college students with ADHD who had higher grade point averages had stronger internal compensatory strategies, such as good time management skills, and reported more time-intensive effortful studying than did academically lower achieving students (Kaminski, Turnock, Rosen, & Laster, 2006). These few studies point

to the importance of examining internal and external assets, which may contribute to academic resilience in university students with ADHD.

Better understanding of developmental assets and factors supporting resilience is important in post-secondary students with ADHD. At a federal and provincial level, guided by human rights legislation, elementary, secondary and post-secondary institutions are responsible for accommodating disability-related needs. Canadian institutions must ensure that all exceptional learners can access accommodations and services without payment of additional fees. Educators at the post-secondary level are responsible for accommodating students, being knowledgeable about and sensitive to disability issues, and maintaining student confidentiality (Canadian Human Rights Act, 1985). Academic accommodations typically recommended for university students with ADHD include extra-time on tests and exams, the option to write in a quiet environment, and note-taking services. While these accommodations are mostly universal across Canadian universities, all lack rigorous empirical studies on the effectiveness for students with ADHD. Very little is known regarding the effects of typically recommended accommodations for university students with ADHD. While many of the listed accommodations make sense practically, few have been researched to determine effectiveness for this population.

Conclusion

This review of the literature relevant to the purpose of this study has provided insight into the academic challenges experienced by students with ADHD, starting from a young age, and continuing at the university level. Further, this chapter explored recent literature suggesting that it is important to shift the focus in research and practice from risk factors associated with ADHD, to assets associated with success in individuals with ADHD (Climie et al., 2013). Thus far,

research examining protective factors and resilience in individuals with ADHD is scarce (Modesto-Lowe et al., 2011). Research on functional impairments in individuals with ADHD highlights academic struggles for students with ADHD (Barkley, 2006; Biederman et al., 1996, Molina et al., 2009), however, not all children with ADHD experience poor academic outcomes, and there is a paucity of research examining successful cases of students with ADHD who have persisted in school (Rabiner, Anastopoulos, Costello, Hoyle & Swartzwelder, 2008).. Moreover, university students with ADHD may have greater academic resilience than students with ADHD who do not enter university, and research is needed to investigate the competencies and developmental assets of students who have achieved success against the odds (Wilmhurst et al., 2011).

The present study addresses many of the gaps in the research related to ADHD students attending university and their first-hand experience with academic persistence. This research did not focus on typical quantitative variables associated with university success, such as grade point average. Instead, the goal was to discover individual mechanisms and supports used by students to persist in school. The study will help to fill gaps in the literature surrounding academically resilient university students with ADHD: specifically, what are the external supports and intra-personal characteristics that participants perceive helped them persist through high school and continue to university (Young, Toone, & Tyson, 2003). The objective of this research was to explore ADHD from a resilience perspective to better understand internal and external assets, which could in turn help to inform educational practices for younger school-age children with ADHD and help university administrators to understand how to best support these students with services and interventions.

Chapter Three- Methodology

This chapter describes the research approach used in this exploratory study. Further, the chapter offers background on the qualitative research tradition, describes the study design, and outlines the data collection process and analysis procedures, ethical considerations, and examines the role of the researcher.

Study Design

The purpose of this study was to acquire a deeper understanding of the experiences and perspectives of university students diagnosed with ADHD from a developmental assets perspective. The current study explored a domain-specific indicator of resilience (Luthar et al., 2000): academic resilience. This indicator of resilience was selected because academic difficulties are a key feature of ADHD, often bringing the child with ADHD to clinical attention (Loe & Feldman, 2007). The study also drew upon the *developmental assets* model (Benson, 1997) to explore how participants make sense of and give meaning to assets that have contributed to academic resilience and school persistence in their experience. The study explored both internal and external assets that the participants perceived were most conducive for learning success in their experience (Sarkis, 2008; Weyandt & DuPaul, 2008).

The epistemological stance for this research is situated within the social constructivist paradigm. Social constructivists posit that realities are subjective for each individual and that reality is socially constructed through interactions with others through meaning making (Lincoln & Guba, 1994). They argue that the terms by which people make sense of the world, including language, are social artifacts; the emphasis is on the process of knowledge construction by the

social group and the inter-subjectivity established through interactions (Schwandt, 1994). This approach is appropriate for the research question as the goal is to better understand the subjective experience, rather than measure or verify objective truth (Lincoln & Guba, 1994).

The current study was designed in such a way as to provide an opportunity for participants to articulate and explore their side of the phenomenon of having ADHD and persisting in post-secondary education, i.e., to tell the story of their own experience. This chapter's purpose is to present a detailed description of the design of the study, including the theoretical underpinnings of Interpretative Phenomenological Analysis (IPA). This chapter will also provide a description of participant selection, investigative procedure, coding and data analysis. Furthermore, this chapter will discuss the methodological biases and limitations of the current study.

Selection of a Qualitative Approach

In the initial stages of researching the phenomenon of academic persistence in individuals with ADHD, a decision had to be made as to the most effective research approach. A qualitative methodology was chosen to explore the internal and external assets contributing to academic resilience in university students with ADHD because: 1) the research questions sought to understand the experience of academic persistence and success for students with ADHD, the "how" and "what" questions that seek to describe and understand their experiences and how they got to university (Patton, 2001), 2) the issue of academic resilience in university students with ADHD is under-researched and there is no empirical base, therefore initial exploratory research is needed, and 3) the research questions are open-ended and aim to investigate the phenomenon from the participants' unique worldview (Merriam, 2009). Also, since ADHD is a heterogeneous

disorder and each participant will differ in the presentation of their disorder and their functional

outcomes, they will also differ in comorbidities, medication use and functional impairments.

Moreover, each participant's worldview and experiences will be different, as will factors

contributing to positive outcomes in their lives.

Segal (1998) advocated for a qualitative approach to studying ADHD, and gathering data

directly from those with ADHD in order to fully grasp the symptoms and effects of the disorder.

Qualitative methodologies allow open, exploratory questions, unlimited and emergent

descriptions of the phenomenon being studied, and the prospect of uncovering previously

unidentified factors or phenomena (Elliot & Timulak, 2005). Qualitative research is an inductive

process that encourages the use of exploration and investigation to generate hypotheses, rather

than testing hypotheses such as in quantitative experimental design with group comparison

(Merriam, 2002). The intent of qualitative research is much different than quantitative, as it aims

to use the individual voice to explain an unobservable phenomenon, which is built around a

construct that is not easily operationalized (Creswell, 2012). For example, individual thoughts,

emotions and perceptions of experiences are difficult to assess directly and cannot be fully

explained through behavioral observations and rating scales (Smith, Flowers, & Larkin, 2009).

Qualitative research seeks to explain the individual's own associations between life events,

examining how they make sense of what happens to them and personal meanings that they

associate with these experiences (Smith, Flowers, & Larkin, 2009). It was decided that a

qualitative approach would provide a useful research lens for understanding assets contributing

to school persistence for students with ADHD enrolled in University. The exploratory nature of

qualitative research enabled a platform upon which additional future research can be undertaken,

and could provide potentially important insights for disability support services as to how to better serve this population.

Research Design

    Social Constructivism. This study is ontologically grounded in the experiential examination of individual lived experiences; sociocultural and historical processes are central to individual perspectives (Smith & Eatough, 2007). IPA is located between the experiential approaches of phenomenology, and the hermeneutic approaches that focus on contexts and culture, which inform understanding (Smith & Osborn, 2003). IPA draws on each of these theoretical approaches to inform its unique epistemological framework. Smith and Osborn (2003) argued that IPA is distinct from other approaches in that it is both inductive and experiential, attempting to explore how individuals make sense of their experiences in relation to their personal and social worlds, in order to better understand the meaning they ascribe to these experiences (Smith & Osborn, 2003).

    Interpretative Phenomenological Analysis (IPA). Interpretative phenomenological analysis (Smith et al., 2009) was the chosen methodology for the study, as it is useful for the in depth study of developmental outcomes, such as resiliency (Smith, Flowers, & Larkin, 2009). Primary IPA research questions are directed towards accessing the lived experiences of participants, and the significance that these experiences hold (Smith, Flowers, & Larkin, 2009). The research questions are exploratory rather than explanatory (Smith, Flowers, & Larkin, 2009). Barker et al., (2002) proposed that exploratory research questions are appropriate as the base for qualitative inquiry when little is known about a particular research area. In this case, little is known about the phenomenon of academic resilience in university students with ADHD.

IPA is a qualitative approach that is widely used in psychology to capture and describe the experiential factors associated with the human predicament (Smith, Flowers, & Larkin, 2009). IPA has been used in educational, clinical and counseling psychology, as it seeks to understand psychological experiences understood by subsets of individuals (Smith, Flowers, & Larkin, 2009). IPA was chosen in order to facilitate deeper understanding and interpretation of the experiences of young adults with ADHD who have persisted in university, despite the functional impairments associated with the disorder. IPA is informed by the philosophical underpinnings of both phenomenology and hermeneutics (Smith, Flower & Larkin, 2009).

IPA is informed by two major theoretical underpinnings: phenomenology and hermeneutics (Smith, Flower & Larkin, 2009). The origins of IPA are grounded in phenomenology, which holds that individuals are not passive participants in an objective reality, but rather active interpreters of their own world. IPA also has theoretical underpinnings informed by interpretation or hermeneutics. IPA is an interpretative phenomenological approach, which is concerned with how people make sense of their major life experiences. When people are engaged in an experience, they begin to reflect on the significance of what is happening, and IPA research aims to engage these reflections. Moreover, IPA is an interpretive endeavor and recognizes that access to an experience is dependent on what participants choose to share about that experience, and that the researcher needs to interpret that account in order to understand their experience. Therefore, the researcher's interpretation is also implicated in making sense of the experience.

Interpretation occurs on many levels during IPA for both the participant and the researcher (Smith & Osborn, 2003). The first level requires the participant to offer his/her

interpretation of the phenomenon as well as his/her associated thoughts. The second level of interpretation occurs as the researcher attempts to understand the participants' comments. Smith et al. (2009) put forth the concept of the *double hermeneutic*, whereby the participant makes sense of his/her experience, while the researcher engages in a second order sense-making of the participant's experience (Smith & Eatough, 2007). IPA is phenomenological as it is concerned with participant perceptions of life events; in this case, it would be the participant's perceptions of having ADHD and persisting in school. It is interpretative in the sense that gaining access to the participant's world is complicated by the researchers preconceived ideas (Smith, 2004). IPA involves a joint endeavor whereby the participant and researcher co-construct meaning of the phenomenon under study through the interview process (Smith & Osborn, 2003). Throughout the process, it is understood that both the researcher and the participants enter into the interview with pre-existing prejudices, biases and understandings (Smith et al., 2009). While the participant makes sense of his/her personal world and his/her experience in it, the researcher makes sense of the participant trying to make sense of his/her personal world and experience in it (Smith, 2004).

IPA is also influenced by symbolic interactionism, which refers to the concept that the meanings individuals ascribe to events are of central importance to a phenomenon, and can only be uncovered through the process of interpretation. The way that individuals perceive an experience or event in their lives is reflected directly in their descriptions of how they reacted to the event (Dean, Smith & Payne, 2006). It also implies that personal meanings of experiences are expressed only as a result of social interaction with the researcher. Therefore, IPA aims to understand the participant's view of the world and associated thoughts about his/her experiences, to gain an insider perspective of the phenomenon in question.

Theoretical Underpinnings of IPA

      Phenomenology. Phenomenology is the exploration of "lived" experiences, and how individuals develop an understanding of their experiences (). The primary goal of phenomenology is to explore and describe the essence of a particular phenomenon, such as an experience or a concept. Phenomenological research assumes that there is an essence to a shared experience, which is mutually understood (Creswell, 2012). Phenomenological researchers aim to depict the essence or basic structure of experience, and the researcher's prior beliefs about a phenomenon are temporarily put aside.

      Edmund Husserl (1859-1938) is credited with the phenomenological approach to research. Husserl posited that in order to examine a lived experience, it is necessary to adopt a "phenomenological attitude," which involves gazing inward to reflect on an object or an experience. Husserl (1927) argued that to know the essential qualities of an experience accurately, requires depth and rigour. Husserl argued that it is possible to discover *the* truth of a subject or phenomenon, rather than *a* truth (McLeod, 2001). His work, however, fails to account for contextual factors that influence how individuals experience phenomena. For these reasons, IPA does not adhere to a strict Husserlian view of phenomenology.

      Unlike Husserl who felt that researchers could put aside their own beliefs and assumptions in order to uncover the true essence of a phenomenon, Heidegger believed that experiences are always influenced by one's context. In addition, Merleau-Ponty believed that the embodied nature of interactions with the world lead to a person's individually situated perspective of the world (Smith et al., 2009). Merleau-Ponty viewed the body as an important vessel that shapes an individual's knowledge about the world. Sartre emphasized the belief that

there is no pre-existing self to discover, but rather an individual is in a continual process of becoming (McLeod, 2001). These perspectives were added on to Husserl's conceptualization of phenomenology, and considered the social and cultural context with which each experience is embedded. These philosophers postulated that true understanding of an experience invokes a lived process and an in depth analysis of perspectives and meanings, which are unique to the person's unique situation in the world (Smith, Flowers, & Larkin, 2009).

Hermeneutics. The second theoretical foundation of IPA is hermeneutics. In hermeneutic research, the exploration of a phenomenon is explored from the viewpoint of individual's perspective, however it always involves interpretation by the researcher (Smith et al., 2009). The researcher is unable to separate themselves from pre-existing assumptions or biases, which have developed as a result of development, language, culture, and context. Heidegger considered phenomenological inquiry an interpretive process (Heidegger, 1962). Although considered a different philosophical movement, Heidegger presented hermeneutics as a necessary prerequisite to phenomenology. He posited that phenomenology requires the uncovering of meanings that are hidden. He felt that human beings exist in a historical, social and cultural context whereby meanings are always constrained by the researcher's existing knowledge (Heidegger, 1962).

Similarly, Merleau-Ponty (1964) contended that perception is rooted in its interpretational nature and that perception is always immersed in meaning. For Merleau-Ponty, the truth is not found or discovered, it is interpreted. Both the researcher and participants engage in interpretive activities, which are influenced by shared social and cultural discourses. Similar to Heidegger, Gadamer stressed that the interpretive process is strongly influenced by history and

tradition. He viewed interpretation as a "fusion of horizons" between the researcher and the participant, with the ultimate goal being to move towards a fusion of ideas, values and meanings (Smith et al., 2009). With IPA research, both subjective accounts of an experience by participants, and how the researcher interprets their account are integral to the findings (Smith et al., 2009).

Double hermeneutics. The process of IPA can be described as involving *double hermeneutics*, whereby the researcher attempts to make sense of the participants' accounts of personal phenomena, who are themselves trying to make sense of their own lived experiences (Smith, Flowers, & Larkin, 2009). Interpretation is a necessary aspect of phenomenology, as the task of interpretation helps to reveal what is hidden, and contextualize the phenomenon. Consistent with phenomenology, IPA involves trying to understand a phenomenon from the point of view of the participants. Double hermeneutics also refers to the researchers' own involvement and preconceptions with the phenomenon under investigation (Smith, 2007). IPA involves a combination of phenomenological and hermeneutic insights. IPA is particularly suitable for research where the focus is on the uniqueness of a person's experience.

Ideography. Ideography is another underpinning deemed relevant to IPA. Ideography contends that research should be in-depth and focused on each unique participant. Gordon Allport (1937, 1962) first used the term ideography and argued for the intensive study of the individual. Smith et al. (2009) proposed that each individual participant or case offers a unique perspective of their engagement with a phenomenon, and suggested a detailed analysis into each individual account of an experience to help illuminate an experience. In IPA, the process of interpretation involves beginning with the details of a single case before moving on to examine

similarities and differences across cases. IPA researchers attend to the particular details of particular cases and lived experiences before comparing themes across participants (See the phases of data analysis in Appendix D).

Rationale for IPA. Individuals with ADHD are often "researched upon" rather than seen as the "knower" or someone who can provide insight into their experience. There is no one with greater expertise on the subject than the participants themselves and the most direct approach was to ask them to tell their stories. IPA relies on both the participants' perspectives, as well as the researcher's interpretation. Moreover, current theories of resilience were considered in the selection of IPA as an appropriate choice for this study. IPA is useful for the study of dynamic developmental outcomes, such as resilience (Smith, Flowers, & Larkin, 2009). As is explained below, a semi-structured interview schedule was developed and implemented with ten participants. Responses were then analyzed using IPA.

Method

Ethics Board Approval

Prior to recruiting participants or collecting data, I secured approval from the Research Ethics Board at the University of Alberta. Following University ethics approval, a separate ethics application went through the Specialized Support and Disability Services (SSDS) using the Alberta Research Ethics Community Consensus Initiative Ethics Screening tool prior to their help with recruitment. In addition to outlining participant inclusion criteria and recruitment strategies (see below), I provided evidence that there were more possible benefits to the participants than risks. For example, participants might enjoy reflecting on their past successes,

strengths and assets that helped them to be academically successful, and might also enjoy

contributing to research that may help younger individuals with ADHD who want to persist in

school. Finally, I highlighted the potential for the research to contribute to the scientific literature

and to meaningful knowledge surrounding appropriate accommodations and supports for

students with ADHD. With the potential benefits far outweighing any potential risks on the

research risk/benefit scale (Berg, 2007), the Office of Research Ethics and SDSS approved the

research study.

Participants and Selection Criteria

Several criteria were used for participant selection in order to ensure some level of homogeneity

within the group of participants interviewed.

       Inclusion/Exclusion Criteria. The main criteria for inclusion were that each participant

was enrolled full-time at the University of Alberta in an undergraduate degree program, had a

confirmed diagnosis of ADHD, and was not on academic probation. The minimum age of

participation was 18. The study was open to all students at the University of Alberta whose first

language was English, regardless of ethnicity or country of origin. Students were required to

have a recently confirmed diagnosis of ADHD, which was verified with the presentation of a

recent adult psycho-educational assessment report (after the age of 18 or within the last 3 years;

criteria established through SDSS for accommodation support). Individuals with comorbid

disorders such as a learning disability, mood disorders or anxiety disorders were included in the

study, unless the coexisting disorders prevented them from carrying out the interview. I aimed to

recruit an equal sample of male and female participants, considering that males and females are

equally represented in adults with ADHD (Biederman et al., 2004).

Sampling Approach. IPA methodology typically involves recruiting of a closely defined group for whom the research question is significant (Smith & Eatough, 2007). A sample size of ten students was chosen to participate in the study in order to allow for data collection that facilitated in depth analysis of the personal accounts of academic resilience in university students with ADHD. IPA as a whole emphasizes understanding how experiences are understood from an individual's perspective within a specific context. The goal is not to get a representative sample, but rather to get a full and deep picture of each participant's experience (Smith, Flowers, & Larkin, 2009). IPA does not purport a right sample size but rather an adequate size is achieved when the researcher has enough information to ascertain meaningful points of similarity and difference amongst the participants (Smith et al., 2009). Furthermore, IPA researchers usually try to find a homogenous sample, while maximizing variability. In keeping groups as uniform as possible according to external factors relevant to the study, such as university students with ADHD, one can then examine in detail individual differences within the group (Smith, Flowers, & Larkin, 2009). Variability was also maximized through having both men and women, from different cultural groups, who attended schooling throughout various regions across Canada and around the world.

Recruitment. Upon ethics approval for the study, participants were recruited through convenience sampling. I recruited participants through the university's Specialized Support and Disability Services Office (SDSS), who helped to disseminate information about the study to potential participants by emailing the listserv, and through word of mouth. Further, posters advertising the study were displayed in several public locations across the University campus. Contact information was provided on the posters and in the emails so that participants could contact me directly. Once students made initial contact, they were screened by telephone to

ensure that they met the above criteria for enrolment in the study. If they met criteria, they were sent an email with an invitation to participate in the study along with the information letter about the study. Once they agreed to participate, a follow-up telephone call was placed in order to schedule the interviews. During this phone call, the *Adult ADHD Self-Report Scale* (ASRS-v1.1; World Health Organization, 2003) Symptom Checklist was used to confirm their diagnosis and to review their ADHD symptoms. Students were invited to participate on a first-come, first-serve basis. Following a response from ten students who met the criteria, which is on the higher end of the ideal IPA sample size, an email was sent to the other students to thank them for their response, and to notify them that the study had been filled.

Participants

Four of the participants identified as male, and six identified as female (See Table 1). Eight of the ten participants were Canadian-born, and nine of the ten spoke English as their first language. One was born in South America, and lived every second year in South America, and the rest of the time in Canada. Another participant was born in Indonesia, and moved to Canada in elementary school. One participant was born in Canada but attended school in England. Of the two individuals who were not born in Canada, all three moved to Canada as children and speak English fluently. Six of the participants are Caucasian, one is South American, one is of South-East Asian descent, and two are of Middle Eastern descent. All participants are currently enrolled at the University of Alberta and range in age from 19-22 years old, with a mean age of 20.5. Out of the ten participants, four of them are diagnosed with ADHD, Combined presentation, and the other six were diagnosed with ADHD, Inattentive presentation. Three of the students were diagnosed in elementary school, one student was diagnosed in high school, and six were

diagnosed in University. Six out of the ten participants take medication to treat their ADHD.

Eight of the ten students are registered with student disability services and two are not.

Table 1

Sample Characteristics	(*n=10*)
Gender	6 female
	4 male
Race/Ethnicity	6 Caucasian
	1 South American
	1 South East Asian
	2 Middle Eastern
ADHD presentation	6 Inattentive presentation of ADHD
	4 Combined presentation of ADHD
Time of diagnosis	3 in elementary school
	1 in high school
	6 in university
Stimulant medication	7 yes
	3 no

Introducing the Participants

Each participant's individual narratives, as well as combined responses, were examined to explore the experience of academic resilience in individuals with a diagnosis of ADHD. A brief summary of each participant's narrative helps the reader to be acquainted with the participants and how they presented at the time of the interview. A summary of each individual's

story - using the pseudonyms *Sharif, Stephanie, Sofia, Justin, Lucy, Jai, Aiden, Alyssa, Brianna, and Laila* - was written in present tense to describe the participants as they presented at the time of our interview.

"*Sharif*" is a 20-year-old male who is enrolled full-time as an undergraduate student pursuing his degree in Science. Sharif is a Muslim Canadian who was born in Montreal and grew up in Ontario. He attended French immersion schools throughout his primary and secondary schooling. He was diagnosed with a learning disability in elementary school; he struggled with Math and French and excelled in Sciences and Social studies. Sharif notes feeling that his teachers "cared" and he really "connected with them." He described his High School Chemistry teacher as someone who kept his focus, was engaging and "was a cool guy." He says, "There was a sense of community inside the school."

After struggling in his first year of Sciences, Sharif was diagnosed with ADHD, Inattentive presentation; he was approximately "eighteen to nineteen years old" when he was diagnosed. He notes that receiving the diagnoses allowed him to be "a little bit more forgiving of [him]self." Sharif admits that his parents do not know about his diagnosis; he is "not sure what [he] is afraid of." Sharif eventually changed programs and was accepted into the Education Department. He notes, "Quite a few of [his] teachers were an influence to go into teaching." The program change was a positive one. He notes, "instead of looking through a microscope at a single celled organism or virus, you get to look at people and watch them interact with their environment and see how they learn."

Sharif also spoke about having academic goals. He says that "knowing what [he wanted] to do sort of [kept] him aligned with what [he had] to do." He notes being "self motivated" and

having a love of learning. He also does not want to disappoint himself. Sharif feels supported by SDSS and described writing exams in a quiet room as the most helpful accommodation for him; "there are no distractions, no one is coughing, clicking their pens, dropping things." He also attributed SDSS workshops, online notes and note takers as helpful for supporting his challenges with forgetfulness and divided attention. He has come up with his own study strategies as well, such as using Internet blocker programs. His advice to students with ADHD was to "access the supports that are there, they are free, they are really made for you. There is not reason not to. Also, talk to professors."

"*Stephanie*" is a 20-year-old Undergraduate History student. She was initially enrolled in Neuroscience at another Canadian University and transferred into History in order to pursue an area of greater interest. She is currently in the third year of her program. Stephanie was diagnosed with ADHD, Inattentive presentation when she was nine-years-old after her teacher recommended an assessment. At the time, Stephanie says that her parents were not happy with her having the label of a diagnosis. She attended a "strict" private elementary school that was "traditional" in their assessments. She spent a lot of time in the hallway for talking out of turn and getting up in class. She recalls a violin teacher and a grade three teacher who were more accommodating to her learning style. She did not receive accommodations in elementary or high school, although she stated that her high school was more flexible with different styles of assessment.

Stephanie's diagnosis was confirmed when she was in first year University. She is currently prescribed ADHD medication and accesses group and individual therapy. She notes that the diagnosis and treatment of her ADHD was "really good because it encouraged [her] to be

more self aware, especially with group therapy, it's all people with ADHD, so people just talk about their experiences and their strategies." Stephanie finds medication helpful for supporting her focus but finds that there are some challenging side effects. Stephanie says that there are some real advantages to having ADHD, such as creativity and being observant, especially in social situations. Stephanie has always had "systems" in place to help her with organization. She finds that it helps to "do something" while she studies, such as walking around the house, writing or reading out loud. She also organizes her binders with "like terms." She uses visual reminders using white boards and post-its that she checks before she leaves the house. She finds it helpful to create her own background noise when she studies using white noise or music so as to not be distracted by other people's conversations. She also has an Internet blocker that is on a timer to block her from distracting websites. She uses "fidget digits" in class, which is a form of fidget toy. She currently accesses accommodations; she has a note-taker and extra time on exams, which she finds very helpful.

"*Sofia*" is a twenty-year-old Undergraduate Engineering student who is in her second year of her program. The possibility of an ADHD diagnosis was brought up when Sofia was in grade "one or two," and again in Junior High School, but since she was achieving high grades, her parents did not pursue the diagnosis. She was officially diagnosed at the age of twenty when she started struggling academically. At this time she was diagnosed with ADHD, Inattentive presentation.

Sofia was adopted into a family of missionaries who moved between Peru and Canada. Sofia moved back and forth between the same two schools every few years. In Peru, she attended small American schools. Sofia attributes her academic resilience to having a mother who

believed in her and pushed her to do her schoolwork, and interesting teachers who offered various assessment options. Sofia notes that she was good at memorization and did well on tests and assignments because "things weren't timed yet." She loved doing projects and was extremely creative when it came to presenting her knowledge in artistic ways. She also recalls handing in assignments late, but receiving A grades anyways. Sofia also reportedly was extremely social and was influenced by her friends who worked hard in school. Sofia was also an avid reader who would sometimes get in trouble for staying up late and reading.

Sofia started her undergraduate program in Psychology, but quickly decided that she wanted to pursue engineering. She decided to attend Red Deer College in order to pull up her average before applying to engineering. At Red Deer College, she attended small classes, and struggled to do well on tests. Her professors noticed that her test scores did not reflect her class work and knowledge of the subject. Following one particularly low test, she was granted temporary accommodation of extra time on tests until she was able to do a psychoeducational assessment. Sofia notes that she is lucky to have been at Red Deer College in a small class where her professors knew her and her work. She is grateful to those professors for suggesting an assessment and helping her with temporary accommodations. After her year at Red Deer College, Sofia was accepted into the Engineering department at the University of Alberta and was granted full accommodations for her ADHD. Sofia attributes attending office hours, receiving extra-time on exams, taking fewer courses per semester, and having helpful and academically motivated friends to her academic persistence.

"*Justin*" is a 20-year old undergraduate student pursuing his degree in Science. He is Canadian and grew up in Canada. At eight-years-old he was diagnosed with ADHD, Inattentive

presentation, a Specific Learning Disability in reading, and high functioning Autism Spectrum Disorder. In Elementary school, Justin felt that his teachers treated him differently. He felt patronized and that he was a "lost cause." He remembers feeling confused for having been lumped into the special education category with children who were lower functioning than him. Nevertheless, Justin feels that the diagnostic process helped him to recognize his strengths and difficulties. He was prescribed stimulant medication in elementary school and found it helpful for supporting his focus.

Justin attributes his passion for zoology to keeping him engaged in school. He notes that he knew very early on what he wanted to do with his life, and followed the path that would help him to get there. He notes that he "wanted to be a zoologist when [he] was five-years-old, and by the time [he] was twelve [he] already knew he wanted to go to university." When Justin was in elementary school, he had a homeroom teacher who told him that he was perhaps shooting too high with his dream to become a zoologist. In contrast, he remembers a teacher's aid that pushed him to follow his strengths and focus on his studies. Justin says that by the age of thirteen he knew that he wanted to get his doctorate and become a professor.

In high school Justin excelled in biology, did well in chemistry, and struggled in physics. He also did well in calculus and statistics. He notes that social interactions were always an area of difficulty for him, and that he spent a lot of time on schoolwork and studying areas of interest in his spare time. Justin has always struggled with exam writing and has made up for his lower scores by doing well on assignments. Justin has learned that doing his homework in a quiet place really helps him to focus. Justin experiences significant test anxiety and his parents recently went through a "very mess divorce," which contributes to his stress level. Through it all, Justin

attributes his passion for Zoology, his ability to focus on his strengths, and his perseverance to being academically resilient. Through the years he has become less ashamed of having learning disabilities and through the process has met many other people with learning disabilities.

"*Lucy*" is a 22-year old Undergraduate student studying Elementary Education. She was diagnosed with ADHD, Inattentive presentation in her second year of University. She was previously diagnosed with Bipolar disorder due to her "jolts of energy" and periods of depression and never felt that this diagnosis was the right fit. After a re-assessment, it was determined that these were periods of hyperfocus and not periods of mania. Lucy has also previously been diagnosed with Major Depressive Disorder and Obsessive Compulsive Disorder.

As a child, Lucy notes that she exhibited more symptoms of hyperactivity and recalled, "falling off of chairs" and excessive "fidgeting." At the time, she was in gifted programming and her mother did not want her to take medication. Lucy attended elementary school in England and in Canada. She recalls getting in trouble when she was bored in school, but also recalls resenting gifted work because she did not want to have to work harder than the other children. She recalls being relentlessly bullied in elementary school. Lucy credits her parents for engaging her love of learning. She recalled that her parents always allowed her to pursue her interests, no matter how obscure her interests seemed.

Lucy graduated with a "90 average" in high school but notes that she "never went to school." Lucy explained that she reads very quickly and that her mind is often many steps ahead of her peers, which was incredibly frustrating for her. She recalls learning more at home on her own. Lucy also had to miss school due to her scoliosis and periods of depression. She says that she was a skilled writer and feels that she got by with researching topics on her own and being

creative with making insightful connections in her written work. She notes that connecting two seemingly different ideas in her writing kept writing interesting for her and made it more of a challenge. Lucy recalls a favorite teacher, her grade eleven English teacher, who allowed her to demonstrate her knowledge on a topic in a variety of mediums.

Out of high school, Lucy attended a college for design in the United States and pursued fashion. At the time she was diagnosed with severe depression and anxiety and was having panic attacks. She was prescribed anti-depressants and felt that the "sun came out." She notes that the hyperfocus also helped her to stay in school, despite the depression. At this time, she also met her best friend, who really understood her. She changed programs and received her diploma in fashion merchandising from a small Canadian college, but quickly learned after working in the industry that it was not for her. At the time she recalls being lost and confused and that her mother told her to come home. She got a job as an educational assistant, working with children with severe autism and ADHD, and had a great experience.

Currently, she is in her second year of teacher's college and is really enjoying it. Lucy takes stimulant medication, which helps with her focus. She also notes that she feels a burst of energy in the evenings and can procrastinate until then. In university, she has developed some of her own unique study strategies, such as listening to a song or associating a flavor in her studying and in exam writing. She feels that pairing these stimuli triggers her memory. She also finds that doodling during class helps her to engage her focus. Lucy talked about technology as a double-edged tool; it engages her interests but can also be a "rabbit hole" for taking her off topic. Typing has helped her to keep up with her "fast brain" and enables her to capture her thoughts much better than with handwriting, which she found incredibly frustrating as a child. She attributes

being self-directed in her learning through taking "breaks" at school and technology, to her academic resilience.

"*Jai*" is a 20-year-old, third year engineering student. Jai was raised in Indonesia and moved to Canada when he was in grade five. Jai was diagnosed with ADHD, Combined presentation in his second year of University after his grades were steadily getting worse and he was struggling with focus and motivation. Jai says that he "suspected [ADHD] all of [his] life" but that when he inquired about it in high school with a counselor at a mental health clinic, the counselor told them that he did not have ADHD because he was getting good grades. When he was diagnosed in University, the assessor looked through all of his report cards as a child and they consistently commented on his difficulty with focus and needing to apply himself. Jai was also diagnosed with giftedness. The assessor notes that Jai probably got through school with good grades because he was smart and could zoom in and out of focus and fill in the details. Jai also commented that in Indonesia, education was "pushed" really hard, and teachers are very strict. He struggled when he got to Canada because he says that learning was more up to the learner. The diagnosis was a relief for Jai because for all of his life he was "self loathing" because people always told him that he was smart but did not apply himself. Jai takes stimulant medication, and finds it to be helpful.

When Jai was in elementary school, his mother would sit with him and make sure that he studied. He notes that culturally "punishments" are a lot more liberal in Indonesia, and that he was "slapped" to refocus. He notes that there is a lot of pain and suffering associated with that time, but that his mother has since says to him "we shouldn't have done that." While school and home life were stressful for Jai in elementary school, he sought refuge "exploring" as a scientist

in nature. Jai did well in math and sciences and English grammar when he was in Indonesia, but struggled with English writing and reading when he moved to Canada. He says that he learned English mostly through watching cartoons. When they moved to Canada, Jai's mom had to work and he was forced to complete homework on his own for the first time. He "did not know how to study" on his own and struggled.

When Jai was in grade eleven, his marks declined because he was "playing videogames." A family friend, who was a teacher in India, took interest in helping him and tutored him every weekend. He feels that the accountability of having an adult who cared was incredibly helpful. Jai says that his tutor told him that he was "brilliant" and really believed in him. Currently, Jai has learned to do his homework on campus, and has learned that he works better at night. He finds that working near other motivated students keeps him focused. He has also noticed that the morning sets the tone for how his day will go, and he needs to have a work mindset. He says that the Internet is a huge distraction or him and can pull him in for hours. At the same time, technology is incredibly helpful for his learning, and he uses a lecture recording application that helps him to record his lectures and edit PDF files.

Jai thinks that ADHD and having a fast brain helps him with his creativity, humour and "wittiness." He also notes that his focus is very attached to his will, and if he is interested in something he can be very focused. When a school project is of interest, he does incredibly well. Jai notes that he grew up in a very mathematical and logical household, and has recently been exploring the arts more. He has been learning the ukulele, learning new recipes, drawing and jotting down jokes and allowing himself to "go into those areas a little more." Jai says that he "hates to study" but "loves to learn" and that this has helped keep him engaged at school.

"*Aiden*" is a 21-year-old fourth year Psychology student. Aiden grew up in Canada and was diagnosed with ADHD, Combined presentation when he was "three or four-years-old." His experience of being diagnosed was "horrible" and he recalls feeling confused and that he was the "black sheep." Aiden had a difficult childhood and grew up with a mother who struggled with mental health issues." He attended a Christian elementary school and recalls being treated as "different." He recalls spending more time in the office than he did in the classroom and a lot of "solitary" in that time. Aiden was eventually "kicked out" and he moved to a public school where "things got pretty awesome." At his new school they told him that he was "hard on himself" and asked him what he was good at. He was told that he was "actually pretty smart." He notes at this time that that was when he began to see that there was "less of a difference than [he] thought there was between ADHD people and those without it." Aiden was good at sports and languages.

Aiden's High School vice principal let him borrow "Principles of Psychology" by Zimbardo. He remembers reading the entire book and thinking, "wow people are predictable, this seems cool!" When he was struggling with school, the school constable told him "dude, you are smart. What are you doing?" and took a special interest in him. Aiden did not have this support at home and the "novelty of their interest" helped him to succeed. In high school Aiden moved in with his grandparents who he described as "absolute saints" because his mother was not able to take care of herself or her children."

Aiden developed study strategies that helped him to stay engaged in school and to succeed. He has an interest in words and letters and would change his writing style when he was writing to keep his focus. He finds that he learns best studying at the library surrounded by like-

minded people and feels "part of the human experience." He struggles to study at home where there is "too much freedom." Aiden never used accommodations in school because they "reminded [him] of [his] time in elementary" and he did not want to be singled out. He notes that he still takes it personally when people offer and that he hates asking for help. However, this year he did accept a disability credit this year and finally registered with SDSS.

Aiden says that there are "tons and tons" of advantages of having ADHD, such as having a great memory for areas of interest, having a lot of introspection, having a lot of energy, and a different perspective than others. He attributes his failures, which fueled his desire to succeed in school. He feels that you "you have to learn for yourself" and that another person saying, "you can do it" is not enough. Aiden is currently applying for graduate school and hopes to pursue a Master's degree in Social Psychology.

"*Alyssa*" is a 21-year old female who is in her fourth year of a double major in Psychology and Biology. She was first diagnosed during her second year of university after struggling with panic attacks. She was assessed and told that she had ADHD, Inattentive presentation, and at first did not believe them. Nevertheless, when she was presented with the evidence, it helped to explain many things for her. It helped her to come to terms with the diagnosis when she realized it was not a barrier to achievement, but a "potential conduit." She takes stimulant medication and finds it to be helpful.

Alyssa had a hard time recalling elementary school but notes that she was very good at pretending to pay attention. She did well academically, which she attributes to being smart. She recalls having difficulty planning big projects in elementary and high school, and leaving things to the last minute. She could not write an outline for a paper without writing the whole paper

first. She notes that she still procrastinates and does well with a sense of urgency. She also recalls always-forgetting things at school and that her parents helped her tremendously with organization and with helping her to edit her papers. She did well in math, science and English, and struggled with geography. Alyssa has always been an avid reader and would stay up half of the night reading. Alyssa was bullied in high school, which was incredibly difficult for her; at the time she recalls experiencing suicidal ideation. She started a new school in grade eight and told herself that she would not allow herself to be bullied anymore. She stood up for herself more, realized that she "actually liked [her]self anyways," and made more friends.

Alyssa finds auditory distractions to be particularly distracting, especially conversations. She has learned to "isolate" herself while studying. She says that she is very organized and found certain strategies that help, such as using bright orange paper to study with. She does well with "time constraints." Alyssa needs to fidget in class because she finds that movement helps her to focus. She also uses a note-taking application that pairs recordings with annotations that she can add to a PDF. She finds the ability to go back and listen when her notes do not make sense to be helpful. Alyssa accesses accommodations through SDSS and finds time and a half and writing in a quiet environment to be really helpful. She does not work well in the accommodation rooms with dividers where she can hear other students, and would prefer to be with the entire class rather than hear the noises of a few people.

Alyssa started off in engineering and realized that it was not a career that she would be happy in. She went to see the "Rise of the Planet of the Apes" and realized that studying animals would be the "coolest job ever." Alyssa loves animals and is working with fish in her research

now. She wants to pursue her PhD in neuropsychology. She notes that once she switched into a program that was her "passion," everything got easier.

Alyssa says that the disadvantages of having ADHD are the same as the advantages. She talked about following a "weird train of thought" that no one else sees, which in some circumstances helps her to find connections and be innovative, or takes her off track. She says that it can be seen as getting off track but that now she just "embrace[s] it." She notes that sometimes she can get hyperfocused on explaining a psychological concept to someone and can miss people's cues that they are no longer interested. She calls her hyperfocus "tunnel vision" and notes that puzzles also engage her hyperfocus. She attributes her drive to succeed and being "intrinsically motivated" to her persistence and success in school.

"*Brianna*" is a 20-year-old who is pursuing her fourth year of Science. Brianna grew up in Canada and was first diagnosed with ADHD, Combined presentation prior to enrolling in University. She was previously diagnosed with dyslexia when she was in grade four. When she was in high school she went to see her school counselor about having difficulty with concentrating and sitting still, and her counselor told her "everyone has that problem." Prior to enrolling in University, she needed an assessment to confirm her learning disability, and was surprised when she was also diagnosed with ADHD. Brianna did not seek treatment for her ADHD at first until it "got pretty bad." She remembers a night where she could not sleep and experienced such a hard time staying still that it felt like pain. After being diagnosed, she was angry that it was not identified earlier. She experienced a period where she would use it as a "crutch, but she eventually felt "relief from the diagnosis, and felt that it explained a lot. Brianna takes stimulant medication and finds that it is helpful for engaging her focus.

In elementary school, she experienced discomfort from sitting all day and remembers shifting often in her seat. She also remembers getting in trouble for not listening in class. She was always creative and did well on presentations and projects. She did well in music and science, and struggled in math and social studies. In elementary school she had a lot of friends and was not self-conscious, like she was in high school. Growing up, Brianna was an avid reader who would get in trouble for staying up late and for not responding to her parents' requests when she was immersed in a book. When Brianna was younger, her parents said that they would pay for any extra-curricular activity that she wanted, with the caveat that she finish the year. Brianna feels that this taught her persistence, which is an attribute that has helped her to stay in school.

When Brianna was in high school, she had a science teacher who took an interest in her and would help her study for exams after school and on weekends. He also used experiments to teach concepts. She notes that "the amount of time that he invested in [her], and supported [her], but also believe that [she] could do it, was definitely a big help her [her] in high school." She notes that they still keep in touch and that he influenced her interests in university. She did not take advantage of accommodations until high school because she did not want others to notice.

Brianna started off in education but then switched to sciences after a year. She now finds extra time and writing exams in a quiet environment helpful. However, Brianna has struggled with receiving helpful accommodations through SDSS. She has had stressful experiences where she had to write in a room with a few other people, which she says is worse than writing in a loud auditorium. She has also had experiences where they lost her exam or did not have it. Brianna has test anxiety and finds it very stressful when her exams are disorganized. On her own Brianna has developed some helpful strategies. She plays with her rings in class as a "fidget" and

also has a silicone "chew toy" that she uses when she is at home. She has learned to start things early and to "chunk" assignments. She also finds that using a white board helps her to move around and to work out her thoughts.

Brianna feels that hyperfocus can be both good and bad; when she hyperfocuses on schoolwork, she does incredibly well. She also feels that she is a hands-on learner and finds that being immersed in the lab helps her to consolidate previously learned theories. She has also noticed the benefit of having a surplus of energy. She says that family and friends have been huge for helping to push her and helping her to stay in school. Even more than family and friends, Brianna attributes her persistence in school to being stubborn and persistent in the face of challenges.

"*Laila*" is a 21-year-old engineering student who is in her fourth year. She was diagnosed with ADHD- Combined presentation when she was in her third year of university. At the time, she could not finish exams on time and was distracted by people shuffling around and breathing. She felt like the diagnosis explained a lot for her and notes that ADHD runs in her family. She currently takes stimulant medication and finds it helpful, but says that "you still have to choose the right thing to do" and that it can help her focus on the wrong things as well.

When Laila was in elementary school, she remembers interrupting other students and having a hard time staying seated. Laila's parents are from Afghanistan and she explained that she grew up in a household where the standard was that she would graduate from University. Leila also puts pressure on herself to do well. Growing up Laila had a lot of energy and was mostly friends with boys who she could run around with. Her favorite subject was Physical Education, and her least favorite subject was English and Social Studies. She struggled with

open-ended projects and preferred multiple-choice questions. Growing up, her parents could not really help her with her homework because they "barely knew English," and Laila had to do her homework on her own.

Laila says that in high school she could not focus in class, and that studying on her own in a quiet environment, and exercising daily helped. In high school she did well in Calculus because it was procedure based. She notes that she only started doing well in "grade 12" when she started "skipping classes" and teaching herself the material from the textbook. She started running on the treadmill daily in grade 12 and "ended up with the best marks [she's] ever had in [her] life." Laila disclosed that she is gay and that her parents do not know. She feels that they will "disown" her once they find out. As a teenager, keeping this secret was extremely hard for her and took an emotional toll. She says that once she graduates and can move out, she will tell them.

Laila began her undergraduate degree at another Canadian university, but had to come home for a family emergency. She applied and was accepted at the University of Alberta but had to wait a year prior to starting. During this year she worked as a cashier at a grocery store. She notes that working in "bad working conditions" gave her the motivation to finish her degree. Laila only started getting access to accommodations in University. She finds extra time on exams to be the most helpful accommodation. Currently, she does well on tests but does not always hand in assignments. She has learned that she cannot study with others, because she is a social person and is too tempted to talk. She studies in study rooms on campus and will block off access to the Internet because it is a "world full of distraction." Currently, Laila uses exercise strategically to help with focus. She runs every morning to "get all that energy out" and help her

focus for the rest of the day. Laila feels that there is no other option in her mind other than finishing her degree. She says that her desire to do well and graduate is self-imposed. Laila would like to go into project management after she completes her degree.

Procedure

Setting and Timeline

Interviews were conducted by the researcher at the Research Innovation Space In Education (RISE) in the interview room at the University of Alberta. These rooms allowed for comfortable and confidential interview sessions. Interviews lasted between 34 and 83 minutes and were audiotaped and transcribed. All identifying information was removed to preserve anonymity.

Data Collection

Interviews. In order to elicit rich and detailed first hand accounts of their experience of academic resilience, data were collected from participants through semi-structured, one-on-one interviews. Smith and Osborn (2003) acknowledge that there are various ways for IPA researchers to collect data, such as through journals, diaries, blogs, questionnaires, email dialogue or other personal accounts. Nevertheless, many IPA researchers (e.g. Reid at al., 2005) assert that one-on-one interviews permit the researcher and the participant to work together in a flexible collaboration. Smith and Osborn (2003) contend that semi-structured interviews are best, as they allow the researcher and participant to converse in a way that allows the initial questions to be modified, responses to be probed, questions to be asked in varying orders, and worthy topics to be explored that might not have arisen in the context of a structured interview. In semi-

structured interviews, the central research focus is used to create topical themes that are to be addressed in the interview. During this approach, pre-determined questions are posed when appropriate to the discussion, and with wording that is sensitive to the unfolding discourse (Gibson, 2010). Semi-structured interviews are most commonly used in IPA to examine how participants make sense of their past. Semi-structured interviews should be like a conversation, where the participant has space to provide detailed accounts of experiences and his/her thoughts and concerns. Smith (2009) encourages the researcher to follow unexpected turns in an interview initiated by the participant and allow the interview to be flexible. He contends that these turns are often the most valuable aspects of interviewing and may represent the most important topics to the participant (Smith et al., 2009).

A semi-structured interview protocol was developed through consultation with the supervisory team, as well as through consultation with the literature. Questions were open-ended and served as prompts to lead discussion. The interview questions were pilot tested with a peer who has a diagnosis of ADHD and has already graduated from his undergraduate degree to assess the order and flow of the research questions. The pilot interview helped to test whether the interview questions were sufficient to gain insight into the experiences under exploration. The pilot interview also allowed for insight into my own pre-conceived notions of the process and possible biases, as well as to gain participant feedback on questions that needed clarification (Turner, 2003) or that needed to be added or deleted. The interview questions appear in Appendix C.

Participants completed individual semi-structured interviews focusing on factors that contributed to their successful academic experiences. In order to build rapport participants were

first asked more generally about what came to mind when they heard the term ADHD. The discussion was then focused on the experience of being diagnosed with ADHD, as well as their early thoughts about the diagnosis. What followed was a conversation around questions regarding their perceptions and experiences during elementary school, high school and University, focusing on internal and external assets that helped them to persist in school. Extra prompts were used when necessary, or to follow interesting topics that arose. Although the questions were used to guide discussion, the order of the questions was flexible and a non-directive approach was used in order to encourage participants to share their narrative.

The interviews were audio-recorded and later transcribed. The interview questions served as a topic guide and did not dictate the exact course of the interview, allowing the participant to guide the interview and to tell his or her own story (Smith, 1995). In addition to the scheduled questions, various prompts were used to encourage participants to give more specific examples relating to their experience of being academically successful (See Appendix A).

Throughout the interview, I worked to remain open and ready to change course based on information that was revealed throughout the course of the interview. During the interviews, particular care was given to establishing rapport with the participant, which helped to facilitate openness during the conversation and to develop comfort with disclosing personal stories (Meaux, Green & Broussard, 2009). Bracketing is a procedure in phenomenological research through which attention is drawn to presuppositions regarding the topic, in an attempt to mitigate potential preconceptions that may taint the research process (Newman, 2010). As the researcher, I attempted to bracket my personal biases and presuppositions about the research at every stage of the process, beginning with outlining my beliefs and presuppositions as the researchers.

Further, analytic memoing, was used to minimize the impact of my beliefs and biases on the research (Creswell, 2007). Nevertheless, it is unrealistic to think that my personal biases and assumptions would not influence the research process, which was consistent with Heidegger's beliefs on hermeneutics (Heidegger, 1962). Please see the section entitled "Personal Link to the Research" for documentation of my beliefs and biases.

Data Analysis

Analysis of the data from interview transcripts followed the staged IPA process described in Smith and Osborn (2003; See Appendix D). First, all of the participants were assigned a number and any identifying information was removed from their interview. These steps helped to keep confidentiality and helped me to be less influenced by biases toward individual participants or the content of participants' particular stories. The audiotaped interviews were transcribed verbatim. Further, field note observations were taken during the interviews in a journal during and after each interview, where I reflected on my own biases and thoughts. Next, the transcripts were uploaded to Atlas.ti, a qualitative software program, which was used to keep the transcripts together and index them systematically. This helped me to easily locate and retrieve units of the text and to keep track of important emerging themes.

Interpretative Phenomenological Analysis uses an ideographic approach (Smith et al., 1999) whereby individual transcripts are read repeatedly and coded to identify emergent themes. Following careful analysis at the individual level, recurrent themes were then identified across transcripts. The themes reflected common understandings among participants as well as contrasting views of the phenomena under investigation. Overarching superordinate themes across transcripts were then identified. Consultation throughout this process with a supervisor

helped to question and confirm the integrity of the emergent themes, resulting in a final list of superordinate themes and subthemes. During the analytic process, transcripts were thoroughly re-examined and discussed to ensure integrity. These discussions and ongoing re-analyses of transcripts served the purpose of increasing reflexivity throughout the analytic process. The five stages of analysis are outlined subsequently.

The first stage of analysis consisted of repeated reading of the transcript while recording initial thoughts and observations about the interview, to help establish a solid understanding and familiarity with the content (Shinebourne, 2011). I became immersed in the data by reading and re-reading the transcripts, focusing on one participant at a time. This careful textual analysis was conducted by focusing on the content, language, context and interpretive comments that arise through the text (Smith, Flowers, & Larkin, 2009). During the first stage, I also wrote notes and comments throughout the transcript, pertaining to initial impressions.

During the second stage of analysis, I returned to the transcript to transform the initial notes into emerging themes, formulating phrases that were specific and grounded in the text, while providing conceptual understanding. This step involved examining and providing descriptive comments on semantic content and language used in the transcript, while exploring ways in which the participant perceived and thought about an issue. Different types of comments were captured alongside the transcript and were distinguished by normal text, underlining, and italicizing (Smith, Flowers, & Larkin, 2009). The comments captured included: descriptive comments about the context, linguistic comments, which focused on exploring the language used by the participant, and conceptual comments, which focused on the participants overarching

understanding of the matters that they discussed (Smith, Flowers, & Larkin, 2009). The selection

of conceptual comments involved an element of my own reflection as well.

The third stage consisted of examining and clustering emerging themes according to

conceptual similarities and merging themes while highlighting converging ideas. These clusters

were given a descriptive label that conveyed the conceptual nature of each theme. Themes were

selected based not only on prevalence but on other factors such as the importance and weight

given to the theme by the participant, and the manner in which the theme assisted in the

explanation of other aspects of the account were also important considerations (Smith et al.,

1999). Care was taken to minimize researcher bias in the process of selecting themes through

bracketing my own hypothesis surrounding academic resilience with this population. The themes

were expressed as phrases, which spoke to the psychological essence of the text and captured

both the participant's words and the researcher's interpretation (Smith, Flowers, & Larkin,

2009).

In the fourth stage, I produced an initial table of themes to show the structure and

associations among the major themes and sub-themes. Illustrative quotes were also presented

alongside each theme (Smith et al., 2009). During this level of analysis, not all themes were

incorporated and some were discarded. The aim was to look for a means of drawing together

emergent themes and to produce a structure that allowed me to identify the most important

aspects of the participant's account. This level involved the process of abstraction, whereby I put

together like or similar themes and which resulted in "super-ordinate" themes for each cluster.

During the fifth stage, the process was repeated with each participant. It was important to

consider each case in its own terms and to try to bracket the ideas and concepts that emerged

from other participants. As the analysis of other transcripts continued and new themes were recorded, earlier transcripts were reviewed and instances from earlier transcripts were added and included as needed in ongoing analysis (Smith, Flowers, & Larkin, 2009). The process of analysis was iterative and required constant checking. At this stage, some themes were collapsed or prioritized. Once the table was created, it provided a basis for writing the narrative account, which represents interplay between the participant's account and the interpretive activity of the researcher (Shinebourne, 2011).

In the sixth and final stage, I looked for patterns across cases. This entailed comparing each table side-by-side and looking for connections. Hermeneutic analysis seeks to understand the individual before looking at themes that are common across the group (Patterson & Williams, 2002). Participant data were analyzed using hermeneutic principles, circulating back and forth between looking at themes from the entire transcript and across individual stories. These themes were "checked" against other participant's transcripts. Finally, I created a master table of themes for the group (See Table 2). Superordinate themes were presented alongside examples from each case. Memos were written on the initial thoughts and possible codes as they emerged from the transcripts.

Table 2

Superordinate Themes	Subthemes	Example Quote
1) Interest in academic subject and love of learning	• School enjoyment • Natural academic ability • Love of learning in general	"I love learning to begin with, so that's good. I guess I'm just interested in school, and I like what they have to offer I guess. I mean, learning has always been fun to me. It's hard but it's fun. Sort of a way to challenge yourself."
2) Awareness of learning	• Awareness of learning	"So there's been a lot of

style and individual study strategies	style • Individualized study strategies • Formal accommodations	theories that I don't really understand in class, but then as soon as we're in the lab and we're actually doing it at the end of the lab I understand it, and I'm able to then go back and be able to draw out the theory…"
3) Internal drive and perseverance	• Persistence • Intrinsic motivation • Goal orientation	"It really does come down to the personality, and how much someone is willing to endure to get through it."
4) Technology as a double-edged tool	• Helpful applications • Access to a computer for writing	"Being able to like read and switch between tabs and like that's how my brain works!"
5) Engagement in treatment (e.g. medication, therapy)	• Medication • Psychosocial treatment	"It's 100% necessary, medication, therapy, I just, yah. It would be impossible without them."
6) Supportive relationships and environment.	• Parent supports • Teacher and school supports • Friend supports • Other adult supports	"Just the amount of time that he invested in me, and supported me, but also believe that I could do it, was definitely a big big help for me in high school.

Research Quality and Evaluation

Traditional positivist methods of evaluation that focus on internal and external validity, reliability and objectivity do not fit well with qualitative research approaches (Denzin & Lincoln, 2005). Smith, Flowers, & Larkin (2009) posited that rigour is demonstrated through the quality of the ideographic analysis in IPA research. Rigour also refers to the thoroughness of the study, the quality of the interview and the completeness of the analysis undertaken (Smith, Flowers, & Larkin, 2009). Denzin and Lincoln (1994) identify important concepts such as credibility, dependability, transferability and confirmability as indications of research quality.

Credibility

Credibility replaces the quantitative criterion of internal validity, and can be defined as having confidence in the findings (Denzin & Lincoln, 1994). One way of establishing credibility is through an *audit trail.* An audit trail is a written documentation of analytical processes used to keep an explicit record of the decision-making process. Memos were used to make research notes and to keep track of impressions, observations, and personal biases surrounding each interview (Smith, Flowers, & Larkin, 2009). I reflected on certain ideas that shaped the approach to the research, while acknowledging personal influence on the research. My personal interpretations were important, as noted previously, as they carried the context of the interaction with the research participant (Smith, Flowers, & Larkin, 2009. Consequently, the preferred *quality control* procedure was an audit trail, rather than member checking or peer consultation, as those verifying the analysis cannot have a full understanding or appreciation of the context in which the research interactions take place. An audit trail, therefore, is not to assess the interpretations, but to make transparent the procedure and to demonstrate the *reasonableness* of the analysis (Smith & Osborn, 2003)

Dependability

Similar to reliability, dependability demonstrates that the findings are consistent and can be repeated (Lincoln & Guba, 1985). If credibility is assumed, so too is dependability. Consultation with my supervisor, other committee members, and peers helped to ensure consistency of the analyses. Furthermore, the use of an audit trail, documenting all aspects of the research study, similarly helped to provide a rationale for all decisions pertaining to data

collection and analysis. For example, field notes, thoughts and client interactions. These factors are useful to inform research replication (Creswell, 2007).

Transferability

IPA analysis should provide a rich, transparent, and contextualized analysis of participant accounts. Transferability replaces the concept of *external validity* and *generalizability,* and refers to the ability of findings to be transferable or relevant to similar populations. In qualitative research, providing rich descriptions of the findings help to make findings applicable in other contexts (Lincoln & Guba, 1985). Smith, Flowers, & Larkin (2009) contend that the reader makes links between the analysis of an IPA study, their own personal experience, and the claims in the extant literature. This enables the reader to evaluate its transferability to persons in similar contexts, for example, other university undergraduates with a diagnosis of ADHD. Providing a full individual portrait of each participant can help to illuminate the transferability of the findings to other individuals and contexts.

Confirmability

Confirmability is a test of trustworthiness, which assesses whether research conclusions are based on evidence in the data. Confirmability and dependability replace *reliability* and *objectivity* in quantitative research. I provided a transparent and self-critical reflective analysis during the research process, using the audit trail (including memos during data collection), and maintaining detailed descriptions of the study (Lincoln & Guba, 1985).

Ethical Considerations

Before undertaking this research project, approval from the University of Alberta's Research Ethics Board was secured. In line with the Canadian Code of Ethics for Psychologists, Third Edition (Canadian Psychological Association, 2000), all of the participants were fully informed about the purpose and nature of the project, mutual responsibilities, confidentiality protections and limitations, likely benefits and risks, alternatives, and the option to refuse or withdraw at any time without prejudice (CPA, 2000, I.24). All participants had general information about the study before meeting me (the interviewer). They had an opportunity to ask questions via email or telephone prior to meeting. When we met, participants were given full verbal and written explanations concerning the voluntary nature of consent, and were asked to sign a consent form (see Appendix B). As Bhattacharya (2007) articulates, consent is a fluid process that should be updated as issues arise (CPA, 2000, I.25) and should be an ongoing conversation with the participant. Participants were given a $20.00 gift card as compensation for their participation in the project (CPA, 2000, I.27). They were informed that if they chose to withdraw from the study, they would receive the gift card regardless. Participants were briefed about measures used to protect confidentiality, such as the use of pseudonyms and the removal of identifying information from all transcripts (CPA, 2000, I.44). To fully protect participant confidentiality, comments and stories reported in the study used pseudonyms and removed all identifying information. All of the data, written transcripts and audio files were stored on a password-protected computer so as to ensure that they remained confidential (CPA, 2000, I.41). Audio files were stored on a single password protected laptop and were removed from the digital audio recording device. Raw data will be shredded or destroyed after the 10-year timeframe.

The potential risks for this study were minimal, with the anticipated benefits outweighing the potential for risks. However, due to the nature of the topic, conversations could have potentially caused minimal distress or discomfort from bringing up potentially painful stories. Throughout the interview, I checked on the participant to determine how they were feeling and informed them that they could stop or take a break at any time. My training in psychology allowed me to attune to their behavior and provided expertise to assess distress and provide appropriate assistance during the interview should they have become distressed. All of the participants were observed to leave the interviews feeling settled with no evidence of upset or distress.

Personal Link to the Research

IPA accepts that both the researcher and the participants enter into the interview with pre-existing prejudices, biases and understandings. These pre-existing biases are important to acknowledge (Smith et al., 2009). However, Smith (2004) postulated that it is possible to combine a stance of empathy and critical questioning in order to draw out the meaning of an experience (Smith, 2004). The researchers biases and previous experiences with regards to the population of study are considered below.

Key Role of the Researcher

The prolonged and sometimes intensive interaction between a qualitative researcher and the participant can introduce some ethical issues that should be identified and considered as part of the study development (Creswell, 2003). Some of the issues include past experiences, potential bias, personal values, and interest in the topic (Creswell, 2003). As the researcher, I bring my own personal story, or fore structure, to the role of the data collector (Ellis, 1998). All

of my pre-understandings, experiences and conceptions contributed to my horizon of experience. There is no way to eliminate personal bias and pre-understandings; however, based on the hermeneutic perspective, these are viewed as "conditions of understanding" reality itself (Turner, 2003, p. 6). A good qualitative researcher should define the aim of the interview, whereas the respondent determines the shape and flow of the interview. Moreover, my role is to create a trusting environment. The interpretive approach suggests a stance of openness to go beyond one's personal limitations of understanding, in the hope of discovering a broader understanding of the phenomena being researched. However, this is not the same as eliminating personal bias. Based on hermeneutics, it is important to accept one's own current paradigm and bias, while taking a holistic and open approach. Creswell (2007) noted the immense challenge of eliminating all bias when conductive qualitative research, however he highlighted the importance of identifying bias in all phases of the study. Identification of possible biases and preconceptions in the process is believed to have minimized the potential for prejudicial statements or distortions.

The researchers Own Personal Story and Potential Biases

Before commencing my doctoral program, I worked as a research assistant for the MTA qualitative follow-up study. Through interpreting and analyzing transcripts of interviews with adults with ADHD, I became deeply interested with the success stories of many individuals in the study, despite the various challenges they faced. For my pre-doctoral internship I was fortunate to work as an assessment consultant and coach at an ADHD multi-disciplinary clinic, and observed first-hand examples of strengths within this population. I am now employed there full-time and continue to be amazed by the resilience of my clients. These accounts of resilience stood out for me as the best way to gain knowledge about helpful accommodations, treatments

and supports for this population. The clients and participants that I have worked with have influenced the strength-based lens through which I view the research and shaped how I interpreted the transcripts. As a clinician, my own biases are informed by previous client experiences and my own personal belief that individuals with ADHD have incredible strengths as well as challenges

Chapter Four – Findings

An Overview of Superordinate Themes

In chapter four, the results of the data analyses are presented, and grouped within the two domains of interest: internal and external assets. Operating with the developmental assets model which asserts that developmental assets are the positive characteristics that form the foundation of healthy development in children, adolescents and in this case young adults (Scales, 2011), analyses of interview transcripts yielded themes that relate to these two domains.

The themes that emerged through the analysis of each transcript were compared across transcripts in order to present the dominant stories of the participants' experiences. These reflected both shared and unique experiences of the participants. This process identified two domains that would deepen the understanding of undergraduate students with ADHD who were academically resilient- internal assets and external assets. Amongst those domains, six over-arching superordinate themes were identified. These themes were labeled and were chosen because they were considered to represent the essence of the theme. Each of these superordinate themes is presented in detail, and illustrations from the text are given. Superordinate themes served as the overarching themes in which subthemes are discussed.

Similar to the work of others who have employed IPA, for example, Smith and Osborne's (2007) study of individuals suffering from chronic back pain, there will be free-flowing interchange between the presentation of results and a discussion of those results. Results will report excerpts from the individual transcripts, with the use of square brackets to enclose explanatory material and bracketed ellipses to indicate deleted material. The discussion will offer my analysis, ties to existing literature, and possible implications of the findings.

The findings of this study are captured by six superordinate themes, with the first three themes internal assets, and the later three themes external assets: 1) interest in academic subject and love of learning, 2) awareness of learning style and individual study strategies, 3) internal drive and perseverance, 4) technology as a double-edged tool, 5) engagement in treatment (e.g. medication, therapy), 6) supportive relationships and environment. Table 3 illustrates the number of participants who endorsed each theme. It is important to note that these students' educational experiences were not without hardship and struggle. In fact, many of them struggled immensely, but moved forward in their academic experiences despite this hardship. The themes are resilience and strength based and focus on how these participants kept themselves moving forward in school, without quitting.

Table 3

Number of Participants Endorsing Superordinate Themes

Names	Jai	Laila	Sharif	Steph	Sofia	Justin	Lucy	Alyssa	Brianna	Aiden
Love of learning	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Awareness of learning style and study strategies	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

Internal drive and perseverance	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Technology as a double edged tool	☑	☑	☑	☑			☑	☑	☑	☑
Engagement in treatment	☑	☑	☑	☑		☑	☑	☑	☑	
Supportive relationships and environments	☑		☑	☑	☑		☑	☑	☑	☑

Internal Assets

Interest in Academic Subject and Love of Learning

Participants viewed gathering information on an area of interest as enjoyable and at times all consuming. They attributed academic persistence and resilience to a desire to continue to learn. For some, information gathering and learning was almost uncontrollable. Many participants described a strong dichotomy with focus and interest, and Jai even expressed this relationship to me in a table that he drew for me during the interview. In areas of interest, whether a school subject or a non-academic related topic, participants were able to hyperfocus, and described spending more time than others learning, gathering answers and knowledge on the Internet, and pursuing answers to their questions. In areas of little interest, focusing was reported to be significantly more challenging and made learning harder than for the average person. Not all participants expressed a love of school, but all expressed an avid interest in learning and

knowing more. When participant's interests aligned with their topic of study, this seemed to help keep them engaged in school and helped them to succeed.

School enjoyment. Some participants expressed a genuine enjoyment of school that started from a young age. Sharif succinctly explained, "I went to classes because I wanted to go, it was interesting to me." He also elaborated that this enjoyment was coupled with not wanting to disappoint himself:

> I guess I'm just interested in school, and I like what they have to offer I guess. I mean, learning has always been fun to me, it's hard but fun. Sort of a way to challenge yourself, that was part of it. Another part of me just didn't want to fail I guess, hm. I didn't want to disappoint myself, having a little bit of confidence and knowing I can actually do it.

With respect to school enjoyment, most participants narrowed school enjoyment to a particular class or topic of study. This was not always their first program selection. Alyssa first went into Environmental Engineering despite her parents warning that she would not like it. She noted that halfway through the first semester she realized that she did not want to pursue engineering as a career:

> There's like so many opportunities, whereas like, pretty much as soon as I decided I didn't want to do engineering, right around the time that I was going 'that might not be a good idea', I went and saw Rise of the Planet of the Apes, and at one point James Franco was standing in front of the gorilla cages, and I was like 'that would be the coolest job ever!'

Currently, she is enjoying the research aspect of her Biology and Psychology Undergraduate degree:

> I am actually working with fish right now. So I looked into it after that with my parents this time, because they knew why I wasn't going to like it [environmental engineering], and so my dad was like 'I think that this would be a really good fit for you', and it really is, I love doing the research, I love almost everything about it. So, in that regard I just want to be happy, because I don't ever want to be that person at 40 years old who hates their job, my cousin hates her job, she is a teacher, and she should not be a teacher. And, I just, the thought of that scares me too much to ever, a lot of people do things for the money, but I don't care. I could get paid nothing, just enough to live, and as long as I loved it I would be happy.

Following her program change, she noticed a change in motivation right away. She mentioned, for example, that her Evolutionary Theory of Psychology course is a three-hour night class and she does not mind the late class because she is so interested in the material and attains high grades. After this switch she remarked, "Everything got a lot easier." Brianna similarly changed programs before finding her area of academic interest:

> So, at first I wanted to be a teacher, so I was in that. And then I was, it was more the classes that I found I didn't really like that much, and like coming into university I also was quite interested in art, as well. And then through the classes, and taking education classes, I realized that I really didn't like what I was doing, so then I ended up somehow finding the nutrition degree and though like 'this is kind of interesting' and then decided it was what I wanted to pursue, I can't tell you why I decided to do that. But then, I took a

chemistry 101 and chemistry 102, and found that I really enjoyed those classes, it was

really the labs that I really enjoyed. And then I thought I wanted to be a registered

dietician, because when you look at the nutrition degree that's really all you hear you can

do with it, and then last semester I was in a food macro biology class and I found it really

interesting, and it was my favourite class, and so yeah, I was just super excited about

everything I was learning in class and so I kind of realized that I am enjoying this class a

lot more than my nutrition, like how to eat, classes. And so, from there I decided I wanted

to do more food safety, food quality, than the dietetics.

Justin, on the other hand, has known what he wants to study from a young age. He has a

"passion" for Zoology and credits this passion to his drive to stay in school:

Having sort of that passion because, you know very early on what, you know, what your

good at, and therefore if you apply it – 'what do I want to do for my life'? I knew I

wanted to be a zoologist when I was 5 years old, and by the time I was 12 I already knew

I wanted to go to university, I think when I was 13 I knew I wanted to get a PhD in

school and be a professor.

This interest of his has not always been met with encouragement from others. Justin noted that

he had a teacher in grade school who told him that he should consider pursuing something more

achievable. For Justin, Zoology is not only a passion, but is integral to how he defines himself as

a person.

I attribute that to my passion for zoology, the fact that early on I saw my strengths and

stuck to it, and I think that I developed you know, an idea that this is sort of my identity,

and that's why I sort of have kept going and persevered because I feel that this is my goal, this is one of my main purposes in life, and I think that was shaped very early on when I was young, having to look at my strengths and decided very early on.

Currently, Justin is finishing his undergraduate degree in Sciences, despite his diagnosis of ADHD, Autism Spectrum Disorder, and a Learning Disability in Reading and the high dropout rates associated with each diagnosis. In Aiden's case, he described struggling with motivation and achievement in high school, when the school vice principal gave him his social psychology textbook because he thought that he might enjoy it. Aiden read the whole book, cover to cover. He is currently in his last year of his Psychology Undergraduate degree and has plans to pursue a Masters in Social Psychology. He noted that, "[Social Psychology is] fascinating to me…It's like that's amazing how you can change your own behaviour, based on what other people are doing around you, despite what you think."

Natural academic ability. Some students credited a natural academic ability to their school success. For example, Stephanie said, "I think just being naturally good at school, like I've never failed that many things, like many assessments, so I don't know, I think like being able to get by." Similarly, Sophia said, "School came, for the most part, pretty easily." Some students noted a natural ability in particular subject areas. Sharif said, "I was always just naturally good at math I think, because I have, I'm good at math. I was always good at art, and drama, and it was like I don't know, when I found an interest I always hyperfocused on that, and the rest of the time if I couldn't find an interest I wouldn't be, I guess."

Love of learning in general. For others, this love of learning extended beyond school and took many different forms. Jai articulated his love for gathering information and satisfying his thirst for knowledge. Sometimes, this love of learning benefitted his academic achievement:

> I ended up being interested in academics and what not, I watched a lot of documentaries, and so I heard a lot of interesting words and what not, and so I felt like I kind of always had a more advanced vocabulary for my age group. So, [I learned] a lot of the words, which would give me an easier time writing exams, because I would know a large vocabulary.

Other times, learning about extraneous information served as a distraction. Jai stated that he could get easily distracted by gathering information online and following his "fast brain" that is always curious:

> Well, I feel like, what I'm learning is very cool, so, my drive to kind of learn as much as I can I think helps me a lot. I love to learn, I hate to study, but I love to learn! Right. So, which is why I pick up like odd things here and there all the time. In grade twelve I remember instead of studying for my finals I learned how to do the Hocka, which is a New Zealand Maori war dance, I mean, for no reason. It what the rugby players do all the time, for actually no reason. It's often funny how many skills I pick up because I'm bored. For that moment in time I'm very interested, and then a lot of time I don't come back to it, but hey I learned it.

Brianna, who is a Science major, enjoys learning about and caring for plants. She explained gardening as an area of hyperfocus for her:

It can be for other types of things too, so for example, I really like plants so I have something over twenty plants in my house, so I am quite knowledgeable when it comes to plants as well, but I mean I can't tell you where that knowledge comes from, it's just because I constantly am looking at articles, or I'll read like a magazine and stuff, and so I will be having a garden in the summer, and I will be growing vegetables and stuff outside, or, painting, I would get quite into painting and crafts and stuff. So, at one point the friendship bracelets that you can make, I got really into that, and was able to make a bunch of different patterns, and like, really thick ones, so it does crossover into hobbies and crafts and stuff as well.

Brianna noted that her hyperfocus sometimes extends to schoolwork as well:

But in certain things [hyperfocus] can definitely help, so if its something that I'm really interested in I do get quite engrossed in it, and so a lot of things, like for school for example, if there is a certain class that I find really interesting I find that I do really well in that class, versus if it's a class that I'm not very interested in, I struggle to get through it, and I don't necessarily get the grade that I would want in that class, and there is definitely that big discrepancy in my grades. My grades can range from an A all the way down to a C-, and it's because it the classes that I really enjoy and am interested in that I do get the higher marks in.

Love of learning was a common thread that ran throughout all of the transcripts and stood out as an important finding. While not all participants were in programs that engaged their hyperfocusing abilities, all identified some aspect of their program that was interesting to them, and all could think of a topic about which they were curious and could easily hyperfocus. It is

true that at times this hyperfocus served as a distraction from studying, but there were other times still where the area of focus and interest served as beneficial academically. Possessing a love of learning and a passion for the subject of study were identified as internal assets that positively influenced school persistence.

Awareness of Learning Preferences and Study Strategies

For several participants, academic resilience was attributed to awareness of learning style and individualized study strategies that were adopted. Having an awareness of their own learning style helped students to adapt their study strategies based on how they learned best. This was in the form of both formal accommodations provided and individual study strategies that were adopted through trial and error throughout their schooling experiences. Students found extra-time and having the option to write in a quiet environment as the most helpful formal accommodations offered to them. What helped them day-to-day, however, were individual study strategies that were unique to each person and helped them to manage their symptoms of ADHD and associated executive function difficulties.

Awareness of learning preferences The first step to adopting individual learning strategies seemed to be having an awareness of learning style. The majority of students said that the most effective instructional style was a hands-on or an interactive learning environment. Sofia has known that she is a hands-on learner since a young age and always preferred projects to tests and worksheets. She recalled a project about the Middle Ages that she built in Elementary school where she made a castle and a functioning moat. Sofia also recalled making a teepee for her sister when they were studying Native American History:

I was always good at crafts and stuff, so for elementary and junior high I was always

good at doing all of the different crafts, as well as presentations, I was always the one

who would do the poster, or the power point presentation, or stuff like that, as well as like

any software for the computer, if I've never used it before at first I'm a little bit hesitant

'don't really know what I'm doing', but after a while I'm able to pick up things like that

pretty quickly, as long as it's like doing it with my hands. So I was able to just pick up a

lot of skills quickly.

Brianna is also a hands-on learner who learns best in the lab component of her classes:

On the other, I'm really good at learning with my hands, and so, in university a lot of my

lab classes I've done really well in them, just because it is learning a lot with hands, and

so there's been a lot of theories that I don't really understand in class, but then as soon as

we're in the lab and we're actually doing it at the end of the lab I understand it, and I'm

able to then go back and be able to draw out the theory or whatever.

Similarly, Sharif is a hands-on learner. He also learns best if he has a point of reference for his

assignments, such as a rubric, to help guide him through the expectations of the assignment. Like

many of the participants, Sharif expressed that he does not do well with vague and open-ended

assignments:

The more hands on the better, for science, it just works that way for me I guess. I mean as

long as, I guess having this outline for writing really helped, I think that somehow I

usually forget what I'm supposed to be doing, so having a reference or a guide, having a

guideline for what you're supposed to do [helped].

Many of the participants also expressed having time constraints and deadlines as helpful. Despite many participants being self-described procrastinators, most of them hand projects in on time. Lucy has also figured out that she retains information best when there is a cue to help her with recall:

> That's how I make my connections like I'll study while listening to music but it's like all whenever I study for my history exam last semester, not that I studied, but whenever I do the work or whenever I go over my notes I'd only listen to Dolly Parton because on the midterm if I got that song in my head I'd remember all of the stuff. Or like in high school for diplomas I'd study and while I was studying I'd only eat spicy foods and then I'd eat cinnamon hearts during the PAT and I could make those connections. Even if I look at something I've sewn, because I do embroidery, I can remember what I was watching on TV while I was doing those stitches and when I was in art school doing art history I'd be looking at celebrity gossip the entire time and they would be like "you aren't paying attention" but then when they would ask a question about Michelangelo I'd remember looking at that gossip about Christina Aguilera and I'd make those connections and I'd be like "Oh I know what she was talking about when I was looking at those pictures! Where if I'm just sitting here and being like listening, it would just be in one ear out the other.

Individualized study strategies. Over the years, participants have developed study strategies that help them to succeed academically. Stephanie was not shy to talk about the fidget tools that she uses in class to help her with focus. Stephanie finds that a little bit of movement helps her engage her focus. She said, "I always use fidget digits for my classes too, which are for like 12 year olds, but I still use them." The fidget digits are loops that she twists up that she can fidget

with in class. Ever since elementary school she has used a fidget or else she will "destroy" an object or her fingernails. Some students noted using everyday objects as a more covert fidget. Brianna plays with her rings or pencils when she is in class. She admitted that at home she uses a fidget. She said, "And then, if I'm at home I have one of those like, I pull out my chewy toy, it's like made out of silicone, and I chew on it, like it's meant to chew on."

Lucy admitted to using doodling as a fidget. Not all teachers have been receptive to fidgets and doodling and many teachers' discouraged participants from fidgeting in the past:

> In junior high I had a math teacher that was like "You cannot doodle, if you doodle in your books, the book will be thrown out" and it was the hardest thing in my life. I would bring another book for doodling and just hope I wouldn't get caught because as soon as I stopped doodling my marks dropped dramatically and I was like "can I please?"

Lucy also noted that music helped her to study and block out external distractions. Many participants noted that they used music in the library to help them. Stephanie said, "I usually like to create my own background noise, so, if I'm in a room where people are talking a lot, I will just keep listening to other people [unless I] put on music or white noise or something when I study."

Forgetfulness was a common symptom that many of the participants experienced. Making things visual and hard to ignore was another strategy that some of the participants adopted to help them with forgetfulness. Stephanie noted using visual strategies to help her remember appointments and to help her organize her things. She noted, "I have a white board, and I have post it notes that I put on my door that I check before I leave. I also have them on my computer."

Briana also uses white boards while she is doing her homework:

> Something that I've learned that really helps is a white board, and being able to stand up and write on the white board, is something that really helps, as well as moving around a lot, so I'll do some work at my desk, and then I'll go do some work on the white board, and then I'll go downstairs and do some work there.

Many of the participants also commented that phone reminders and timers are helpful tools. Jai uses a strategy called "wedging" when he experiences "tunnel vision" and is focusing on the wrong things. He sets his timer to count down every five minutes, with a beep alert to help him to move on from focusing on things that are not relevant to the task at hand.

For Sofia, she is motivated by competition, which helps make a boring task more interesting for her, which in turn helps engage her focus:

> There were a couple of other kids who were really smart, and so we had this competition going on between us for who could do the best in stuff, and it extended to everything, like who got the best mark on a spelling quiz we had that week, to you know when you do the speed math we would see who got the furthest and had the highest grade, because it got so that we were getting 100 on all of them but we were just trying to lower our times on it, so, or like, who got the bonus questions in the math homework.

A few participants learned that "energy breaks" could be helpful to help keep their focus engaged while studying. Brianna finds it helpful to move frequently while she is studying:

So just kind of moving around and doing work wherever I feel like I can sit down and do work, is something that I have learned as well.

For Laila, from the time she was young, she enjoyed running and playing sports. Now, she has noted that running every morning helps her focus:

Yah, I find when I exercise in the morning I get all that energy out, and then the rest of the day I'm more focused, it's weird. I did that for all [of] my grade 12 year and ended up with the best marks I've ever had in my life.

All of the participants discussed their preferred study environments. Most participants described that they were very aware of the type of location most conducive to learning, with respect to optimizing focus during studying. Sofia explained her process of discovering how she studies best:

Yes, to some extent, I would try to do my homework usually in a place that was quiet, and I'd be able to work. So, when I was, for a while, I had a desk that I was able to come home to and work at that desk, and it was in my room, so I was able to shut the door and work much better, and then sometimes in the library, that also sort of shaped how I did it. I tried to do homework every night, and what not, tried to sort of prioritize, so, again a lot of things through trial and error, finding some methods would work and some methods didn't.

Sofia was not the only participant who found it helpful to study at the library. Laila noted that she rents out a quiet room at the library, with a white board, and will stay in there for hours before exams. She cannot study with others, as she finds it too distracting, and is mindful to keep

her phone far away from her. Sharif studies in a room without external distractions, such as people, and has found that reading out loud is helpful:

> Yeah, I used to study by simply reading, and then I sort of moved on to reading out loud, reading alone, pretty much, reading with zero distractions, writing down my own notes off the actual book, doing a lot of the work inside of the book by myself. I mean I try asking teachers for more help too, and they more or less offer that.

Aiden on the other hand, has found that he studies best at the library, surrounded by other working students. He does not seek out the quiet rooms but instead feels connected to the other students when they study side by side, and seeing other students working motivates him. Each of the participants' study strategies was unique. What seemed to matter most was that they had learned, through trial and error and a lot of hard work, which environments and strategies best engaged their ability to focus on academic work.

Formal accommodations. Students identified extra time as the most helpful form of academic accommodation. This was also by far the most accessed accommodation. Sofia experiences some anxiety with respect to test-taking and has had some previous negative experiences. She articulated how extra time allows for her to zoom in and out of focus without losing time needed to fully express her knowledge. Extra time may or may not help to improve her grades but it alleviates the anxiety that she feels going into exams:

> Well, I start off knowing I have a bunch of time, so I start off but then if I went in to trouble, or like someone else is drinking water or something, I get super distracted but I have enough time that I can usually still like, so like, there's still like, some distractions,

but at least I don't panic. Because I do have enough time that if I get distracted, because what used to happen is I would get distracted or I wouldn't understand something, and then I would panic or start day dreaming, but then I just didn't have enough time to finish the test, especially because I think just in general I'm a really slow test taker without anything else, um, and then I panic, and then I forget what I actually did know, I don't know. Whereas now at least there's enough time to get somewhere.

She noted that the extra time also allows her to review her answers carefully.

And the time and a half just gives me the ability read every question fully, and think about it, and I go over my tests 3 times now, because I have the time, whereas before, to go through every single question again? Okay, good luck trying to do that in the time allotted.

Laila did not feel that time and a half gave her an advantage over other students; but rather that it helped to level the playing field for her and allowed her to adequately express her knowledge.

What happened is that I found out that I could get extra exam time, I was like, that would really be helpful because my marks were dropping, if I could get some extra exam time then it would at least put me to the same level as everyone, like I'm not doing better than everyone else now, I'm literally just average.

After extra-time, having the option to write exams in a quiet environment was the second most commonly cited accommodation. Students discussed the benefits of having access to writing in a quiet environment during testing. Sharif said, "SSDS (student support disability services) accommodations are the best, you get to ask to write exams alone, which is great, so I

can look around, you can't look around in a normal exam, people will think you are cheating, which would be horrible, but in a room alone you can look wherever you want. There are no distractions; no one is coughing, clicking their pens, dropping things."

Alyssa noted that she would rather write exams in a full classroom than have to work alongside a few people:, "I cannot have other people in the room, like, at all. I'm super weird in the fact that I have to either be completely alone, or I have to be with my entire class, because they also have the rooms where it's like a couple of people, and I can't do that, because I get…I need to have more noise or no noise." Alyssa recalled a few situations where she went to write exams through SDSS and was told to write in a room with dividers between a few students. She recounted how this was extremely challenging for her because she could hear every single thing they were doing, rather than the hum of a busier classroom.

Alyssa also discussed a common challenge with divided attention; taking notes and listening to the instructor is a common struggle for many individuals with ADHD. Having a designated note taker in the classroom was a helpful solution for her, "during class it's helpful to have a note taker, because no matter how hard I try to take notes there will always be gaps and with exams I always just need extra time, so that's helpful." Brianna also finds having a note taker helpful. She noted that, "depending on the course, some courses where there's a lot, if the prof is talking a lot, and doesn't have a lot of information on the slides, I find it helpful. There are certain classes where I don't use it, but for more of the science based courses, or nutrition based courses, I do use it." Alyssa and Brianna were the only students who accessed note-taking accommodations.

Internal drive and perseverance

Participants felt strongly that they had not persisted in school for external reasons, for example, because it was "the right thing to do" or because their parents had told them that they had to. Laila said, "Okay, so, as a kid, and as a teenager, a lot of the time people say that they stay in school because that's just the way it was always going to be, and their parents always made them. As an adult, though, you are making that decision to stay in school…there is no other option, for me, in my mind, there is no other option. What would I do outside of university? ... It's self-imposed, my parents don't have anything to do with it… they really are like choose whatever you want to do, like if you want to go and become a chef, just, if it's something you really want to do just be the best at it."

Persistence. The participants also described that their own drive and perseverance contributed to their school persistence and success. Brianna attributed her school persistence and success to being stubborn and persistent:

In part, I think it's because I'm very stubborn, I always have been. Once I decide on something there is no way to change my mind. So I've always been someone who, like if I start something I finish it, I don't quit. So I think a big part of that is why I'm still in school, just because I would be quitting if I left, and I think a part of that is how I view myself but also how other people view me. I have always been very hard on myself, very critical of everything, and so if I did quit I would view myself as a quitter and a failure, so I think that's something that keeps me going.

Brianna strongly believes that her school persistence is largely due to personal characteristics:

I think it does come down to your personality, as well, being able to kind of put up with everything and be able to push through everything, and like I've dealt with depression and all of that stuff and it is from school. And so, to be able to take that but also like push through everything I think it really does come down to the personality, and how much someone is willing to endure to get through it.

Intrinsic motivation. Alyssa similarly attributed her success to being intrinsically motivated:

I like being the person that succeeds over other people, but I'm also intrinsically motivated in that fact that I want to succeed past myself, past what I think I can do, and for me to get a mark below what I think is acceptable, it hurts me, and part of it is that I'm very academic, very very academic, learning is my favourite thing ever. So, the more I learn the more I do. So, I'm really just motivated to be the best at learning, I guess. And, I'm very motivated to make a change in the world, so, it's more just the best thing for me is to have my goal and to have a way of getting to it, because if it was unachievable, then….you never succeed. Like, you know that somewhere inside you, you know. So, for me, it's mostly just me pushing myself, because I know I can do better.

For Alyssa, this was not always the case, and we discussed an internal transformation that happened to her following a move in high school. In her former school, Alyssa was previously the target of bullying from other girls in her middle school, which caused her great distress to the point of suicidal ideation. When she began to experience some early initial negative comments at her new school, this time, Alyssa decided that she would no longer be a "doorstop:"

I mean, I was suicidal before, because obviously my quality of life was pretty crappy, and the day that I decided that I wasn't going to kill myself was later on in grade 7, so at that point we already knew we were moving here, and so I think part of it was just that I wanted to be able to respect myself, and also that I needed to be here for me, and for the people that love me, and so I might as well like who I am. And it turns out that as I actually built up who I actually was, I realized that I actually really liked myself anyway. So, I guess yah, I guess I became more proud of myself, and more, I didn't tear myself down the way I did before, so, but I think a lot of that was just from moving, the different environment changed everything, because I didn't have to be that person anymore. I got to reinvent myself.

This shift not only marked a shift in her self-esteem, it also marked the start of her academic confidence, allowing her to pursue areas of academic interest.

Goal orientation. The participants also described being goal-oriented throughout their school years. Sharif attributed his ability to function and persist in school to having a goal. He noted, "I guess a goal, is the first thing, knowing what you want to do sort of keeps you aligned with what you have to do, If I do this I'll get this, so there is a goal at the end of the day." He also said that, "As long as there is a goal defined, and it's at least achievable, you can really hyperfocus on anything that's interesting." For most participants, the goal was to graduate and find a job. Aiden, Brianna and Justin discussed their future goals of pursuing graduate school and continuing their education. For these students, goals seemed to help keep their focus and school engagement.

Moreover, Brianna noted:

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me is to have my goal and to have a way of getting to it, because if it was unachievable,

then….you never succeed. Like, you know that somewhere inside you, you know. So, for

me, it's mostly just me pushing myself, because I know I can do better.

<div align="center">**External Assets**</div>

Technology as a Double-Edged Tool

Participants were not directly asked about technology in the semi-structured interviews,

however all of the participants discussed the impact of technology on their academic careers.

They discussed the Internet as both a distraction, and source of access to a wealth of knowledge.

They also discussed the benefits of note-taking applications. Moreover, being able to type, rather

than write by hand, came up in several transcripts as being extremely beneficial.

Brianna discussed the strong pull of the Internet as a tool for distraction:

That can happen a lot with the internet, it's quite bad, where just you are on the computer

and you might be on Facebook or on Youtube, and you just end up, by clicking on stuff,

you get so absorbed at night and you don't really realize how much time you've spent

doing that one thing, until it's like an hour or two later, and you are like 'oh, I need to be

doing work, and I haven't been doing any of that'

Many other participants shared thoughts on the Internet, including Laila who noted, "It's like a

world full of distraction, absolutely. You'll be like, oh let me just check this thing, and then there

is a sidebar with news, and you're like 'oh that's interesting', and before you know it it's been 5 hours." Stephanie similarly shared these views.

Nevertheless, the students also talked about technology as an asset, and some found ways around Internet distractions. Internet blockers were discussed as helpful for managing online distractions. Sharif said, "Yeah. And there's other technologies that block certain things on my computer, like Snapchat, or headsets that block out sound."

Helpful applications. Participants additionally discussed the benefits of using applications to help with note taking and studying. Alyssa discussed the benefits of using applications to help her with note taking, as divided attention is admittedly challenging for her:

> So I take all my notes on my iPad, and the app that I use pairs the recordings to the annotations that I make to the PDF, whether it's typing, or drawing, or whatever, so because of that I can just skip to different places and I can watch as my notes play out, and that really really helps because, especially when I type things, honestly when I do anything when I'm taking notes, do all of your notes make sense to you when you read them? Mine don't! So, the ability to just go back and listen to it again helps a lot, because sometimes my sentences don't actually make sense. Like, I will read them and be like 'what?', and I go back and listen and I don't know what I was trying to say there but I understand there. Honestly, there are just things that you miss when you are in class.

Jai also uses as application for note taking and recording in lectures:

> And this is just like (easy) I pop out my tablet and throw on my headphones and hang it over the desk and press record and start writing. Because, I can't do two things at once

often. One thing or another, and during lectures it's either I'm writing or I'm listening. And I can't exclusively do one or the other, because my attention span doesn't let me do that. So, I usually write down, and I pay attention sometimes, but, I know the lecture is there when I come back to it.

Writing on the computer. For Lucy, who has been identified as a gifted learner, the advent of computers and typing in the classroom was discussed as a turning point in her education, which allowed her to show her true writing potential:

> I can type as fast as my brain works and so if I'm typing an essay it is great and especially if I'm typing late at night when my brain is like hyperactive and I don't even know what I'm typing I wake up in the morning and I'm like "damn that's a good essay, I don't remember writing it and I'm not 100 percent sure what it's about but it looks smart as hell" and then I get an a on it and I'm like "apparently it was smart as hell!" but no writing essays in school was just like, that disconnect in speed killed me. And trying to read as a class and I was like oh my god I'm done this article! We are on paragraph one!

Before typing, she struggled with fine motor skills and found that her handwriting speed could not keep up with her racing thoughts. She recalled comments from teachers about her difficulty with writing and expressing her thoughts and admitted that she wrote stories and essays that were only a few short sentences long before she was able to type out her thoughts, due to frustration. She proclaimed, "As soon as I could like type and get it out as fast as my brain was working it was dramatic, my marks went up because writing was like "oh my god.""

While technology was not initially part of the interview questions, it was quickly highlighted as having a substantial impact on the success and motivation of the participants. While it served as the biggest distraction in their lives, students relied heavily on technology as a tool to inform their learning, to help them formulate thoughts, and to help with organization.

Engagement in Treatment

The participants had various experiences with treatment and managing their symptoms as young adults. The main types of treatment discussed by participants were medication and therapy, and some participants discussed the benefits of using both medication and therapy. For example, when Stephanie was asked to what she attributes to her academic resilience, she said "…medication, therapy, [and] disability services." She noted that "It would be impossible without them."

      Medication. A frequent topic that came up in almost all of the transcripts was the use of medication. Students discussed both the positive and negative aspects of medication. Alyssa said, "I have noticed that the meds have helped me to be able to sit there and focus on that one thing, and NOT go on Facebook, and NOT text my boyfriend, and NOT play with my dog. It made it less pertinent to do, because before it was like 'I need to go do this right now!', I need to go grab a snack, right now! Not because I'm hungry, but because I don't want to do this anymore. Whereas now it's like – I don't really need to go grab a snack!" Out of all ten participants, seven participants were taking stimulant medication at the time of the study to treat their ADHD. Stephanie, Justin, Alyssa and Laila attributed academic persistence directly to medication, and noted that they find it to be extremely helpful in managing their ADHD symptoms. Stephanie said simply, "Well, medication is like a big one. That helped a lot." However, other participants

noted that "Medication is not a magic solution." For example, Sophia said, "I think I was expecting the medication to fix all of my problems, and no, it just, it's whatever you're doing it will help you focus on that, but you have to choose the right thing to do."

Some participants noted significant common side effects associated with their ADHD medication, such as sleep difficulties and appetite loss. Stephanie and Jai experienced symptoms of anxiety and depression when their mediation was not titrated properly. Stephanie said that, "Concerta is the worst, it was like severe depression, I've never experienced something like that, couldn't eat, couldn't sleep, had bad anxiety out of nowhere, Concerta was the worst, Vyvanse is okay." Jai also went through a difficult titration period:

> "… I was on Vyvanse, so we started off at low dosage and went from 40, to 50, to 60, and then I noticed after a while staying at 60 I was becoming very anxious, and then my anxiety was kind of often leading to a bit of depression here and there, so it was always dipping in and out, so I dropped my dosage and after a while it was okay, and then a while after that the same problems started coming up. So I said let's bring it back down. I wasn't getting the same level of crazy focus sometimes, but I was okay with that because often times, coming into tunnel vision became really easy. So I would waste a lot of time focusing on very small things, so I was just like maybe it's not such a bad thing, so I dropped back to 40 and it's been pretty stable so far."

Jai does not like the feeling of being on medication, but does find it helpful to help with focus and completing schoolwork. He takes it on an as needed basis:

I take my medication when I need to work, and make sure I have to do something, but

sometimes on the weekends if I don't feel like doing something, or I wake up late, I'm

like – I'm not going to take my medication. It's not like I fear it or anything like that, but

it's more like when I need to set it at bay, inattention, I can do it responsibly."

Overall, participants' thoughts about the value of medication varied, but tended to be more

positive than negative.

Psychosocial Treatment. Only one of the participants noted using therapy to help

manage her ADHD symptoms. Stephanie, who also takes ADHD medication, found that ADHD

group therapy was extremely beneficial and allowed her to learn more about herself:

It was really good because it encouraged me to be more self-aware, especially with group

therapy, it's all people with ADHD, so people just talk about their experiences and their

strategies, and that's really helpful too because it allows you to recognize, like

preemptively recognize things.

The group that she participates in is a cognitive behavioural therapy group, which provides

structured homework assignments and organizational strategies. Lucy also noted having a

therapist who helps her to manage her mood symptoms, which are secondary to the ADHD, but

did not note receiving therapy targeted at her ADHD symptoms. She has been seeing different

therapists since she was a teenager and finds therapy helpful.

Supportive Relationships and Environment

In looking back on their schooling experiences, several participants highlighted supportive relationships as a main factor contributing to their success. For some participants, parents provided them with unconditional emotional support and structure. For others, having a teacher who understood them and accommodated their learning style helped them to feel worthy and to develop an interest in learning. Participants also highlighted the importance of having hard working friends who were similarly engaged in school. For others still, support came from a family friend or an important adult role model in their life who took the place of the supportive parent or teacher.

Parent Supports. Participants attributed early success at school mostly to parent support and encouragement. Students brought up examples of parents engaging their interests, encouraging them and sitting with them while they did homework, and teaching them the value of hard work. In terms of parent support in University, students discussed the emotional support. Nevertheless, this was not the case with all of the participants.

Lucy talked about having extremely supportive parents who continue to support and push her. In particular, she attributed her early enjoyment of reading to her parents. Lucy's parents caught on to her love of learning at an early age and decided to engage her interests through learning together:

I think a lot of it was due to my parents and being able to like when I was really interested in something they would engage the hell out of that interest. Like when I was in England and I was all about the mummies they took me to the British museum and I

learned everything about mummies and when I was really into art, well my mom was also into Monet but we went to Monet's garden and I painted Monet's garden. My dad's a teacher so we were on teacher exchange, we weren't just filthy rich and then like when I was into harry potter we went to England twice so it was in a 7 year period so I got to go do all of that stuff and when I was into fashion we went to Dior's house and they just engaged the hell out of all of my interests. They were like "you're into this, we're into this, let's do this"

Justin commented that his mother always took the time to help him with homework and help him study:

> I guess my mom spent a whole lot of time with, especially until I was in grade 3 or 4, and then she stopped and I just stopped doing homework and studying, but in those early years my mom was really good at knowing what I had to do for school, so like, if I had a spelling quiz on like Friday, she'd spend from like Monday asking me the questions making sure I knew how to spell them all, so when the test came around I didn't usually miss anything, just because she spent so much time, same with multiplication table, she worked on them like all the time, if I had to memorize something or do something.

Brianna also noted that her parents are a source of unconditional support, even when she is not at her best:

> In terms of family, I'm prouder of myself than my mom or my dad are, and so last semester, or last year, I actually failed a course, and so that was, for me, really really hard, because my dad is, my parents are paying for my undergrad, and so at first like I

thought they were going to be pretty angry at it, but they were both really understanding, and they were both supportive of it, and they both took it better than I did myself, so just the fact that they were both really supportive of it, and when things like that happen like they get angry.

Teacher and School Supports. Sharif did not have the same support at home and noted that school supports and teachers have always had a big impact on his school success. His high school teacher stood out as someone who engaged his focus and was generally a "cool guy:"

> There were plenty, if I had to focus on one it would be my science teacher, he taught me chemistry for the entirety of high school, and part of biology. He was engaging, he kept your focus, you didn't need to pretend you were interested in the subject, you just were naturally. He was a cool guy I guess.

Sharif felt a lot of shame regarding his ADHD diagnosis, and struggled to share this information with his family, whom he felt would not understand the diagnosis. In University, he felt lucky to be supported by SDSS and accessed all of their free training courses. He also expressed feeling supported by the professors in his program:

> Just to access the supports that are there, they are free, they are really made for you. There is really no reason not to. Also, talk to professors, they may seem like they are evil people sometimes but they are still human. They usually make like, they'll help you if you need it, they will give you an extra day if you need it.

Justin similarly noted having an enthusiastic teacher who was passionate about the subject area and kept his focus in class.

I think it was highly dependent on the teacher, you know, if you had a really inspirational teacher I think that really helped. I remember becoming very interested in history just because I had a teacher who was a very good history teacher, and even though I knew I didn't want to pursue a career in history, I was very interested in it from then on, and it sort of became a secondary passion to zoology. And I think that was the case for a lot of subjects, I felt like if I had a teacher that was very passionate I can learn much better because I wanted to sort of attend class, I wanted to listen. I've had teachers who made a very interesting subject boring, and a very boring subject interesting, and that really had a profound effect on my success.

Similarly, Brianna had a teacher who had a profound effect on her engagement with school and interest in Science. She attributes her developing a passion for Science, which is her subject of study, to this teacher.

In high school there was a teacher who definitely helped me out quite a bit. He was a science teacher, and so I had him for science 10, and chemistry 20 and 30. For the provincial exam he actually would, he would meet me at the school on weekends and help me study for it, and so yeah, he was putting in this extra time on his weekends to meet me in school and help me study. He would meet me at lunchtime as well and go over some things with me. Just the way that he explained things in class was really helpful for me as well, so in science 10 when we were learning about things falling at the same speed or velocity he brought a tennis ball and watermelon up onto the roof of the school, and we got to see him drop these things and watch them hit the ground at the same time! Or when we were learning about electrons he brought us outside, and on the

steps to show us the different valence electrons and the different orbitals, he had the students act as electrons on the different orbitals on the stairs. And so for me because I'm more hands on and visual that really helped for me to learn that way, but also just the amount of time that he invested in me, and supported me, but also believe that I could do it, was definitely a big big help for me in high school.

Lucy had two standout teachers in high school who allowed her to demonstrate her knowledge through projects that engaged her creativity. Lucy loved being able to engage in the material in a way that made her excited about it; Lucy thrived with teachers who allowed non-standard assessment practices:

> My English teacher … he retired after I graduated, best teacher I've ever had in my whole life. Instead of being like alright we're going to explore Romeo and Juliet through an essay he'd be like "show me you understand it, you can do it any way you want and he'd be like you can do as much as you want just make me a project that shows this. And so I did a 1930's style radio play of Macbeth set at a dustbowl circus and I got like all of the drama kids, I was in drama, to record and I like made a doll for Romeo and Juliet with Juliet and all of the special symbols and I got to engage my own interests and it just made that so much deeper that I wasn't stuck in a way of like "you can only answer this question in four ways." They are like "you answer this question however you want, if it demonstrates that you understand it awesome, and so I got to engage all of my knowledge, I got to throw in things from other places, it was great and I didn't have that support in elementary school but in high school it was fantastic. And like my biology teacher as well, he was great because I'm not a science person, I'm a socials person, but

he was like, my best friend and I would draw cartoons on the back of our exams when we were done, and he'd be like you know your cartoons show a greater understanding of this knowledge than your test does. If you want to draw more I'll give you bonus marks, and I was like "this is awesome." And I'd get to demonstrate my knowledge in a way other than tests, not that I'm bad at tests I'm great at tests but it was just that other way of engagement.

Friend Supports. At the university level, Sofia reported that her friends influenced her academic progress enormously, through their interests and dedication to school:

I guess part of the reason I went into engineering was because some of my friends were going into engineering, so yet again I followed. But, having people with me makes, like I automatically do way better if I have someone who I know in my classes. Like, just even to walk home together and stuff like that, um. And one of my friends is super organized so she started this colour coding system, I changed it a bit, I just like organizing by colour, so I guess that.

Sofia directly attributes her academic persistence to her friends:

My friends have really helped like in my classes, but I don't think that has anything to do with ADHD diagnosis, I don't think some of them even know, but it's just nice to like, if I don't understand something they can explain, sometimes I explain things to them but it happens less often, umm, I just, kind of someone in the same boat, kind of school, I don't know

Other Adult Supports. Jai attributed the support and help that he received from a family friend who tutored him as a significant influence on his academic outcome. This family friend "came to [his] home every weekend, and he kind of just poked [him] through it. It was nice. It really helped me." For Jai, having accountability was important:

> That was the purpose he served a lot of the time, obviously he did teach me material and went more in depth with it, but there was no structure to it a lot of the times, right, all of the things were like quite nebulous, and like rough sketches everywhere, and notes here and there. But he was there almost, it was a consequence if he wasn't there, like, I wouldn't have read if he wasn't there, he forced me to some extent to do the work.

This family friend not only pushed him, but also believed in him, which was a new experience for Jai:

> Yeah. He says this all the time, I don't know why, he bench marks his potential students with me, that guy was brilliant, like he's very smart, it was weird, it was really strange, like back then, looking back, it's like he taught me very simple things, it was strange, because now he tells me I'm the best student he ever had.

Summary

In review, an IPA approach was used to examine the experience of academic resilience for ten university students with a diagnosis of ADHD. Participants described reoccurring themes within the categories of internal drive and perseverance, love of learning and individualized study strategies. Furthermore, resilience was maximized by students with treatment with stimulant medication, supportive relationships and environment, and helpful applications of

technology to minimize difficulty with executive dysfunction. Students were clear that medication, support, accommodations and strategies (including technology supports) helped to maximize their school experience and their grades on academic transcripts, however it was their own internal drive and love of learning that helped them to persist in school despite the challenges they faced. Students described wanting to prove to themselves that they could graduate, wanting to "better [themselves]," having an intrinsic motivation to succeed and a "stubborn sense of pride." Participants were also vocal about future goals; some students wanted to pursue graduate school, others talked about future careers that would engage their interests, and others still were focused on getting their undergraduate degree, something that would not come without struggle and will be much deserved.

Chapter Five – Discussion, Recommendations and Limitations

This Interpretative Phenomenological Analysis explored the phenomenon of academic resilience in a small sample of undergraduate students with ADHD attending the University of Alberta. The purpose was to understand the student experience, and in doing so, investigate internal and external assets contributing to academic persistence and success in spite of adversity. Specifically, students with ADHD who were enrolled full-time and not on academic probation were interviewed to gain an understanding of their experiences of academic resilience. The experiences of the ten participating students were captured through semi-structured interviews, resulting in six themes that are of importance to future investigations of ADHD in University students. This chapter provides a summary of key findings, discusses conclusions to the established research questions, makes recommendations for future students with ADHD and their ecosystems (e.g. university stakeholders, teachers, parents), offers suggestions for future research, and notes limitations to the study.

Summary of Findings

The six superordinate themes that emerged from the interview data, with the first three themes representing internal assets, and the later three themes representing external assets: 1) interest in academic subject and love of learning, 2) awareness of learning style and individual study strategies, 3) internal drive and perseverance, 4) technology as a double-edged tool, 5) engagement in treatment (e.g. medication, therapy), and 6) supportive relationships and environment. Within the above superordinate themes, subthemes emerged that helped to further define the experiences of the participants.

Internal Assets

Research suggests that internal assets are correlated with emotional and behavioural engagement in school; although parental support is directly related to student engagement, internal assets influence student engagement beyond the influence of parental support (Sharkey, You, & Schnoebelen, 2008). In addition, self-efficacy and goal orientation have both been found to be positively correlated with student engagement (Caraway, Tucker, Reinke, and Hall, 2003). This research is in line with the findings of this study, whereby the participants endorsed personal reasons, internal motivation, goals, and individualized strategies as important factors that contributed to their academic resilience.

Interest in Academic Subject and Love of Learning

Perhaps one of the most commonly cited factors influencing academic persistence was an underlying love of learning. All of the participants had at least one subject area or topic that engaged their focus and kept them wanting to know more. Albeit, this was not always related to

the student's subject of study, and sometimes served as a distraction to their work. A love of learning and a passion for the subject of study, or at least one area of it, seemed to serve as an important internal asset that contributed to academic thriving. Individuals with ADHD experience difficulty focusing on tasks that they do not find interesting, but can exhibit intensive concentration (i.e., hyperfocusing) and become absorbed by tasks and activities that they find interesting (Schecklmann et al., 2008). The participants in this study all endorsed having areas of special interest, some of which could almost be described as an "obsession." For some, these were aligned with their area of study. For others, their interests were more of a hobby, such as collecting and caring for plants. Others still described an insatiable desire to gather knowledge, even though this knowledge was not always in line with academic topics. Nevertheless, it may be that students with ADHD who have a passion that aligns with their area of study are better able to focus, and subsequently maintain a level of school engagement. Over half of the participants not only endorsed a love of learning, but also endorsed a love of school.

A recent qualitative study investigated this phenomenon with entrepreneurs who were diagnosed with ADHD, and found that successful entrepreneurs with ADHD have the ability to hyperfocus on their work (Wiklund, Patzelf, & Dimov, 2016). These entrepreneurs did have aspects of their job that they struggled with, however, some participants coped by hiring a business partner or administrator to take care of administrative tasks requiring organization and time-management. Whereas the authors concluded that hyperfocusing can sometimes have negative influences, such as difficulty shifting to other more important tasks, it is also associated with passion, persistence and time commitment related to tasks and activities of high interest, which can lead to the development of expertise in those areas. The combined factors of

hyperfocusing and a love of learning in university students with ADHD have not been studied and would make for interesting future research.

Awareness of Learning Style and Individual Study Strategies

Students discussed formal accommodations that were helpful. The most frequently cited of these being the importance of extra time, not only to help allow for sufficient time when focus was not consistent, but also to help quell test anxiety. Students also benefited from note-takers and the opportunity to write exams in a quiet environment, although these were cited less frequently and may represent under-utilized services.

Participants were clear that academic accommodations and study strategies played a big role in their academic resilience. Eight out of ten students were registered with student disability services and were receiving extra time on tests and exams, and the option to write in a quiet environment. One student noted that a quiet environment was ideal, however when given the choice to write in a room with cubicles and a few students or a full classroom, she noted that the hum of a large classroom was less distracting than the distinct sounds of a few students. Only two of the students were using note-takers on a regular basis, and one student found the study skills workshops to be extremely beneficial. Two of the students did not have any accommodations, and cited their own pride and not wanting help as reasons for not accessing them. Only two of the students discussed accessing counseling services at the University. These findings were similar to the Meaux, Green and Broussard (2009) study of 18 university students with ADHD. The authors noted themes that seemed to hinder and help college students with

ADHD. Among the list of helpful themes that occurred, students listed being knowledgeable about their diagnosis, opening up with others, being accountable for their actions, learning from consequences, setting alarms and reminders, taking stimulant medication, engaging in self-talk, removing distractions, staying busy, having supportive friends, family and teachers, and academic support and disability services. However, the authors remarked that a lack of knowledge about services available or not taking advantage of available students was common among participants. The authors concluded that interventions are needed to educate college students with ADHD about services available, with encouragement to utilize these services.

In addition to academic accommodations, students cited study strategies that were individualized and had been uniquely developed through years of trial and error in the education system. Students in the study described a range of self-management strategies, which helped to manage areas of executive dysfunction, such as working memory impairments, and difficulty with organization of materials, and task initiation. For students who struggled with executive functioning, individualized strategies included using white boards and setting alarms and reminders in their phones, using competition to help motivate them, using Internet blocking websites, fidgets that helped to engage focus during periods where students knew that their focus would be challenged, and using applications that helped to organize and annotate notes. Most of the students developed these strategies in response to experiencing negative consequences, such as declining grades.

Meaux, Green and Broussard (2009) similarly found that participants endorsed using self-management strategies in response to experiencing negative consequences such as declining grades in their coursework. A more preventative approach may be to help younger students

develop their own individualized study strategies from a younger age. This finding highlights the importance of future research in the area of coaching as an intervention and/or involving parents and teachers in encouraging young students with ADHD to adopt personalized study strategies (Parker, Hoffman, Sawilowsky, &Rolands, 2011).

Internal Drive and Perseverance

Perhaps the most frequently cited reasons for persistence in university, despite the challenges, were internal drive and perseverance. When students were asked to summarize what kept them enrolled in school, internal drive and persistence were cited nearly 100% of the time. Students took pride in their accomplishments and wanted to prove to themselves that they could finish University. Many students said that what started off as encouragement and sometimes pressure from parents to do well academically, slowly internalized and became an asset that they admired in themselves.

Scales and colleagues (2006) noted that a commitment to learning and a strong sense of strengths, potential and self-worth are core internal assets that guide positive choices, and foster a sense of confidence, passion and purpose. These internal assets may play a significant role in post-secondary outcomes for individuals with ADHD, and their willingness to persist and achieve despite the obstacles that they face. Individuals with a wealth of internal assets are better able to solve social problems, have better self-esteem, and believe they can influence events in their lives for the better (Benson, 2003). Specifically conscientiousness and positive core self-evaluation have been hypothesized to affect educational functioning across university students (National Research Council, 2012). Conscientiousness incorporates student engagement, effort, and persistence with academic tasks. Moreover, Shaw-Zirt, Popali-Lehane, Chaplin and

Bergman (2005) reported that self-esteem mediates the relationship between ADHD status and academic adjustment among university students with ADHD. Thus, internal assets and traits are important variables to consider in predicting school adjustment and resilience, particularly for students with ADHD. For the participants, internal drive and perseverance were essential to their academic persistence, and kept them going despite the many challenges that they faced.

Morningstar and colleagues (2010) found that students with disabilities who were better prepared for the transition from high school to university exhibited higher levels of psychological empowerment, internal locus of control, and hope in university and had improved postsecondary outcomes. Another study cited the importance of university students assuming control of their studies and parents relinquishing control (Shepler & Woosley, 2012). This shift encourages students to be self-directed, independent and self-sufficient. Participants in the current study discussed the early positive influence of supportive parents and teachers, however when asked about their resilience in university, all of the participants endorsed feeling internally motivated.

External Assets

At the university level, some external assets are less prominent as they once were during childhood and adolescents, for example, family supports. Students often move away from home and no longer have the direct support of their parents. Moreover, professors do not have the capacity to provide the same support as high school teachers, who have fewer students. Positive parental involvement and knowledgeable and supportive teachers and administrators contribute to positive adjustment (Climie & Mastoras, 2015), which may promote the development of internal assets, which contribute to healthy social and academic outcomes (Bernard, 2004).

Nevertheless, experiences and relationships across multiple contexts, such as family support and having a positive environment still likely play a big role in university student engagement and success.

Technology as a Double-Edged Tool

One surprising finding that was not a direct focus of the structured interviews, but which came up in almost all of the transcripts, was that technology was both a useful tool, and a distraction. Students talked about the distractions associated with the Internet, such as wasting time on social media, however they more often talked about the benefits, and some students recalled having access to a computer as a turning point in their interest in education. Some students used applications to help with note-taking, time-management, and to block distractions.

University students spend a large portion of their day using the Internet, and young adults with ADHD are at a higher risk of Internet addiction than those without ADHD (Bozkurt et al., 2013). Individuals with ADHD respond best to immediate rewards and are better able to focus when a stimulus is engaging (Castellanos and Tannock, 2002). The Internet provides immediate feedback and is highly stimulating. Weaknesses in executive function, including difficulty starting tasks and difficulty shifting between a task that is more exciting, to a task that is less exciting (e.g. homework) may further contribute to higher vulnerability. Moreover, individuals with ADHD often have impaired inhibitory control (Barkley, 2013), which would limit their ability to resist the urge to stay on-screen in the face of other more immediate work demands, and therefore they may be more vulnerable to Internet addiction.

On the other hand, participants were vocal about the benefits of technology and Internet use, and even cited access to the Internet and keyboarding as factors that influenced their school engagement and persistence. Two participants talked about how keyboarding significantly influenced both their enjoyment of writing, and their ability to produce better quality written work. A growing body of research suggests that handwriting difficulties, in terms of speed and legibility are common in children with ADHD, indicating that some students with ADHD may also benefit from having access to a computer for writing (Brossard-Racine et al., 2011). Students cited having access to a computer, and keyboarding, as a turning point in their educational careers, allowing them to adequately express their thoughts and produce quality written work.

Other participants noted that they could indulge their love of learning and research through search engines and online journal articles. Some of the participants also used applications to help them annotate notes or online timers to help with time management. Students were aware that the internet, and social media in particular, offered their brain immediate stimulation, and some of them coped with this by using Internet blocking software which helped to block websites during study hours. The benefits of technology with this population are another area of potential future research that has not been investigated. While the benefits of technology have not been directly linked to the developmental assets model, they are in line with the ecological systems theory. Johnson and Puplampu (2008) proposed the ecological-techno-subsystem, a dimension of the microsystem, which comprised the individual's interaction with non-living elements of communication and information in their immediate environment. The authors concluded that Internet use varies as a function of the context. For example, school-based computer use, that is teacher directed, focused on purposeful learning,

and limited to classroom internet availability, differed from home-based computer use that was child-directed, and allowed time for exploration. Thus, Internet and technology use may be an external asset for students who take control of their Internet use and set their own parameters of use.

Engagement in Treatment

Students were engaged in various types of treatment for their ADHD. Green and Rabiner (2012) concluded that more studies are needed that evaluate the impact of treatment on university students with ADHD. Other than a recent study on coaching students with ADHD (Parker, Hoffman, Sawilowsky, & Rolands, 2011), no controlled studies of psychosocial interventions university students with ADHD have been published. Furthermore, there has only been one controlled study of medication management with this population (DuPaul, Weyandt, Rossi, Vilardo, O'Dell, Carson, Verdi, & Swentosky, 2012). Thus, the degree to which medication treatment may improve academic outcomes in university students with ADHD is still unknown. Furthermore, clinical "best-practice" prescribing guidelines are lacking for treating university students with ADHD (Fleming & McMahon, 2012).

DuPaul et al. (2012) were the first to conduct a double-blind, placebo-controlled study of psychopharmacological treatment of ADHD in college students. The authors evaluated the effects of three dosages of lisdexamfetamine dimesylate (LDX; or Vyvanse) relative to placebo and non-medication baseline on the ADHD symptoms and executive functioning of 24 college students with ADHD, compared to 26 college students without the disorder. Findings indicated that the effects of Vyvanse were associated with significantly lower ADHD symptoms, enhancing executive functioning, improved study and organizational skills, and lower levels of

psychopathology relative to the comparison groups. While individuals showed reliable improvement on Vyvanse, the effects did not "normalize" participants; individuals with ADHD were still significantly below their non-ADHD peers on all measures. Thus, the authors concluded the need for adjunctive psychosocial and educational interventions for those students with ADHD who are positive responders to stimulant medication. Of the ten participants in the current study, seven are currently prescribed stimulant medication. One of those students takes his medication on an as needed basis. The participants in the study expressed mixed feelings towards medication, however, overall, the tone was positive and students felt that medication helped them to focus during lectures and during study periods. Nevertheless they were acutely aware that medication did not ameliorate all of their ADHD symptoms, and did not improve some challenges involving executive dysfunction deficits.

Thus far, there are no empirical studies testing the efficacy of psychosocial treatments for University students with ADHD. Nevertheless, cognitive-behavioural treatments, such as Cognitive Behavioural Therapy (CBT) in conjunction with medication, have been recommended for the treatment of ADHD in university students. CBT helps to address maladaptive and self-critical thoughts, and may prevent negative attitudes from demoralizing students. Although CBT research has not been conducted specifically with college students, several recent trials with adults have implications for this population. Safren et al. (2005) randomized 86 adults with ADHD into a medication treatment condition alone, or medication treatment plus CBT. Post treatment, adults in the medication plus CBT condition had significantly lower symptom ratings from blind assessors. The program teaches target executive function skills, such as time management, organization and planning, that may help university students with ADHD attain greater academic success. Only one of the participants in the current study endorsed using

therapy to help manage her ADHD symptoms. She participates in group CBT and finds it to be helpful. Perhaps this low number reflects difficulty with accessibility of therapy for post-secondary students with ADHD, or lack of services available.

Coaching is another approach for adults with ADHD to help them identify important goals, develop plans and strategies for achieving them, and monitor progress towards attaining them. Parker, Hoffman, Sawilowsky, and Rolands (2011) interviewed 19 students with ADHD who received coaching services. Students reported that it helped them to set goals, increase self-discipline, time management skills and organization. However, they were less clear on whether they believed coaching helped them to improve their grades. Participants in the current study described helpful individualized study strategies that they had developed in response to experiencing negative academic consequences in the past. A more proactive approach would entail providing and rewarding earlier skill development and self-management strategies in adolescents with ADHD.

Supportive Relationships and Environment

Students discussed the enormous impact that relationships had on their academic interest and school persistence. Benson (2003) stressed the importance of supportive family members, friends and school professionals as external assets that provide emotional support. Family support is considered to be a core protective factor across diverse types of risks and adverse contexts (Masten, 2014). Most of the students cited having a supportive parent who engaged their interests and helped them to keep on top of their schoolwork as a major external asset contributing to their academic success. However, not all of the participants had supportive parents. Aiden lived with his grandparents and did not have very much family support growing

up. Further, Sharif's parents were not aware of his diagnosis, and he felt that they would be ashamed of him. The other eight participants brought up having good familial support systems to which they attributed their academic success in elementary and high school. Greenwald-Mayes (2002) found that positive emotional family environments play a positive role in academic resilience for university students with ADHD. Of the ten participants, two of them directly attributed their university successes to parental support. However, eight of the participants attributed this success to their early positive school experiences, which likely shaped their school enjoyment and persistence later in life.

Whereas parents were the main source of support prior to university, participants also cited early supportive experiences with a supportive adult role model, and with having a teacher in elementary or high school who truly believed in them and took the time to help them. Moreover, elementary and secondary teachers and school personal were considered as foundational assets that helped them to develop a blueprint for effective study strategies and an internal drive for academic resilience. Asset-rich schools are those in which parents and teachers attempt to understand children's perspectives, and consistently show children that they are valued and that they can be successful (Edwards, Mumford, Shillingford, & Serra-Roldan, 2007). Relationships with teachers are important assets that enhance positive educational outcomes. Teachers who establish personal and caring relationships with their students improve the students' opportunities for a successful school experience (Edwards et al., 2007). Moreover, Edwards and colleagues also stressed the importance of the school environment. Students who feel supported in pro-social classroom environments are less susceptible to risk and are less likely to manifest maladaptive behaviours at school.

In line with the findings of the qualitative study by Meaux, Green and Broussard (2009), participants noted making a developmentally appropriate transition from parents to peers as a source of support in university. Several of the participants noted positive peer relationships, despite evidence that individuals with ADHD have poor social skills and difficulty maintaining social relationships (Bagwell et al., 2001). Some participants utilized professor or teacher's assistant (TA) support to help them cope with academic challenges at the university level. Nevertheless, at the university level, students were more likely to attribute their persistence and success to their own internal qualities.

Implications of the Study and Recommendations

A number of implications and potential recommendations were noted over the course of conducting, analyzing, and writing up this study that will aid stakeholders in elementary, secondary and post-secondary institutions to better serve and retain students with ADHD in the school system, as well as inform other students with ADHD as they progress through their schooling. It is clear that students with ADHD often experience significant academic challenges that require services and instructional supports. Eight of the ten participants were accessing some accommodations through the university's student disability services (SDSS), with extra time on exams as the most commonly utilized accommodation. However, only two of the students noted using counseling services and one of the students noted attending workshops offered through SDSS. The above speaks to the need for an enhanced array of services within SDSS, and greater utilization of these services by students. Employing ADHD coaches who may potentially help the unique needs of this population may enhance services, offering individualized study strategies to help students manage symptoms of inattention and executive dysfunction (e.g.,

difficulties with time management, organizing, and planning) in a goal-directed and encouraging manner (Parker, Hoffman, Sawilowsky, & Rolands, 2011). Such strategies will be the most effective if they are individualized and strengths-based, motivating students to use the strengths and skills that they already possess. For the participants themselves, insight into personal adaptive functioning may be uncovered through coaching and counseling services, which may help them with personal growth, development and resiliency. Further, increasing the capacity for career counseling and educational counseling based on students' strengths may be a valuable service for this population. Such a service may help prevent students from embarking on academic or career paths ill suited for them, and reduce the propensity for academic failure. Moreover, there is a need for research into educational interventions aimed at supporting and encouraging individualized self-management and coping skills at the university level.

Increasing outreach and reducing stigma associated with accessing these services might address the underutilization of the full range of university support services. Outreach efforts during enrollment or orientation programs may be appropriate in order to facilitate early access. Connecting students with a counselor at SDSS who could periodically email them during a semester to check in may also serve as a reminder to students to utilize support services if they encounter problems during the academic term.

Findings of this study may potentially help professionals working with this subset of students, including school psychologists, psychiatrists, educators, and university advisers to further promote the exploration of strengths and resilience in the students with whom they work.

Study Limitations

There are several limitations of the current study. A deep understanding of academic resilience in the functioning of undergraduate students with ADHD is important to help optimize assets. This study was conducted using IPA, with the goal of understanding phenomena from the individual's specific context (Smith et al., 2009). The results are potentially transferrable to a larger population of undergraduate students with ADHD, however future studies would be needed to investigate further. This study alone is limited in the relative size and scope of the participants to allow for generalizability. Whereas the perspectives of the students interviewed enhanced understanding of the overall experience of academic resilience in this population, a larger sample from multiple universities would provide a greater breadth of information. The results cannot be generalized across populations, nevertheless, transferability, which refers to the ability of findings to be transferable or relevant to similar populations, can be applied in this study. Of the ten students interviewed, there was a wide presentation of age of onset and subtype, representation of both genders and a variety of cultural backgrounds. The rich descriptions of the participants' experiences help to highlight the need for future research and the implementation of effective strategies used by teachers, student support services, and families of students with ADHD. Finally, since the study focused on academic resilience, participants were not asked to discuss deficits or maladaptive behaviours and experiences; therefore, the data cannot be used to add to the literature on risk factors associated with ADHD.

Participants recruited for the study had a confirmed diagnosis of ADHD, but several had other comorbid conditions. While this poses a limitation of the study due to the difficulty isolating the impacts of ADHD from other conditions, it is representative of this population.

Given the high rate of occurrence of comorbid conditions with ADHD, these were not exclusionary criteria. Additional research could address this limitation by utilizing a large sample and comparing the experiences of students with a diagnosis of only ADHD, versus those with ADHD and other comorbid conditions. We do not know what developmental assets contribute to academic success in student's learning disabilities or other mental health conditions. We tend to think of comorbidities as a risk factor that increases the chances of problems. However, students with ADHD and comorbidities who persist in school may signal even greater resilience. Despite the limitations of this study, the goal was to encourage future ADHD researchers to investigate resilience factors contributing to success despite the significant odds.

Implications for Future Research

Mixed-methods research designs would serve to further enhance the knowledge base in this area, for example incorporating information from surveys and employing document analysis (e.g., file review of previous report cards and assessments) to obtain a more complete picture of students' academic histories. Furthermore, future research into the effectiveness of and adherence to ADHD medications in post-secondary students with ADHD is needed. Future research may also consider how university students with ADHD compare on measures of resilience to those who pursue other post-secondary routes, such as direct employment after high school graduation. Lastly, the focus on technology as both a distraction and a helpful tool was an unexpected finding. Further research that explores helpful applications, Internet blocking software and web-based tools (e.g. timers) for students with ADHD is timely and important. Perhaps most importantly, this study outlines the importance of future ADHD research that is strengths-focused and solution-focused.

Summary

This study provided a novel chance to explore the lived experiences of university students with ADHD who are academically resilient and have persisted in school despite the academic risk factors associated with the disorder. This investigation also provided an opportunity to gain greater insights into the key factors influencing school persistence. The study is particularly relevant at this time, given the increasing numbers of students with ADHD who are pursuing postsecondary education in Canada.

Results of this study contribute meaningfully to the growing body of literature with the population of undergraduate students with ADHD, applying a strengths-based lens. One potential application of the study's findings was to provide relevant feedback to student support services at academic institutions, so that they may continue to improve strategies and systems for assisting students with a diagnosis of ADHD, and in doing so, provide services to help these students stay on a positive path. The research questions that guided the inquiry sought to shed light on internal and external developmental assets that contribute to academic thriving.

The developmental assets model, which is considered an appropriate approach toward improvement of the chances for successful development in adolescents, is additionally applicable when considering factors that are likely to enhance resiliency in undergraduate students. Future research using the developmental asset framework allows for a broad, systems theory approach to understanding how to best support university students with ADHD. The model offers a broad approach to understanding the types of supports that may improve academic resilience for this population. The assets, taken together, are important in considering how educational institutions might best support students with ADHD in developing the resiliency needed to persist in post-

secondary studies. A proactive approach to supporting development of academic resilience in this population is warranted. The importance of positive parents and teachers and helping younger students with ADHD to advocate for accommodations, and learn individualized study strategies that will best support them is highlighted in this study. Equally important is the development and outreach of multi-modal treatment options for managing ADHD, as well as providing guidance to help students make appropriate educational decisions that will build upon their strengths and maximize their opportunities for success.

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Appendix A: Information Letter

Dear Student,

You are being invited to participate in a study that seeks to explore academic success and school persistence in undergraduate students that have been diagnosed with ADHD. The study aims to better understand what support services, past teaching strategies, educational experiences, and internal factors helped you to persist in school. The results of this study will be used to help better serve students with ADHD in the future. You will be provided with $20 dollars to compensate you for your time, and any expenses incurred, such as parking.

Procedures:

If you agree to be part of this study, you will be asked to:

- Confirm your diagnosis of ADHD with a recent psycho-educational assessment (within the last 3 years, or since the age of 18)

- Answer 6 short questions about your ADHD in a telephone screening

- Attend individual interview sessions with me (1-2 hours), with a possible follow-up session if needed

There are no known risks associated with this study. However, discussing your diagnosis may bring up past emotions. Potential benefits resulting from your participation in this study may include improved self-awareness related to your personal story of academic resilience.

Your interview will be held on campus at the Research Innovation Space in Education (RISE) at the University of Alberta Education building. The personal interviews will be recorded using a digital recording device and later transcribed verbatim. The interviews will be transcribed

and will be used only for the purpose of the research. No identifying information from the interviews will be included in the transcriptions. Any information you provide will be kept confidential, and your name will not appear in the transcript. Any reports or publications that result from this research will use pseudonyms to protect your confidentiality.

Even if you agree to sign this consent form, you can opt out of the study at any time for any reason. You will also have an opportunity to ask questions about this study during the interview. You will be provided with a copy of this consent form, which includes my contact information should a question or concern come up.

Sincerely,

Erin Sulla M. A.
sulla@ualberta.ca
780-399-0073

Appendix B: Consent Form

I, _____

               (print name)

☐ Consent
☐ Do Not Consent

to be interviewed by Erin Sulla, a doctoral student in School and Clinical Child Psychology and will:

- Confirm my diagnosis of ADHD with a recent psycho-educational assessment (within the last 3 years or since the age of 18)

- Answer 6 short questions about your ADHD in a telephone screening

- Attend individualized audio-recorded interview sessions with the researcher (1-2 hours), with a possible follow-up session if needed

By signing below, I understand that I am agreeing to the terms described above, and feel that I understand the study well enough to make a decision about my involvement.

_____   _____

Signature of Participant   Date

_____

Signature of Researcher

Appendix C: Interview Guide

Group 1: The focus of these questions is on the initial diagnosis and early thoughts about having ADHD

1. What comes to mind when you hear the term ADHD? (prompt: What does ADHD mean to you?)
2. What was your experience of being diagnosed with ADHD? (prompt: How were you first diagnosed? What were your symptoms? Who initiated the assessment?)
3. What do you remember about finding out about the diagnosis? How did someone explain it to you? (prompts: Tell me about your emotions when you were first diagnosed)
4. In what ways did receiving a diagnosis of ADHD shape or influence you as a person?
5. Sometimes people talk about the disadvantages of having ADHD, but other times there may be some advantages to having ADHD. Have you found that there are any advantages for you?

Group 2: The focus of these questions is on school experiences for individuals with a diagnosis of ADHD

6. What was it like having ADHD in school when you were younger?
7. What were some of the things that you were good at in school? (prompt: natural abilities or internal strengths)
8. What were some of the things that you struggled with? (prompts: what made it so difficult? How could have these experiences been better?)
9. Do you recall any (other) favourite schoolwork activities or parts of classroom life or school life that you enjoyed?
10. To what do you attribute your early positive experiences in school?
11. Was there anyone special, such as a teacher, caregiver or adult who helped you in school when you were younger?
12. Do you remember any (other) things that helped you do better work or helped you in your confidence as a student in elementary school—for example, certain ways of doing assignments, any special people, any special events, any special processes you used?

13. Did you receive any special services in elementary or junior high school and what were they? (Accommodations, adaptations? (prompt: what was the most helpful strategy or service?)

14. What were some of the things about your classes or your teachers that helped you to stay in school?

15. How did your personal interests change or stay the same during your schooling?

16. Do you think you made any changes to the way you liked doing your school work?.....Were there any special approaches or people or resources that you found particularly helpful?

17. When you were getting ready to start University what did you look forward to? What did you think it would be like?

18. To what do you attribute your ability to function and persist in school as a university student diagnosed with ADHD?

19. Are there any personal attributes that you would say helped you to persist in school?

20. Do you believe additional support or services could have better assisted you in managing school challenges?

21. Knowing what you know now, is there anything that you would have changed about your schooling?

22. Is there anything else you want to tell me about your experience of school as someone with ADHD and the things that helped you to be able to pursue university?

Appendix D: Data Analysis Steps and Decision Making Flow Chart

Data immersion (re-reading and note-taking)

↓

ideographic approach: preliminary themes

↓

"emergent theme titles" (Smith & Osborn, 2003)

↓

Double Hermeneutic: 2 stage interpretation resulting in superordinate themes for each participant (173 themes in total)

↓

Process repeated with each participant: collapsing themes (84 themes to 12 themes- themes were ordered according to occurrence and importance stated by participants)

↓

Superordinate themes across transcripts (went from 12 themes organized into internal and external assets to 6 superordinate themes)