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Exploring Learning Style Preferences of College Age Students with Attention Deficit Hyperactive Disorder (ADHD)

By
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Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Health Science
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SETON HALL UNIVERSITY
SCHOOL OF HEALTH AND MEDICAL SCIENCES
Department of Interprofessional Health Sciences and Health Administration

APPROVAL FOR SUCCESSFUL DEFENSE
and
COMPLETION OF DISSERTATION MANUSCRIPT

Denise Nash-Luckenbach has successfully defended and completed the text of the doctoral dissertation for the PhD in Health Sciences degree, during this Fall Semester 2019.

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Dedication

This study is dedicated to my husband, Jeff and our three children Joshua, Jeremy, and Jessica. It has taken me 11 years to complete my PhD, and through it all my husband was by my side, supporting me, encouraging me, fulfilling my role when I was unable. My goal, to complete my PhD was just as important to Jeff as it was to me. I am forever grateful for all his unwavering support and I am humbled by his selflessness through this process. When I began this journey, I didn't comprehend the sacrifices my family would make so that I could complete this endeavor.

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Abstract

ADHD is a persistent neurobehavioral disorder in children with a prevalence rate of 5-10%. Symptoms of the disorder include inattentiveness, hyperactivity and impulsivity behavior. These symptoms are believed to have a great impact on the child's cognitive and academic functions and children with ADHD are believed to have difficulty mastering basic academic skills. Historically, ADHD was believed to be a disorder only observed in children, however, it is estimated 66% of children with ADHD continue to be symptomatic as they enter adulthood. Students with a diagnosis of ADHD have higher dropout rates, lower standardized math and reading tests scores, and repeat more college courses than normally developing students. Learning Styles have been suggested to facilitate the gaining of new knowledge. Knowing your learning style preference can have a positive impact on their academic growth and acquisition of knowledge. The purpose of this study was to explore the learning style preferences of college age students with ADHD and the impact ADHD has on their study habits and academic success. Kolb's Experiential Learning Models and Malcolm Knowles Adult Learning Theory were used as a theoretical framework guiding this study. This is an exploratory qualitative phenomenological study. The study consisted of ten college age students with a diagnosis of ADHD. The findings of the study indicated college age students with ADHD have a preferred learning style. Additionally, these students need engagement in the classroom and faculty support. They are typical adult learners with a need for internal and external motivation and additional support to help them success academically.

Key Words: ADHD, Learning Styles, Academic Difficulty, College Age Student, Kolb's Experiential Learning Model, Adult Learner, Motivation

Chapter I

Introduction

Attention deficit hyperactive disorder (ADHD) remains one of the most common neurological- psychiatric disorders of childhood (Ahmann, Saviet & Tuttle, 2017; Brook & Boaz, 2010) with a prevalence rate of 5 - 10 % in children (Antshel, 2015; Barkley, 2006, Martin, 2013) Danielson et al. (2018) reported that 9.4% of children in the United States, to date, have been diagnosed with ADHD. In addition, there is a worldwide prevalence of 2.6 - 10 % (Ahmann, et al., 2017; Guilherme, et al., 2015). The disorder is more often diagnosed in boys than girls. The prevalence rate of diagnosis in boys is 12% and 4% for girls (Fuller-Thomson, Lewis & Agbeyaka, 2016). The onset of symptoms first present in early childhood and includes inattention, impulsivity and hyperactivity. These symptoms are believed to have a great impact on the child's cognitive, academic, and social functions. Children with ADHD often exhibit disorganized behaviors, are academically underachievers, and have a school dropout rate of up to 30% (Huang-Pollock & Karalunas, 2010; Morningstar, Trainor, Murray, 2015). Children who are diagnosed with ADHD are believed to have difficulty mastering basic academic skills (Huang-Pollock & Karalunas, 2010; Kuriyan, et al., 2014) specifically, presenting with decreased math and reading scores on standardized test and an increase in grade retention when compared to normally developing children without ADHD (Ahmann, et al., 2017; Loe & Feldman, 2007). In addition to the academic difficulties, adolescents with ADHD display negative emotional behaviors such as, difficulty with friendships, intense arguments with parents, and disciplinary problems (Sibley, Olson, Morley, Campez & Peham, 2016). Furthermore, adolescents have a higher prevalence of substance abuse, an increase

number of reported teen pregnancies, and a greater number of motor vehicular accidents (Ahmann, et al., 2017).

Historically, ADHD was believed to be a disorder only observed in children and adolescents, with most diagnoses occurring between the ages of 5 to 7 years (Adler, et al., 2009; APA, 2013; Barkley, 2006; Ladner, Schulenberg, Smith & Dunaway, 2011). Reasons for the diagnosis typically occur because the symptoms of the disorder interfered with the child's social relationships or academic progress. A diagnosis of ADHD is determined when the child displays characteristic symptoms of the disorder in more than one environment (Barkley, 2006). The most common environments where such behaviors are observed include the home, school and social functions. When symptoms of the disorder are observed, parents often seek guidance from a medical professional. Since ADHD is a known disorder in pediatrics and listed in the DSM V (2013) as a developmental disorder in children, the pediatric health care community is knowledgeable in its assessment and treatment.

It is estimated that 66% of the children diagnosed with ADHD continue into college and well into adulthood displaying symptoms of the disorder (Ahmann, et al., 2017; Adler, et al 2009; Ladner, et al., 2011). The prevalence of ADHD in the adult population in the United States is reported as 4.4% (Adler, et al 2009). Although the number of cases of adults with ADHD are increasing, the medical community is lacking in the recognition and treatment of the disorder in the adult population. When comparing diagnosis and treatment rates of adult ADHD to other mental health disorders diagnosed in adults, ADHD is under diagnosed and untreated (Adler et al. 2009; Kuriyan et al, 2013; Weisler & Goodman, 2008). ADHD when left untreated, can negatively influence an individual's educational success, interpersonal relationships, predispose the person to physical and emotion issues, trigger work related

difficulties and predispose them to increased risk of academic failures (Fuller-Thomson, et al., 2016; Morningstar, et al., 2015; Weisler & Goodman, 2008).

The symptoms of ADHD, specifically, inattentiveness and hyperactivity exacerbate learning difficulties (Barkley, 2006). Students with ADHD have difficulty sitting still and often are inattentive to the lesson being conducted in the classroom (Brand, Dunn, & Greb, 2002). A traditional classroom setting can be a challenging environment to learn for students with ADHD. A traditional classroom setting requires students to sit quietly in their seats and focus on the information being presented. Frequently, directions and instructions are given verbally. The verbal cues in conjunction with the lack of focus and restlessness adds another challenge to overcome in the traditional classroom for a student with ADHD. If students with ADHD, are provided an environment which supports their learning needs at the impairment level, learning can occur (Fowler, 1994). A variety of teaching strategies can be used within a classroom to facilitate learning in the ADHD student. These strategies include simulation, debates, lecture, flipping the classroom, presentations, role play, storytelling, demonstrations, and multimedia (Billings, Halstead, 2012). While these diverse teaching strategies are thought to assist learning, there is no evidence they will foster learning in adult student with ADHD.

The academic difficulties that students with ADHD present with are not related to intelligence or learning ability (Barkley 2006). The difficulty in academic performance is linked to the hyperactivity and impulsiveness associated with the disorder (Barkley, 2006). ADHD symptoms displayed, often negatively, impact the student's ability to focus and concentrate in a structured environment (Reaser, Prevatt, Petscher & Proctor, 2007). Adult students with ADHD may not have developed learning strategies in their early learning years

that can be transferred to their adult learning environment. Absent learning strategies may include: ineffective study habits, note taking, the ability to summarize material, test taking strategies, cultivate time management skills and fostering motivation to learn (Loe & Feldman, 2007). Adults with ADHD who are left untreated continue to have difficulty acquiring and utilizing diverse learning strategies that are necessary to maneuver through the academic setting so that they can be successful scholastically (Ladner et al, 2011). In order to assist adult students with ADHD within the classroom, it is essential to use a variety of teaching methodologies when presenting information (Dunn et al, 1994). However, at the present time, there is no evidence guiding faculty as to which strategies would be the best to utilize with the adult ADHD population.

Within the elementary and secondary education systems, programs are available to children with ADHD to assist them in developing effective learning strategies. The Individuals Disabilities Education Act of 1973 (IDEA) was developed to ensure children with disabilities have access to a free education and provide that education in the least restrictive environment possible. Prior to the IDEA, students with a disability were not guaranteed an education. If they were permitted to attend the public-school system, the students with disabilities would be expected to meet the same requirements of students without disabilities and they would not receive any special accommodation to help them meet the academic requirements (Conner, 2012). Since the enactment of IDEA, students with disabilities, and other impairments such as ADHD, can obtain accommodations to support their learning and assist them with developing techniques to be academically successful. Students with ADHD at the primary and secondary school level can receive accommodations that include the following: extra time on tests, study guides, small group instruction, a second teacher in the

classroom, and highlighting test instructions, or reading the test instructions verbally. The type of accommodations provided to the adult student with ADHD varies. The variation in accommodations is dependent on the professor's willingness to provide accommodations (Vance & Weyandt, 2008). Some professors are willing to accept alternative assignments or provide extra time on tests. Other faculty will offer the students a study guide or provide lecture notes. Some college professors feel the use of accommodations for college age students with ADHD is not appropriate (Vance & Weyandt, 2008). The inconsistent provision of accommodations available in the classroom, the lack of learning strategies developed in childhood in conjunction with an inability to focus, complicate the learning process for the adult students with ADHD and this can hinder their academic success.

Since adult students with ADHD are at risk for poor academic performance, it is important to find methods of instruction that can support their learning. It is unclear if there is a dominate method of instruction that will assist all adult students with ADHD. However, every individual is believed to have their own personal method of processing information called a preferred learning style (LS) (Dunn, Griggs, Olson, & Beasley,1995). This preferred LS is believed to foster learning and be a method in which all individuals concentrate, process, internalize and retain new information (Dunn et al., 1995). It is this unique individualized LS that facilitates the gaining of new knowledge and skills in the learner (Adesunloye, Aladesanmi, Henriques-Forsythe, Ivone, 2008). LS are further described as a method of cognitive behavior that allows the learner to process information and utilize it at a later time (Romanelli, Bird, Ryan 2009). Individual preferences for a specific LS can change over time, however, an individual usually maintains strong preferences (Dunn & Gregg, 1995). Understanding an individual's LS can have a positive impact on their academic

growth as well as impact the teaching process within the classroom (Dunn & Dunn, 1979). Dunn & Dunn (1979) further suggest when a teaching style and LS are congruent, students at all cognitive levels have more academic success. A mismatch between LS and teaching styles is believed to be a barrier to learning, and thus hinders learning (McCrow, Yevchak, & Lewis, 2014). Consequently, LS can be used to augment an individual's learning (Romanelli, et al., 2009). In order to facilitate learning in the adult student with ADHD, the identification of a preferred LS can be used to arrange favorable learning environments which addresses their needs and thereby fosters a student academic success.

The Problem

ADHD has always been believed to be a disorder seen only in children, but it is estimated that 66% of children with ADHD continue to be symptomatic when entering college and adulthood (Adler et al, 2009; Ladner et al, 2011 Ahmann, et al., 2017). Adults with ADHD who do not receive treatment have difficulty acquiring and utilizing academic strategies that are necessary to be successful scholastically (Fuller-Thomson, et al., 2016; Ladner et al, 2011). Frequently, adult students with ADHD have difficulty focusing, taking notes and managing their time in the academic setting. Higher education environments provide little training for professors to address the specific needs of college age students with ADHD and strategies that can be implemented to assist their learning journey (Weisler & Goodman, 2008, Nelson, 1990). In the literature, LS have been suggested to help an individual concentrate, process, internalize and retain new material (Dunn et al, 1995). LS can help facilitate the assimilation of new knowledge (Adesunloye et al, 2008; McCrow, et al., 2014) and understanding one's own personal LS can be used to augment an individual with ADHD learning environment (Romanelli et al, 2009)

Purpose of the Study

The purpose of the study is to explore the learning style preference of college age students with ADHD and the impact ADHD has on their study habits and academic success.

Research Questions

1. How do college age students with ADHD prefer to learn?

    Questions numbers 2 – 5 are Sub Research Question of questions 1

    2. How do college age students with ADHD prefer to study?

    3. How do college age students with ADHD prefer to be evaluated?

    4. What do college age students with ADHD believe has been the impact of having ADHD on their learning?

    5. What learning strategies does the college age student with ADHD utilize to facilitate learning?

6. What do college age students with ADHD believe has been the impact of having ADHD on their life?

Theoretical Framework

Attention-deficit/hyperactivity disorder (ADHD) is a neurological psychiatric brain disorder marked by an ongoing pattern of inattention, hyperactivity, and impulsivity (Antshel, 2015; Barkley, 2006). This disorder has been identified in children, adolescents, and adults. These characteristic symptoms are believed to have a significant impact on the individual's academic success. Adults with ADHD when left untreated will struggle to learn and have difficulty reaching academic success well into their adult life (Morningstar, et al., 2015). The

struggle of the adult learner with ADHD is not related to cognitive intellect but is believed to be a result of the manifestation of the disorder (Barkley, 2006)

Learning is a means of acquiring information, mastering the material, and organizing information so that it can be used in the future (Billings & Halstead, 2012**;** Knowles, Holton, Swanson, 2015, P. 11)**.** An adult learner is an individual who has moved through childhood and adolescents, is considered by society to be an adult, is responsible for their own learning, and most importantly has developed some self-concept and self-direction (Knowles, et al., 2015 p 43.) The adult learner is more self-driven, they assume more self-responsibility for their own learning and their learning is more problem centered and contextual. They have a burning desire to know why they are learning the material and how that material will assist them in obtaining their life long goals. For the adult learner, the motivation to learn is and internal force unlike children in which the motivation to learn is external (Knowles, 2015: Barkley, 2006). The adult learner utilizes past experiences as part of acquiring knowledge. Those previous experiences can be both positive and negative. Negative learning experiences can hinder future acquisition of knowledge. Having a previous negative experience in the academic setting can predispose the adult student with ADHD to further academic difficulty.

The adult learner who displays characteristic symptoms of ADHD are believed to be at a disadvantage as it pertains to learning. The academic difficulty seen in this population is not related to their intelligence level but more of an acquisition and processing of material (Alban-Metcalf, 2010). ADHD is believed to be the result of an underdeveloped prefrontal cortex (Alban-Metcalf, 2010; Elliott, 2003; Barkley, 2006). This is the area of the brain is also believed to be responsible for executive function (EF). EF is a complex multifaceted

process of cognitive integration (Elliott, 2003; Tarver, Daley, & Sayal, 2014). It is important to understand how ADHD affects the EF process, impairs cognitive automaticity in this population, and ultimately has a negative effect on academic success. The literature suggests EF is responsible for the academic deficits that are exhibited by youths with ADHD and responsible for the academic and occupational deficits in adults (Huang-Pollock & Karalunas, 2010). EF is a group of cognitive skills that are coordinated by the prefrontal cortex and stratum within the frontal lobe of the brain which is also the same area of the brain that is underdeveloped in individuals with ADHD. EF allows an individual to manage time, stay attentive to a task, and switch focus. Additionally, EF is utilized when planning and organizing tasks, remembering details, curbing or inhibit inappropriate behavior and assimilate past experience to present actions (Barkley, 2006, Alban-Metcalf, 2002; Elliott, 2003; Langberg et al, 2013). There are four components of EF that work together as a unit to control behavior, anticipate change and guide behavior for future orientation. These four components include nonverbal working memory, verbal working memory, emotional regulation and planning or generativity (Barkley, 2006). Symptoms of forgetfulness, poor time management, difficulty following conversations can be symptoms of an EF deficit. A deficit in EF can impact work and school performance, functional independence, as well as developing and maintaining social relationships (Bidwell, McClernon, & Kollins, 2011)

Knowing that both children and adults with ADHD have difficulty learning and processing information, it is imperative that educators identify teaching strategies to assist this population with learning. LS are cognitive behaviors that provide the learner with a unique process of retaining new information (Romanelli et al., 2009). LS are multidimensional constructs describing how an individual concentrate, processes information, internalizes and

retains information, and identifies which reading, writing, and mathematical strategies will be most important to the learner (Dunn 1995). All learners are believed to concentrate, process, internalize and retain information in different manner which is innate to them (Billings & Halstead, 2012; Knowles, et al., 2015; Dunn, et al., 1995). Understanding an individual's LS can have a positive impact on a learner and can facilitate the teaching process within the classroom (Dunn & Dunn, 1979). Matching an individual's LS with teaching strategies can foster the learning process and ultimately increase their success within the classroom setting. Presently, the empirical literature does not provide any insight as to a specific method of learning in the adult ADHD learner (Dunn et al., 1994)

The knowledge and understanding of LS can facilitate communication and dialogue within the teaching setting (Hauer, Straub, Wolf, 2005). The college classroom has a diverse population of students, each having different learning needs and past learning experiences. Knowing the LS of the students within the classroom can assist the educator to meet the needs of this diverse population (Hauer, Straub, Wolf, 2005). When the educator matches the teaching style to the students LS the classroom environment becomes a more effective learning experience (Hauer, Straub, Wolf, 2005; Romanelli, Bird, Ryan, 2009)

The Experiential Learning Model (ELM) developed by David Kolb (1984), describes the acquisition of new knowledge as a process of learning through experience. The model suggests an individual learns by their direct experience with their environments and the world around them (Koob & Funk, 2002). Knowledge is the result of grasping and transforming an experience. Kolb, (1984) describes grasping as the intake of information and transformation is how the individual learner interprets and acts upon that information. The ELM is a cyclical pattern which consist of four stages of learning and four LS. Kolb (1984) suggests in order for

learning to occur, the learner needs to move through all four stages of learning. Kolb further suggests that as an individual matures, and his/her ability to integrate all aspects of the model will improve.

The first stage of the learning cycle is concrete experimentation (CE), it is believed the learner will enter the model at this stage when they have encounter a new learning experience. This provides the foundation for the second stage which is reflection observation (RO). The second stage is where the learner reflects on the new experience they encountered in stage one. During this second stage the learner will look for inconsistencies and seek to understand what they have experienced. The third stage, abstract conceptualization (AC), the learner takes the new learning experience modifies it, and from this conceptualization a new idea is created. The final stage of the model is active experimentation (AE). The learner will utilize the new ideas generated in the previous stage and apply it to new situations to identify new material as it emerges (McLeod, 2017).

The ELM includes four LS to further describe how the learner processes information. Kolb (1984) suggests each individual has their own preferred LS and are influenced by the environment, previous education experience and cognitive ability. The four LS' discussed in Kolb's ELM include: diverging, assimilation, converging, and accommodating. Each LS is representative of two stages of the learning cycle. Diverging encompasses CE/RO and it is suggested these individuals look at learning from a different perspective from the rest of the world. Individuals with a diverging LS are believed to learn by feeling and watching. They prefer to observe rather than act. These individuals are better at brainstorming and generating ideas. They work in groups and are open minded to personal feedback (Kolb, 1984; Romanelli et al., 2009; Katz & Heimann, 1991).

Assimilation encompasses AC/RO and individuals with this LS have a preference for logic and concepts are more important than the human aspect of learning. Individuals with an assimilation LS are believed to learn by watching and thinking. These individuals need clear explanations are more focused on ideas and seem to focus more on science. The have a preference for reading, lectures, and exploring analytical models (Kolb, 1984; Romanelli et al. 2009; Katz & Heimann, 1991).

Converging is the third type of learning styles in Kolb's ELM and it encompasses AC/AE. Individuals with a converging LS are believed to learn by doing and thinking. These individuals are believed to be problem solvers and will use their knowledge to identifying a solution. They prefer technical tasks and are less concerned with people. They excel at identifying practical usage of a situation. Individuals with this learning style are more drawn to technical tasks. They experiment with new ideas and focus on practical applications (Kolb, 1984; Romanelli et al., 2009; Katz & Heimann, 1991).

The last learning style in Kolb's model is accommodating which includes CE/AE learning stages. Individuals with an accommodating LS are believed to learn by doing and feeling. These individuals are believed to be hands on learners and rely on intuition rather than logic. They rely on others to provide them with information and work in teams. They find new challenges and experiences attractive. This LS is dominant within the general population.

Since this research seeks to explore LS preferences of college age students with ADHD and the impact ADHD has on their study habits and academic success, in order to further understand the essence of the experience, the ELM (Kolb, 1984) was chosen to guide this research. However, while children and adults with ADHD exhibit similar learning issues

due to their impairment, adult and children lean differently. Malcolm Knowles (2015) Adult Learning Theory describes the difference between the child and adult learner. Therefore, adult learning theory along with the ELM will be used to guide this study

Chapter II

Review of the Literature

Historical Evolution of ADHD

ADHD was first identified in the beginning of the 19th century as a disorder in children who were depicted as inattentive, hyperactive, and impulsive and who displayed an increase in motor activity (Ahmann et al., 2017; Barkley, 2006; Lange, Reich, Lange, Tucha, & Tucha, 2010). Prior to the 1970s there was little research conducted on the disorder and it was not well understood, and as a result, diagnosis and treatments were not successful (Lange et al, 2010). In the early 20th century, the symptoms of inattentiveness and impulsivity were identified in children who were post encephalitis survivors. The symptoms while not attributed to ADHD are believed to have prompted the scientific community's interest in the disorder (Lange et al, 2010). It was during this time other beliefs as to the cause of ADHD began to develop. These causes included nervous disorders, discipline issues resulting from poor parental guidance, and hyperkinetic impulse syndrome. Hyperkinetic impulse syndrome was believed to be a deficit in the central nervous system in the thalamic region of the brain allows excessive stimuli to reach the brain (Barkley, 2006). The theory of ADHD being a result of brain damage was initially developed in the early to middle of the 20th century and this theory was still believed until the 1980's and as a result, children with ADHD were labeled as having brain damage or minimal brain dysfunction. Since that time the diagnosis criteria, terminology explaining the disorder and the causes of the disorder have evolved (Lange et al, 2010; Barkley, 2006). It was during the 1970's the medication Methylphenidate, a central nervous system stimulant was administered as a treatment for the disorder. The medication was found to have success in decreasing the symptoms of inattentiveness and lack

of focus. However, this was not the only treatment that was initiated for ADHD. It was during the 1970's children with ADHD were placed into specialized education programs, provided behavior modification techniques, given dietary supplements and their parents were educated in programs to foster behavior changes. In 1975 the Disabilities Act was passes and provided education programs for children with a physical, learning or and behavioral disabilities (Barkley, 2006). Prior to this time, children with special educational needs were not guaranteed a public education.

While changes were noted in how ADHD is diagnosed and treated, there were other changes noted by the scientific community. The disorder is no longer considered a disorder only seen in children. While it is predominantly diagnosed in childhood, more research is suggesting the disorder is chronic in nature and can persist into adolescents and adulthood (Birchwood & Daley, 2010; Fuller-Thomson et al., 2016). In addition, the underlying etiology of the disorder is also evolving. It has been suggested that ADHD is caused by the lack of development of the prefrontal cortex and other areas of the brain such as the stratum (Alban-Metcalfe, 2002). However, new research suggests that ADHD is a symptom that develops as a result of a deficit in executive function (Barkley, 2006; Bidwell et al, 2011; Martin 2013) Executive function is a complex process used to describe the cognitive thought process that involves problem solving, the ability to modify behavior, and generate strategies or sequences (Elliott, 2003). Studies that have examined the brain of individuals with ADHD via a Magnet Resonance Image (MRI) suggest that the areas of the brain that are affected are those areas that control executive function (Bidwell et al., 2011; Alban-Metcalfe, 2002).

Diagnosis of ADHD

Diagnosis of ADHD is primarily determined by the symptoms or characteristic behavior displayed by the individual. The American Psychological Association's (APA) publication of Diagnostic and Statistical Manuel of Disorders (DSM) is used in the Mental Health field to assist healthcare personnel in the diagnosis, management and treatment of mental disease (Barkley, 2006). The first version of the DSM was published in 1933 and the most recent version DSM-V was published in 2013. In 2000 the APA published the DSM-IV-TR and within this manual there are specific criteria that are utilized by health care practitioners in the diagnosis of ADHD. It is important to note there have been changes made in the DSM-V (2013) from the DSM-IV-TR (2000) to reflect the evolution of the disorder, specifically the disease is no longer limited to childhood. However, many of the tools used to assess and diagnosis ADHD are based on the DSM-IV-TR criteria with established reliability and validity. Both the DSM-IV-TR and the DSM-V lists 18 core symptoms or criteria that are consistent characteristics of ADHD. According to the DSM-IV-TR (2000) ADHD symptoms include hyperactivity, inattentiveness, and impulsiveness. Inattentiveness is described as an individual who makes careless mistakes with schoolwork and other activities. These individuals cannot stay on task or sustain a task, and they are often perceived by others as to not be paying attention or not listening when in a conversation. They have difficulty with organization and are easily distracted by extraneous stimuli. Hyperactivity is described as an individual who fidgets or squirms in their seat and often leaves their seat at an inappropriate time or more often than other individuals within the same setting. These individuals who display hyperactivity run and climb excessively or do so at an inappropriate time. Often individuals with ADHD show signs of impulsivity. Individuals who display this symptom are

described by the DSM-IV-TR (2000) as those that blurt out answers in a classroom situation or those who do not raise their hand and wait to be called upon. Individuals with ADHD who are impulsive have difficulty waiting their turn and can often intrude into a situation or conversation that does not warrant their attention. The DSM-V utilizes the same criteria to assess ADHD but have added exemplifiers to reflect all developmental stages within the lifespan (DSM -V, 2013)

In addition to the above mentioned core symptoms of ADHD and characteristic behavior, the DSM-IV-TR, (2000) states the disorder must impact the individual's activities of daily living for a period of greater than six months. Furthermore, the characteristic symptoms must be present in two different settings and symptoms need to be identified prior to seven years of age. The age criteria have changed in the DSM-V and now the symptoms need to be present prior to the age of 12 (Ahmann et al, 2017; DSM-V, 2013).

Since the publication of the DSM-IV-TR, (2000) evidence supporting subgroups differentiating types of ADHD have emerged, and it is now suggested there are three subtypes of ADHD. The first is predominantly inattentive in which the individual displays more qualities of poor attention. The second subtype is hyperactivity/impulsivity in which this individual will display less impulse control and be more hyperactive. The last and final subtype of ADHD is a combination of all three major characteristics (Ladner et al, 2011).

With the publication of the DSM-V, the subtype grouping is more simplistic to identify and the HCP is referred back to the initial assessment criteria for inattentive and hyperactive/impulsive (DSM-V, 2013)

Instruments Utilized in Diagnosis of ADHD in Children

Identification of ADHD whether in a child or an adult can be a difficult task. To assist the HCP in diagnosis and treatment of ADHD, a reliable and valid tool/rating scale is necessary (Barkley, 1998). At the present time there are many tools that have been developed to identify ADHD. Some tools have been developed for use in children and others are for use in adults. There are 3 different types of rating scales used in the identification of ADHD. These 3 tools are self-reporting scales, significant other/observant reporting scale and clinician administered rating scale. The self-reporting scales are to be completed by the individual with the symptoms of ADHD. The observing scales are often used in pediatrics and are completed by the parents and/or the teachers. The clinician reporting scales are completed by the HCP as part of the initial interview. Barkley (1998) states there are 3 main objectives of a tool or rating scale used to assess ADHD. An effective tool should identify symptoms, help develop a plan of care for ADHD and determine if the individual is exhibiting symptoms of a comorbidity of ADHD.

The first tool that can be utilized in assessment of ADHD in children is the ADD-H Comprehensive Teachers Rating Scale (ACTeRS) was developed by Ullman, Sleator and Sprague in 2000. The scale consists of a school and a home version. It was developed for use in children grades kindergarten through 8th grade. The school version is to be completed by a teacher who has contact with the child and consists of 25 items. The home version of the tool should reflect behavior seen in the home and be completed by a parent or guardian. The tool consists of 25 items as well and is based on a 5 point Likert Scale. All items on the tool must be completed and entered into the cumulative score. The tool completion takes approximately 5 - 10 minutes. This tool is a behavior observation tool and is designed to identify behavior

based on the frequency of the behavior being exhibited by the child. Constructs that are identifiers within this tool are a child's attention level, hyperactivity, social skills and oppositional behavior (Demaray, Elting, & Schaefer, 2003)

Psychometric properties of the ACTeRS both home version and school version are reported. Internal consistency for both versions is documented (Demaray et al, 2003). The scores for the home version range between .78 - .96 and the school version are reported as .92- .97. Reliability conducted using the test retest method is reported for both versions with a correlation coefficient of .78- .82. There is documented interrater reliability for the school version of the tool with a score of .51-.73. Content validity is reported for both the school and home version. The tool items are reported to have been developed from a literature review and consultations with experts (Demaray et al, 2003).

The second tool that can be utilized in assessment of ADHD in children is the ADHD Rating scale IV (ARS-IV) was developed by Dupal, Power, Anastopoulos and Reid in 1998. This tool also consists of a home and school version and is to be used in children between the ages of 5 and 18. The tool was developed in accordance to the DSM-IV (1994) criteria. It contains two subscales which represent inattention and hyperactivity/impulsivity. The tool consists of 18 questions on a 4 point Likert Scale. Only behaviors of ADHD that are observed are incorporated in the scoring and if a behavior is not observed then the item is not part of the score. It is estimated the tool take approximately 5 minutes to complete (Demaray et al, 2003).

The school and home version of this tool have documented reliability and validity. The Sample size for the reliability was large with over 2000 children participating in the research. Internal consistency for the home version is between .88-.96 and the school version

is .88- .92. Test retest reliability for the teacher version is .88-.90 and the parent scale is .78-.85. Interrater agreement is reported for the scales as .40-.45. For content validity, the researchers compared the tools to the DSM-IV criteria for ADHD. Convergent and divergent validity was established when comparing the ARS-IV with the Conner's Parent and Teacher Rating Scale (Demaray et al, 2003).

The third tool that can be utilized in assessment of ADHD in children is the Conner's Rating Scale Revised (CRS-R) 1997 was initially developed by Keith Conner's in the 1970's and revised. The tool has three components which include a parent response, teacher response and a self-reporting adolescent scale. Each of these scales has a short and a long version. The parents and teacher versions of the tools were designed to be utilized on children between the ages of 3 - 17. The adolescent self-reporting scale is for children 12 - 17 years of age. The long version of the parent and teacher rating scale has 59-80 items each and the short version is 27-28 items each. All of the scales are based on a 4 point Likert scale. The long versions of the tools take approximately 15 - 20 minutes to complete and the short versions can be completed in 5 -10 minutes (Demaray et al, 2003).

The CRS-R is designed to measure the constructs of ADHD and the constructs are directly related to the DSM-IV criteria. Some of the subscales within the tool are helpful in the assessment of conduct, cognitive, and emotional problems which can be comorbidities associated with ADHD. The CRS-R is considered to be a comprehensive tool and user friendly. (Demaray et al, 2003).

The CRS-R utilized large samples of children and adolescents when establishing reliability and validity of the tools. Internal consistency for both short and long versions in both teacher and parents' scales have a coefficient range from .73 - .96. Test retest reliability

with a 6-8-week period between testing for the long version has a range of .47-.88 and the short version had a range of .62-.92. Content validity was established from the items on the scales being based on the DSM-IV criteria for ADHD. Convergent and Divergent validity was established by correlating the tools both short and long version to the Continuous Performance Test (Conner, 1995)

The final tool that can be utilized in assessment of ADHD in children is the Vanderbilt ADHD Diagnostic Rating Scale (VADRS) is comprised of two components a parent and teacher component. The parent version of the tool is referred to as the Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS) and the teacher's version of the tool is referred to as the Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS). Both components provide HCP with a uniform method of collecting information in two different settings which is a requirement criterion for diagnosis of ADHD as per the DSM-IV-TR (2000). Furthermore, the tool is easy to use and the constructs of the tool are reflective of the 18 core criteria of ADHD symptoms set forth by the DSM-IV-TR (2000) In addition, the tool has items that can assess for oppositional defiance disorder, conduct disorder, as well as anxiety and depression. The tool also includes items addressing school performance, parental relationship with the child, and peer relationships.

Psychometric properties have been established for both the teacher and parent versions of the Vanderbilt rating scale. Both scales have established construct validity utilizing an exploratory factor analysis (Bard et al, 2013; Wolraich et al, 2013). Internal consistency for the parents' scales yielded an alpha level of .91-.94 and KR20 of .88-.91. Test retest in this scale is reported and a .80 Kappa coefficient. To establish concurrent validity, the VADPRS was compared to the DISC-IV-P. The teacher scale has internal consistency

reported an alpha level of .91-.94 and KR20 of .85-.93. Convergent validity was assessed utilizing the Strengths and Difficulties Questionnaire (Bard, Wolraich, Neas, Doffing & Beck, 2013)

Instruments Utilized in Diagnosis of ADHD in Adults

The scientific community now recognizes that ADHD is no longer a childhood disorder. However, the ACTeRS, ARS-IV, VADPRS, VADTRS and CRS-R are all tools based on the DSM-IV-TR (2000) criteria with establish reliability and validity in the child and adolescent population. Many of the adults presenting to HCP with symptoms of ADHD were not diagnosed as a child and therefore, do not meet the DSM-IV-TR criteria (Alban-Metcalfe, 2002) and therefore, the tools utilized to diagnosis ADHD are not reliable and valid in this population. Furthermore, Adler et al, (2009) studied HCP competency in diagnosis and treatment of ADHD in adults and found they were more likely to refer this group of patients to specialist due to their lack of familiarity of the disorder and comfort in treating the disorder. In addition, the HCP who participated in the studies found the tools available to assess for ADHD in adults less reliable. It is therefore important to identify appropriate tools/instruments that can be utilized in the adult population.

Since ADHD was historically believed to be a childhood disorder identification of ADHD in adults may be difficult in adults because their symptoms may be nonspecific and they may exhibit comorbities that detract from the actual symptoms of ADHD. The tools that can be used in children were not meant to be used in adults and utilization of these tools to obtain information from an adult would require that individual to recall symptoms when they were younger predisposing the information to bias or error. Many of the tools used in children are to be completed by parents or teacher which again may not be an acceptable

option (Weisler & Goodman, 2008). Diagnosis of adults can be more problematic with the need to interview parents, coworkers, obtain old test scores from school and requiring those being interviewed to recall symptoms that they have lived with all their life (Weisler & Goodman, 2008)

It is important to accurately assess ADHD in the adolescent and adult population to decrease the long lasting impact the disorder. Since the disorder is complex and multifaceted, the collection of data to accurately make a diagnosis can be cumbersome. With the increase need to assess and accurately diagnosis ADHD in adults, there has been an increase in the number of tools developed for the adult population. In order for the tool to be useful to the HCP, it needs to be able to analyze both symptoms of the present as well as those from the past and the HCP needs to be able to identify present impairments as a result of the disorder. Symptoms and history often need to be obtained from additional sources such as family coworkers and old school records. Not all adult diagnosed with ADHD have traditional symptoms and symptoms can vary from person to person based on gender, and age (Fuller-Thomson, Lewis, Agbeyaka, 2016), necessitating the development of a screening tool for ADHD in the adult population that is reliable and valid (Adler and Cohen, 2003). Within the last several years there have been several tools/rating scales designed for the adults with ADHD.

The first tool to assess ADHD in the adult population is the Adult Self Reporting Scale (ASRS) was first published in 2006 and developed by Adler, Spencer, Faraone, Kessler, Biederman and Secnik (Adler & Cohen, 2003; Taylor, Deb, Unwin, 2011). The ASRS consist of 18 items in a 5 point Likert scale format. The purpose of the tool is to assess for ADHD

and assist with identification of the symptoms and impairment. The constructs identified within the tool are based on DSM-IV ADHD criteria (2000).

Kessler, Adler, Gruber, Sasawate, Spencer, and Van Brunt (2007) reports internal consistency reliability for the ASRS scale to have a correlation of 63-72 and also reports a Pearson correlation for test retest reliability range .58-.77. Adler et al (2006) reports an internal consistency Cronbach's alpha for 18 item scale as .88 for the parents' scale and .89 for the self-reporting scale. Intra class correlation coefficient was reported between the scales to be .84 (Kessler et al., 2007; Adler et al. 2006)

The second tool to assess ADHD in the adult population is the Wender Utah Rating Scale (WURS) was developed in 1993 by Ward et al. This is a self-reporting retrospective tool that has both a short and long version. The long version is a 61 item tool and the short version consists of 25 questions; both versions are based on a 5 point Likert scale. Both versions of the tool incorporate previous childhood symptoms as well as current symptoms. Each version of the tool consists of 7 categories that include attention difficulties, hyperactivity, temperament, affective liability, emotional overreaction, and impulsiveness based on the DSM-IV criteria (Taylor et al 2011)

Psychometric properties are reported in the literature for the WURS. The scale developers utilized a factor analysis and it was reported a 71% variance within the tool. Internal consistency in the male population was reported with a Cronbach alpha of .72-.81. Internal consistency in the female population was reported as a .69-.89 value (Stein et al., 1995).

The third tool to assess ADHD in the adult population is the Conner's Adult ADHD Rating Scale (CAARS) is a self-reporting tool used to sees an individual's current symptoms.

It was devised in 1990 by Erhardt et al. Currently, there are two versions of the tool, the observers' version and the patient's version. Each version has 30 items utilizing a 4 point Likert scale. The scale was designed to represent all 18 ADHD criteria from the DSM-IV (Adler & Cohen, 2003). In addition to the self-reporting scale, there is a diagnostic scale to be used by HCP. This tool utilizes the ADHD criteria from DSM -IV but also addresses childhood academic history, temperament, childhood development, adult education and occupation history (Adler & Cohen, 2003)

This scale is reported to be reliable and valid with well documented psychometric properties. Internal consistency in both a male and female populations has a reported coefficient of .86-.92. To establish concurrent validity, participants completed the WURs scales simultaneous and a Pearson correlation suggests a strong relationship. Criterion validity was established since the tool was developed according to the criteria set forth in the DSM IV criteria. Lastly test retest reliability was determined using a Pearson product and correlations range from .80 to .91 (Erhardt, Epstein, Conner, Parker, and Sitarenios, 1999)

Lastly, the Barkley Current Symptom Scale Self-Reporting (BCSS) was developed by Barkley and Murphy, (1996). It was devised to represent the 18 ADHD criteria from the DSM-IV and is based on a 4 point Likert scale. In addition to the symptoms of ADHD the tool asks if there are symptoms that impact the individual's life, and if there are their academic issues or relationship issues at home or work.

Ladner Schulenburg Smith and Dunaway (2011) studied the BCSS and report reliability and validity of the tool. The BCSS was compared to the CAARS and the A-ADDES both are scales with documents reliability and validity in intensifying ADHD. When

comparing the BCSS to these scales utilizing a Cronbach alpha the inattention correlation was .88, hyperactivity and impulsivity was .82 and the overall correlation was .91.

Social and Academic Issues with ADHD

The development of tools/rating scales can help the HCP diagnosis and treat ADHD, furthermore, the instruments can determine if the treatment being utilized is effective in reducing symptoms. This identification is an important component of treatment because it is well established in the literature that untreated ADHD in children, adolescents, and adults can impact academic success, social and emotional relationships and lead to risk behavior, poor self-esteem, self-worth (Weisler and Goodman, 2008). Reaser et al. (2007), further suggest ADHD is believed to negatively impact many aspects of an individual's daily life, home and work environment, and interpersonal relationships. Weisler and Goodman, (2008) discuss the risk behavior that is associated with ADHD. This behavior includes poor driving skills, revocation of license, an increase in the number of speeding tickets, and motor vehicles accidents. In addition, there is an increase in use of alcohol and tobacco. It is suggested adults with ADHD have an increased risk of death by suicides, lower education attainment, decreases in career attainments, they display more antisocial behavior and are found to have a higher percentage of criminal activity (Ahmann, et al., 2017; Kuriyan 2013) Individuals with ADHD who also present with the comorbidity such as Oppositional Defiance Disorder (ODD) have a higher incidence of incarceration. ADHD is more often diagnosed in males than females, but it is suggested that women are often diagnosed later in life due to less hyperactivity behavior and blame themselves for their symptoms and exhibit lower self-esteem and depression. Young (2005) suggests both children and adults with ADHD may have a decrease in their ability to cope with stressed events resulting from their

inattentiveness and impulsivity. This can lead to maladaptive coping strategies specifically avoidance, confrontation, and procrastination. Women with ADHD are at risk for depression, anxiety, they display more self-harm behaviors, and have and increase in suicide attempts. Women with a diagnosis of ADHD are at a greater risk of living in a lower socioeconomic bracket than their non ADHD counterparts (Fuller- Thomson et al., 2016). While all of these issues with ADHD are important, the academic issues that begin to develop early in the school age years and continue through adulthood can negatively impact the individual's job opportunities and earning potential (Advokat, 2010; Kuriyan et al, 2013). As children with ADHD grow into adulthood they can continue to be symptomatic however, the symptoms of ADHD change and the hyperactivity that was once a prevalent symptom may become less visible (Garg and Arun 2013). The academic skills that children learn early in life are a foundation for future academic success. The symptoms displayed in children with ADHD are believed to have a great impact on the academic learning and processing (Barkley, 2006; Loe & Feldman, 2007). When children with ADHD are compared with peers who have not been diagnosed with ADHD, the children with ADHD have significantly lower school grades, lower achievement on standardized tests, higher rates of grade retention, and higher dropout rates (Barkley 2006, Loe & Feldman, 2007; Morningstar et al., 2015). Birchwood and Daley (2012) examined the adolescent population within the community diagnosed with ADHD and found these individuals had a great propensity for academic difficulty. Adults who were diagnosed with ADHD as children had lower levels of education, an increase in disciplinary problems and their academic issues were a significant predictor of poor occupational outcomes (Kuriyan et al, 2013). The symptoms of ADHD are believed to have a great impact on the child's cognitive, academic, and social functions. Children with ADHD are believed to

be more disorganized, be academic underachievers, and have difficulty mastering basic academic skills (Huang-Pollock & Karalunas, 2010). This difficulty in developing academics skills continues throughout their school years and result in students with ADHD being more likely to receive special education services to assist with academic progress (Morningstar et al., 2015; Birchwood & Daley, 2010; Brook & Boaz, 2010). Nelson, Dodd and Smith (1990) state the number of students with learning disabilities in the school systems are increasing and these students are requiring more accommodations at all levels of the education process. Fabiano et al (2010) students with ADHD are more likely to receive special education services and the special education accommodations they are receiving may be ineffective or not meet the needs of the students. The number of college age students seeking academic accommodations for in classroom support has been increasing (Vance & Weyandt, 2008). While accommodations for students with ADHD are important, there is limited scientific evidence suggesting accommodations will significantly improve academic success (Ladner et al. 2011). Furthermore, college students with documentation of ADHD may not be given academic provisions granted to students with learning disabilities by the faculty. Even with the identification of a learning disability or diagnosis of ADHD, not all college faculty members are willing to provide students with alternate assignments, faculty lecture notes, or extra credit assignments (Nelson et al. 1990).

Stimulant Medication Treatment and Its Effect on Academic Success

While many students with ADHD receive special educational services in primary and secondary schools to assist with academic learning, the primary treatment of the disorder is pharmacological therapy. Stimulant medication has now become the frontline treatment for the disorder in both children and adults because of its significant impact in the reduction of

inattention, impulsivity, and hyperactivity (Biederman, et al, 2006; Biederman et al., 2011; Fabiano et al., 2010; Mick, McManus & Goldberg, 2013 Van der Oord, et al, 2008). Stimulant medication is believed to assist children in increasing their attention, taking notes, and completing homework, and thus assist them in staying on task. Stimulant medication has also been found to increase the manageability of the child within the classroom setting (Advokat, 2010**).** Langberg and Becker, (2012) examined long term stimulant medication use in children and its effect on symptoms of ADHD. The research results suggest there was an improvement in standardized test scores but the magnitude of improvement was small. Furthermore, they did not see improvements in school course grades or a change in the end of school year retention rates. Thus the significance of stimulant medication for cognitive assistance is questionable. Van der Oord, et al, (2008) examined the efficacy of stimulant medication in children and found the medication were effective in treating the symptoms but there was not improvement in academic function

Similar findings of stimulant medication therapy for the treatment of ADHD have been suggested in the adult population as well. The medication is considered to be a first line treatment of the disorder in adults. Biederman et al (2011) examined the use if stimulant medication in adults with ADHD and found the medication did improve their overall symptoms of ADHD, but there was no increase in their working memory or executive function. Bidwell, McCleron, Kollins, (2011) suggest similar results with the stimulant medication being effective with an increasing focus and attention. Surman, Hammerness, Pion, & Faraone, (2013) suggests stimulant medication is a priority treatment of adults with ADHD and this treatment has been associated with improvements of impairments and the participants reported an overall increase in role function improvement. However, the

improvements within this study were not specific and did not address academic success. Advokat (2010) found adults with ADHD who utilized stimulant medication did not facilitate the acquisition of new knowledge but there was improvement in attention and focus. At the present time while the leading treatment for ADHD in adults is stimulant medication there is no clear evidence that the medication will correct the academic issues associated with the disorder and the literature does not support its use for enhancing academic learning (Advocate, 2010; Bidwell et al, 2011). Furthermore, there is little evidence supporting the use of pharmacological therapy as an intervention to promote learning, enhance academic achievement or improve the ability to read. It has been suggested an individual's ability to learn and apply knowledge is not enhanced by the stimulant medication, but the medication works on the symptoms which are at the impairment level i.e. hyperactivity and inattentiveness (Advokat, 2010) In an attempt to assist adult students with ADHD academically, it is important to find alternative methods to help them. There is a need for further research to determine other methods of treatment that can be utilized in conjunction with stimulant medication to have a positive effect on academic success. It is important to understand how the disorder affects the academic progress of the individual and impacts their learning.

While there is no evidence supporting the use of stimulant medication to facilitate learning in the adult with ADHD, the use of this medication in the adult population may have unwanted side effects. Simulant medication works on the central nervous system and increases an individual's heart rate and blood pressure. Mick et al, (2013) found adults with ADHD are at a greater risk for development of cardiovascular side effects and adverse cardiac events. The long term use of the medication can have an overall increase in heart rate and

systolic blood pressure. This places the adult ADHD patient at a higher risk for cardiovascular disease and the medication may not effectively treat the cognitive impairment.

ADHD and Executive Function

ADHD is believed to be the result of an underdeveloped prefrontal cortex (Alban-Metcalf, 2010; Elliott, 2003; Barkley, 2006). This is the area of the brain is also believed to be responsible for executive function (EF). EF is a complex multifaceted process of cognitive integration (Elliott, 2003; Tarver et al., 2014). It is important to understand how ADHD affects the EF process and ultimately impairs cognitive automaticity in this population and ultimately has a negative effect academic success. The literature suggests EF is responsible for the academic deficits that are exhibited by youths with ADHD and responsible for the academic and occupational deficits in adults (Huang-Pollock & Karalunas, 2010).

Executive function is a group of cognitive skills that are coordinated by the prefrontal cortex and stratum within the frontal lobe of the brain which is also the same area of the brain that is underdeveloped in individuals with ADHD. EF allows an individual to manage time, stay attentive to a task, and switch focus. Additionally, EF is utilized when planning and organizing tasks, remembering details, curbing or inhibit inappropriate behavior and assimilate past experience to present actions (Barkley, 2006, Alban-Metcalf, 2002; Elliott, 2003; Langberg et al, 2013). There are four components of EF that work together as a unit to control behavior, anticipate change and guide behavior for future orientation. These four components include nonverbal working memory, verbal working memory, emotional regulation and planning or generativity (Barkley, 2006). It has been suggested that decreases in EF can have an impact on work and school performance, functional independence, as well as developing and maintaining social relationships (Bidwell et al., 2011)

Langberg et al (2013) suggests that a decrease in EF is responsible for students with ADHD inability to follow through with tasks, poor organization and misplace necessary items. Interestingly, stimulant medication which is considered the first line treatment for ADHD is believed to have no effect or improvement of EF. Lambek, et al (2010) compared the EF of children diagnosed with ADHD to children without ADHD and found there was a significant impairment in the EF of children with ADHD. Biederman et al (2011) studied the use of stimulant medication in adults with ADHD to determine if the medication had an effect on EF. The results implied EF in adults with ADHD was not enhanced or improved by the stimulant medication. Adults with ADHD were found to continue to have difficulty with working memory, planning and organization, task monitoring and overall organizations skills despite the decrease in reported ADHD symptoms. Huang-Pollock & Karalunas, (2010) assessed the working memory capacity in both children with and without ADHD. Their findings support that children with ADHD have difficulty developing automaticity when learning new academic skills in comparison to the children without ADHD.

Intervention to Assist with Academic Success and ADHD

With the overwhelming scientific evidence suggesting individuals with ADHD will not reach their academic potential even with the use of stimulant medication (Adler, et al 2009; Loe & Feldman, 2007; Ahmann et al, 2017) it is imperative the scientific community find alternative means to promote learning in this population. The learning difficulties displayed by children and adults with ADHD are now theorized to be a result of an EF impairment. Much of the behavior demonstrated by individuals with ADHD such as avoidance, lack of motivation, inability to focus disorganization and the inability to stay on task can call be related to impairment in EF. It is important to identify learning techniques

that can be used to assist individual with ADHD to be academically (Alban-Metcalfe, 2002). In recent years the literature has discussed and emphasized intrinsic and extrinsic motivational factors influencing the academic performance of children with ADHD. The literature suggests there is an association between ADHD and sustaining motivation when completing tedious tasks. A decrease in motivation for schoolwork can result in avoidance of the task (Carlson, Booth, Shin, & Canu, 2002). Young (2005) examined the coping styles of adults with ADHD. Upon completion of the study, it was indicated the adults with ADHD when confronted with a difficult situation became aggressive and can exhibit avoidance behavior. In addition, these individuals may have difficulty with problem solving ultimately preventing them from developing a plan of action. The problem solving difficulty in these adults can be linked to an EF deficit. Martin (2013) suggests the use of a personal best goal oriented program for students with ADHD. The personal best goal can help foster motivation and personal success in an academic setting. While the research in these areas are promising to provide potential support for the ADHD learner, there needs to be more empirical evidence in this area. Ahmann (2017) suggests the use of behavior intervenes in conjunction with medicinal support. Specifically, Ahmann (2017) discusses the use of "ADHD coaching" as a method of behavior management. ADHD coaching is a form of behavior therapy that empowers the individual with ADHD to manage their symptoms. This coaching included understanding the disorder, focusing on the individual's strengths and enhancing them while trying to decrease the weakness with executive function. This behavioral modification has promising support in the empirical literature.

Conner (2012) suggest students take advantage of the college's student services, specifically the disabilities office and request accommodations. In addition, students with

ADHD need to be aware of their own strengths and weaknesses. They need to develop skills such as time managements, assignment preparation, seeking out an environment that is quiet and free of distractions. Without these types of skills, only 28% of students with ADHD will graduate from college

An area of learning that is well researched and suggested to foster learning is the use of LS within the academic setting. Each individual is believed to have one's own method of processing information resulting in a preferred learning style and therefore, fostering learning. Learning styles (LS) are believed to be a method in which all individuals concentrate, process, internalize and retain new information (Dunn et al, 1994).

Adult Learning Theory

"Learning is a process of understanding, clarifying, and applying meaning of the knowledge that is acquired. Learning is an exploration, discovery, refinement, and extension and what this new information means to the learner (Billings and Halstead, 2012, p. 203)". An individual is said to have learned when there is evidence of new behavior after the acquisitions of new information (Billings and Halstead, 2012). How new knowledge is acquired, modified and utilized in adults and children are very different processes. In the 1950s Malcolm Knowles began devising a theory to explain adult learn and how the leaning process of the adults differs from the learning process of children, (Brady, 2013).

Prior to Knowles' work on "The Adult Learner", most studies focused on the learning process of children. Pedagogy is the science of teaching children (Knowles, Holton, & Swanson, 2015, p 41). The pedagogy model is based on the principle that the learning process in children is the responsibility of the educators. In children, the material learned and how it is presented to the learner is based upon the preference of the educator. The five

concepts of pedagogy model include: lack of independent direction, limited learning experience, limited orientation to learning, no independent readiness to learn and the need for an external motivation source (Brady, 2013; Knowles, Holton, & Swanson, 2015).

In contrast Knowles' theory "The Adult Learner" provides an explanation of the learning process in the adult. Andragogy is the term used to describe the science of teaching adults. There are multiple definitions describing what is considered to be an adult. An adult is described an individual who has reached the age of physiological maturity and their body can reproduce. Society views an individual as an adult when they can obtain a driver's license, vote, and marry without permission of a parent or guardian. An adult is described as an individual who fulfills roles in society that are considered roles of a matured individual. These roles include: full time employment, marriage, parenting, and owning property. Lastly, an adult is an individual who has developed their own self-concept, they are responsible for their own person, and they have the ability to self-direct themselves (Knowles, Holton, & Swanson, 2015).

Knowles' "The Adult Learning" theory consists of five assumptions to describe the adult learning process. The fist assumption is self-concept which explains the learner's ability to be responsible for their own decisions. Self-concept develops when the learner matures, moving away from being dependent on others to becoming independent and self-reliant. Having a developed self-concept provides the adult with the ability to self-direct themselves and make their own decisions. The second assumption is experience and this assumption addresses the learner ability to use previous experiences in life to assist with their learning. As individuals mature they encounter many experiences both in and out of the academic arena. These diverse experiences can be used to enhance their learning. The adult learner can

draw from past experiences to help them gain new experiences and knowledge. The next assumption is readiness to learn. As an individual move from childhood to adulthood they begin to see education as a value, learning can assist them in coping effectively with events of their daily life. Often times there is a change in the learner's life, a trigger, which allows the learner to be read for a new learning experience. They see the advancement of their education as a valuable experience. Orientation to learning is the forth assumption in Knowles' learning theory. Adults seek learning from a life centered perspective, meaning, the adult learner seeks out information believed to be relevant to their life. Adults desire to learn is motivated by the perception the new knowledge will assist them in meeting their life goals The acquisition of new knowledge is most meaningful to the adult learner when the material can be applied to real life situations. The last assumption in Knowles' theory is motivation. Motivation is the adult learner needs to come from within. There needs to be an internal drive that pushes them to learn. While there is some external motivation to learn, such as an increase in pay or a job promotion, the motivation to learn is an internal desire (Knowles, Holton, & Swanson, 2015).

In addition to the five assumptions of the adult leaning theory is important for educators to include the principles of andragogy within their teaching lessons. Adult learners want to be involved in what they learn as well as the methods in which the learning process takes place. The adult leaner has a vast amount of experience and they want to broaden their learning and not focus on material that was previously learned. The leaning should be logical, practical, and related to their profession or personal goals. Memorizing is not a learning strategy that is conducive to learning in the adult learner. The adult leaner desires problem solving as a means of leaning (Knowles, Holton, & Swanson, 2015).

It is important for educators to recognize the difference between the adult and child learning process. Matching the appropriate learning strategies with the adult learner can facilitate learning.

Learning Styles

Understanding an individual's LS can have a positive impact on a learner and can facilitate the teaching process within the classroom (Dunn & Dunn, 1979). It is suggested the knowledge and understanding of LS can enhance the communication and dialogue within the classroom population (Hauer, Straub, Wolf, 2005). LS can also help the faculty meet the needs of a very diverse population within the classroom (Hauer et al., 2005). The teaching provided in the classroom can be given in a more efficient and effective manner when the faculty know the learning styles of the students. The teaching methods utilized in the classroom can be reflective of the students' learning styles of the student population (Hauer et al., 2005; Romanelli, Bird, Ryan, 2009)

Both children and adults, no matter what subgroup of ADHD they belong to, are believed to respond differently to various teaching and learning styles when in the classroom setting (Brand et al, 2002; Horowitz, 2008; Fountain & Alfred, 2009). LS are believed to be a method in which all individuals concentrate, process, internalize and retain new information (Dunn et al., 1994. LS are believed to increase the academic performance when children are taught in a manner that complements their learning style preference (Dunn, Beaudry, & Klavas, 1989). Quinn (1994) looked at the academic performance of children with learning disabilities to identify if they had a preferred LS and to assess if an association was present between learning style and degree of learning. The study results support the instructional strategies that are consistent with the children's individual learning style in which there was

an increase in academic performance. While these findings are impressive, children with ADHD present with more diverse and different impairments then children with learning disabilities so one cannot infer these findings would be observed in the ADHD population. According to Felder and Brent (2005) students have different levels of motivation and attitudes toward teaching and learning. Students respond differently in the classroom environments and to different instructional practices. Students come to the classroom with different education and learning needs. The instructor needs to identify what the needs are of all students so that they can meet the diverse needs of the student population (Felder and Brent 2005).

Interestingly, although the population of children with ADHD has grown significantly, there is currently no evidence regarding the preferred learning styles of children with ADHD. In addition, there is no research that distinguished between the learning styles of girls with ADHD. Thus, further research is necessary to determine if children with ADHD have specific learning style preference and ultimately if a learning environment supported this learning style would promote the child's learning outcomes. Students with ADHD have functional academic impairments that usually are seen in the academic setting (Loe & Feldman, 2007). One can advance his or her own learning by being aware of their own learning styles (Indreica, Cazean, and Truta, 2011) Indreica et al (2011) found students who are provided academic assistance with a counselor did have an increase in their academic performance. The academic counselors assisted the participants with time management which resulted in a positive academic performance. Positive academic success also had a positive impact on motivation and on work time (Indreica et al 2011).

Learning Styles Models and Assessment Tools

To adequately identify a student's LS a reliable and valid tool needs to be utilized (Dunn, 1995). Tools used should do more than just identify traits of learning. A comprehensive tool should be able to guide alternative instruction and facilitate learning. Learning styles are believed to be a multidimensional construct that is how an individual concentrate, process information internalizes and retains information and identifies which reading writing and mathematical strategies will be most particular with the learner (Dunn 1995)

The Learning Style Inventory was developed by Davis Kolb in the 1970s (Hauer et al., 2005; Romanelli et al, 2009; Katz & Heimann, 1991). This inventory tool is based on his learning theory model. In this model Kolb believes there are 4 distinct ways in which an individual learns. The LS is cyclical and Kolb believes all learners will touch all aspects of the learning cycle at some point in their life. The theory developed by Kolb suggests an individual when faced with a new learning experience will enter the cycle at the concrete level. This concrete experience supplies the learner with a foundation or platform for observations and reflections which is the second learning style in the model. The third LS is called the abstract concept, and the learner takes their observations and refection and translates them into means to apply the learning. The fourth and final stage of this model taking the reflected observations form the third phases are actively tested them (Romanelli, Bird, & Ryan, 2009; Katz & Heimann, 1991).

Kolb further suggests that an individual will mature and his/her ability to integrate all aspects of the model will improve. The four LS' that are adapted from the model are diverging, assimilation, converging, and accommodating. Each of the learning styles includes

two of the concepts from the model. Diverging encompasses CE/RO and it is suggested these individuals look at learning from a different perspective from the rest of the world. They prefer to observe rather than act. These individuals are better at brainstorming and generating ideas. They work in groups and are open minded to personal feedback (Kolb, 1984; Romanelli et al., 2009; Katz & Heimann, 1991).

Assimilation encompasses AC/RO have a preference for logic and concepts are more important than the human aspect of learning. These individuals need clear explanations are more focused on ideas and seem to focus more in science. The have a preference for reading lectures and exploring analytical models (Kolb, 1984; Romanelli et al. 2009; Katz & Heimann, 1991).

Converging is the third type of learning styles in Kolb's tool and it encompasses AC/AE. These individuals are believed to be problem solvers and will use their learning through identifying a solution. They prefer technical tasks and are less concerned with people. They excel at identifying practical use. Individuals with this learning style are more drawn to technical tasks. They experiment with new ideas and focus on practical applications (Kolb, 1984; Romanelli et al., 2009; Katz & Heimann, 1991).

The last learning style in Kolb's model is accommodating with includes CE/AE. These individuals are believed to be hands on learners and rely on intuition rather than logic. They rely on others to provide them with information and work in teams. They try new ways to obtain an objective. The Learning Style Inventory has been well studies and has well established psychometric properties. Internal consistency was initially established by the developer of the tool and then again by Marshal and Merritt (1986). Marshall and Merrit (1986) found internal consistency to be reported as an alpha coefficient range for .78 - .93. In

subsequent studies these numbers have been consistent. Factor analysis was utilized to determine construct validity.

The Mind Style Model (MSM) was developed by Anthony Gregorc in 1980's (1982a, 1982b; Gregorc & Butler, 1984), and this model provides an explanation of how the mind works and learns new material. This model proposed there are two perceptions that assist the individual to understand how learning works. Gregorc labels these perceptions concrete and abstract. Concrete learners acquire information by acting and feeling while utilizing all of the five senses when learning. They are considered inductive thinkers and they need to look at the small pieces to get to the big picture. Abstract learners acquire information thorough analysis and observation and think about the information that has been provided. Abstract learners learn through imagination and visualization of the concepts. This style of learning is considered to be intuitive. Gregorc suggest that every individual has the ability to use concrete or abstract thinking; however, one is easier and more comfortable than the other (Gregorc, 1982a; 1982b; Gregorc & Butler, 1984).

In addition to the two perceptions, the Gregorc Model includes two ordering abilities which are labeled either sequential and random. A sequential learner organizes information in a linear, logical manner. These individuals follow a train of thought, utilize a written plan, and do not proceed on a whim. Sequential learners usually do well on written exams. A random leaner clusters information into chunks without any particular order. They skip steps and do not work well with a plan. These individuals do not do well on written exams (Gregorc, 1982a; 1982b; Gregorc & Butler, 1984)

Utilizing the 2 perceptions categories and the 2 ordering categories Gregorc proposes there are four prevalent categories or learning styles. These four learning styles are abstract

random (AR), concrete random (CR), abstract sequential (AS), and concrete sequential (CS). AR learners prefer an unstructured environment, have a preference for visual learning, and have better success in learning from lectured material. They have difficulty giving exact detail to others. CR learners are risk takers and they learn by trial and error. They explore the learning process and can make intuitive leaps when problem solving and are experimental and intuitive. CR learners have difficulty with restrictions and routines. AS learners are strong analytic learners and favor verbal instruction. They also can picture concepts that are not tangible. They have a propensity to the theoretical and analytical approach. They have difficulty working with others with a different point of view; have difficulty with repetitious tasks, and being personable when attempting to get a point across. CS learners' behavior is a step oriented process that is done with precision. They prefer structure and practicality and are outcome oriented individuals. They work well with deadlines and are time oriented people. They have difficulty working in groups with unpredictable individuals and in unorganized environment and working (Gregorc, 1982a; 1982b; Gregorc & Butler, 1984).

Gregorc developed a tool called the Mind Style Delineator (MSD) to assess the four different categories. Based on the response, obtained the information is then plotted on a chart. This information can be useful in determining how learners utilize information as well as how each individual communicates and interacts within the learning environment. The MSD has well documented reliability and validity. For internal consistency the MSD reports an alpha coefficient range of .89-.93 and test retest correlation coefficient range is .85-.88 (Gregorc, 1982a; 1982b; Gregorc & Butler, 1984; Thompson & Wilkenson, 1992).

Lastly, the Learning Style Inventory (LSI) was developed by Dunn, Dunn and Price to assess the learning preference of the individual students. This tool has been utilized in

identifying learning styles in students from kindergarten to adulthood. The LSI gathers information in 5 different areas and each area includes the stimuli that are consistent with that element. The first stimulus is the environment, which includes the elements of sound, temperature, and light. The second stimulus is emotionality which includes elements of measurement in motivation, responsibility, persistence, and the need to have flexibility or structure. The third stimulus is examined is social needs, which include learning alone, with peers, with adults, or in a combination of the areas. The fourth stimulus is of the LSI includes personal needs that include personal preferences, time of day, intake and mobility. Lastly the fifth stimulus is cognitive processing inclination with are either global or analytical and impulsive or reflective (Dunn, 1995).

Conclusion

ADHD is a prevalent psychological disorder seen in children. The disorder is characterized by symptoms of inattentiveness, hyperactivity, and impulsiveness. Historically, the disorder was believed to occur only on children. However, research is now suggesting children with ADHD will gown into adulthood continuing to exhibit the symptoms of the disorder. There is extensive empirical literature suggesting the characteristic symptoms of the disorder impacts the individual's social relationships, academic skill development, has an increased risk for impulsive risky behavior, and inhibits occupational advancement. The first line treatment of the disorder is stimulant medication and the empirical literature suggests and supports the use of the medication for the decrease in symptoms. There is little evidence suggesting the medication therapy has an impact on enhancing academic learning and success. Since this treatment does not impact academic progress, alternative methods of teaching instruction and learning need to be explored with this population. With the identification of

each individual's type of learning style and utilizing it in the classroom, a positive impact on the learning process for individuals with ADHD is quite possible.

Chapter III

Methodology

Qualitative research is a scientific method utilizing observation to study a phenomenon in its natural occurring settings (Babbie, 2014; Merriam & Tisdall, 2016). The goal of qualitative research is to obtain an in-depth understanding of human behavior, describe or interpret the phenomenon being studied and seeks to provide meaning to the phenomenon (Merriam & Tisdall, 2016). A qualitative research study should include the following four aspects: focus on the meaning and understanding of the phenomenon, primary instrument within the study is the researcher, utilize an inductive process, and provide rich thick descriptions of the phenomenon from the participant's perspective (Merriam & Tisdall, 2016). In qualitative research the researcher is more interested in the quality, substance and depth of the information obtained than the amount or frequency of its occurrence (Boswell & Cannon, 2017). There are five types of qualitative research: case study, narrative, ethnography, grounded theory, and phenomenology. This research will use a phenomenology qualitative approach.

Phenomenology

Phenomenological qualitative research is a philosophical perspective that gives the researcher the ability to explore and understand a phenomenon from the view point of the individual who has experienced it (Converse, 2012) and seeks to discover the "lived experience" of the phenomenon (Creswell, 2018). There are two philosophical perspectives of phenomenology. The first perspective of phenomenology comes from Edmund Husserl a mathematician and philosopher, who is credited as the founder of phenomenology. The phenomenological perspective that follows the traditions of Edmund Husserl is called

Husserlain phenomenology or transcendental phenomenology. This perspective of phenomenology gives rise to descriptive phenomenology. The foundation for this inquiry by Husserl was to describe an individual's experience and eliminate any preconceived ideas by the researcher from that description. The process of stripping all knowledge is to shed all personal bias about the subject (Lopez & Willis, 2004). This elimination of preconceived ideas is called bracketing or epoche (Creswell, 2018). Husserl felt that bracketing of preconceived knowledge by the researcher is necessary to report reliable data (Creswell, 2007: Munhall, 2012; Reiners, 2012). Some Husserlain followers advocate that a researcher should omit a review of the literature prior to data collection to achieve transcendental subjectivity. It is important for the researcher to achieve transcendentalization and neutralize any preconceived perceptions to prevent undue influence in the study (Koch, 1995: McConnell-Henry, Chapman, & Francis, 2009)

The second philosophical perspective of phenomenological qualitative research was developed by Martin Heidegger and his perspective is referred to as hermeneutics or interpretive tradition. Unlike Husserl, Heidegger was more interested in moving qualitative research from description of a phenomenon to interpretation, deriving meaning from being (McConnell-Henry, Chapmap, & Francis, 2009). Unlike Hursserl, Heidegger's foundation is based upon the principle of moving away from the description of the lived experience to a more in-depth interpretation of the phenomenon and the focus is to derive "meaning from being". Heidegger rejects bracketing and suggest prior knowledge of the subject of study augments the interpretation of the phenomenon. The expert knowledge of the researcher is seen as valuable to the research inquiry and makes it more meaningful. He felt it was impossible to rid yourself of all preconceived notions and understanding of the topic.

Additionally, Hermeneutics sees the researcher as part of the research and calls it "being in the world of the participant". The aim of this perspective of qualitative phenomenological research is to discover the meaning of the phenomenon (McConnell-Henry, Chapman, & Francis, 2009; Koch, 1995; Lopez & Willis, 2004).

A phenomenology qualitative approach was used to conduct this research study. Qualitative research involves an inductive approach of exploring participant's perspectives and providing a richer insight through interview, observations, and other means (Creswell, 2013). A phenomenological design was utilized as the methodology of this study because it enables the researcher to explore learning style preferences in college students with ADHD and interpret their experiences as it has occurred in their own words (Creswell, 2007, p. 236). Utilizing a phenomenological methodology provides the researcher the ability to explore the thoughts, feelings, impressions, desires, emotions and memory of the participants within the study (Mandel, 2008).

The inductive qualities of phenomenology are formulated in the traditions of philosophy. A research study using a phenomenology methodology focuses on describing what experience the study participants have in common. The purpose of this methodology is to decrease the individual experience and replace it with a communal "lived experience" (Creswell, 2007). It seeks to describe the commonalities among the participants (Munhall, 1994). This methodology attempts to uncover and describe the day to day experience of the phenomenon (Munhall, 2012).

In this study, interpretive phenomenology was used to develop a deeper understanding to explore learning styles of the college age students with a diagnosis of ADHD. This design allowed the researcher to obtain a better insight to the impact ADHD has on their learning and

how ADHD has impacted their life. This methodology is geared to exploring the day to day events in the life of an individual with ADHD.

Sampling

This research study focuses on college age students who are 18 years of age or older and have been diagnosed with ADHD. The participants must be enrolled in at least one college course in a school that grants a baccalaureate degree. The participants can be male or female who self-report a diagnosis of ADHD. Purposeful sample method was used for this study since the individuals participating in the study need to have an understanding of the phenomenon ADHD. According to Creswell, (2013) there are 16 different types of purposeful sampling methods for qualitative research. This study will use two (criterion sampling and snowballing) of the sixteen methods Criterion sampling was selected as an appropriate sampling technique since all participants need to meet a predetermined criteria of importance to the study. Within this study all participants needed to be college age students, self-report a diagnosis of ADHD, and be presently enrolled in one college course in a school offering a baccalaureate program. These criteria were depicted within the inclusion exclusion criteria of the study. Snowball/chain sampling was utilized as a secondary sampling technique allowing participants within the study or others familiar with the study criteria to identify potential participants of interest to partake in the research study. This sampling techniques is appropriate when potential participants are difficult to identify (Creswell, 2007; Creswell & Clark, 2007).

When conducting a qualitative research study, sample size is not routinely determined prior to collecting data. Attaining data saturation is what determines sample size. Data saturation is reached when the researcher sees repetition of information emerging during data

collection, and no new information is revealed (Creswell, 2007; Boswell & Cannon, 2017). Data saturation is a point during data collection when there is no new emerging information that adds to the research (Creswell, 2018). Creswell (2007), recommends a sample size of 3-10 participants in a phenomenological research study. Polkinghorn, (1989), suggest a sample size of 5 to 25 participants. For this study, data collection continued until data saturation was reached and 10 participants were needed to reach saturation. The researcher was contacted by 15 individuals, three of the potential participants declined to participate after study requirements were discussed. Twelve participants were interviewed. Two of the participant's data were removed from the results of the study based upon the participants not meeting the inclusion/exclusion criteria and their interviews were removed from the findings of the study criteria.

Solicitation Procedure

The ideal location for participant solicitation for this study was on a college or university campus. Creswell (2018), suggest when conducting a qualitative research study, the researcher should utilize more than one study site. To provide a more diverse participant population the study was conducted on the campus of three Northeastern University campuses. Internal Review Board (IRB) approval was requested from the three universities in the Spring of 2018. Once IRB approval was achieved with all of the universities, solicitation fliers were distributed on the campuses. Potential participants were asked to contact the researcher by text or email. When potential participants initially contacted the researcher, they were asked five prescreening questions. The potential participants were asked if they are over the age of 18 years, have a diagnosis of ADHD, can speak, read and write English, are

enrolled in one college course, and do you have another neurological disorder that has symptoms similar to ADHD.

If potential participants answered yes to all the inclusion criteria and no to all the exclusion criteria, they were invited to participate in the study. Once this was determined a mutually agreeable interview time and place was determined. Meetings were conducted in a private area in the library or a private office on campus. At the beginning of the meeting, the researcher greeted participants and explained the purpose of the study. The researcher stressed the confidentiality and anonymity of all of the information that was being collected. The researcher then reviewed the informed consent form with the participants. All participants were given a copy of the informed consent form for their own records. All participants were given the opportunity to review the consent form on their own and ask questions. Potential participants were informed the interview would be audio recorded. Once all questions were answered individuals wishing to participate signed the consent form and the interview commenced.

Interviews

The data for this study were information provided by the participant during the interview and field notes completed by the researcher during and at the conclusion of the interview. The field notes were observations and impressions the researcher witnessed or perceived during the interview. A semi-structured interview approach was utilized in this research study. The information obtained through a semi-structured approach allows the researcher the freedom to explore areas not covered by the interview questions. The researcher can clarify information or ask the participant to expand upon their responses. Utilizing an interview guide provided the researcher with uniformity of questions for all

participants. The use of semi-structure interviews provides the researcher with key questions to ask but allows the researcher flexibility to expand upon information brought up during the interview and provide the research with more meaningful data (Seidman, 2013). The interview questions were guided by the theoretical framework based on Knowles Adult Learning Theory, and Kolb's Experiential Learning Model. The aim of this research is to understand the learning styles preferences of college age students with ADHD and how the disorder impacts their life. The interview questions were submitted to the dissertation chair for review to provide content related validity. Content related validity also referred to as face validity establishes the interview questions are an accurate representation of the content at hand (Boswell & Cannon, 2017). The reasoning for ascertaining content related validity is to determine if the interview questions are appropriate for the study methodology. Additionally, it is important to know if the questions will provide the researcher with the information they are attempting to obtain.

Interviews were conducted from May of 2018 through December of 2018. Each interview was approximately one hour in length. All interviews were audiotaped with the permission of the participant and transcribed verbatim by the researcher. This method of transcription maintained anonymity and confidentiality of the participants. Each participant was assigned a code to protect their identity and maintain confidentiality. At the conclusion of the interviews the researcher documented observation made during the interview. These observations documented both verbal and non-verbal communication and this information could be utilized when analyzing the data.

Data Analysis

Data analysis in qualitative research provides the researcher with an in-depth description of the results. (Boswell & Cannon, 2016). Data analysis is the process of making sense of the information collected. Data should reveal information relevant to the study and it is this process that allows the researcher to answer the research questions. An important components of data analysis is coding the information obtained during the interview process (Merriam & Tisdall, 2016). Coding is an in-depth examination of large volumes of written data. "A code is a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldana, 2016, p. 292). Coding can occur before during or after initial review of the data material. The number and type of coding method utilized in data analysis will vary based upon the nature and goals of the study. Some research studies will use one coding method, others will use more than one type of coding to capture the complexity of the phenomenon within the data (Saldana, 2016). This research study will use three different types of coding methods.

The first method of coding used in this research study was provisional coding or start list coding. Provision codes are developed prior to the interview process and are based on the empirical literature. Provisional codes can be revised, modified, deleted, or expanded to include new codes (Saldana, 2016). In this research study, provisional codes were used and developed based on the literature discussing Kolb's Experiential Learning Model. Kolb use descriptor words within his model to explain and describe the learning styles within his model. The words used by Kolb to describe the LSs were used as provisional codes. The

provisional codes were used to answer research questions one, two and five. This method of coding was used when reviewing interview questions numbers five and seven.

The second method of coding used in this research study was in vivo coding. In vivo coding is "literal coding" or verbatim coding. This form of coding can be used in any different qualitative research methodology and is often used by the beginner coder. This form of coding uses a word or short phrase of the actual language found in the transcripts (Saldana, 2016). This method of first cycle coding was used to answer research questions one, two and five.

The third and last type of coding used within this research study was descriptive coding. Descriptive coding can also be referred to as topic coding. Descriptive coding summarizes a word or short phrase from the information found in the transcripts. Again this coding method can be used in all different types of qualitative research (Saldana, 2016). Descriptive coding will be used to answer research questions three, four and six.

A code book or list is a method of record keeping for the researcher to keep codes in order. A code book was to maintain provisional and subsequent emerging codes, categories, and emerging themes. To better organize the research information, the researcher created files, one for each participant. The files included the signed consent form and the field notes that were completed at the end of each interview. Once the interviews were transcribed the transcripts were also place in the file. The files are kept in a locked box when not in use. All interviews were transcribed verbatim by the researcher onto a removable USB memory stick that was password protected. Once transcriptions were completed they were checked for accuracy by reviewing the transcripts with the original audio tape.

As with any study, validity is an important aspect that needs to be addressed by the researcher. Qualitative research has a different focus than quantitative research, therefore the methods used to obtain validity are different as well. Without validity the credibility of the findings can be in questions, hence it is important for the researcher to convey some level of validity. According to Lincoln and Guba (1985) credibility of qualitative research is described as trustworthiness. When a research study is deemed to have trustworthiness it is believed to be quality research. According to Creswell (2007), there are eight strategies that can be used to provide credibility to a qualitative study and a research study should include at least two strategies. To establish credibility and trustworthiness in this research study the researcher uses a positional statement, rich thick descriptions, peer reviewing, and an audit trail.

When conducting phenomenological research, the researcher is considered an integral part of the study and is seen as an instrument who collects and interprets the data about the phenomenon (McConnell-Henry, Chapman, & Francis, 2009; Koch, 1995; Lopez & Willis, 2004). The researcher brings a unique perspective and personal experience into the study (Creswell, 2018). It is important for the researcher to share their personal perspective and biases with the reader so they understand which perspective the data will be collected and analyzed. To do this, the researcher of this study will provide the readers with a positional statement

My name is Denise Marie Nash-Luckenbach. I am a Registered Nurse, an Educator, a Pediatric Nurse Practitioner, a wife, mother, daughter, and sister. I am married and have three children: boy (age 24), boy (age 22), and girl (age 16). My professional education began in the fall of 1984, when I entered college, after graduating high school. I have a Bachelors of

Nursing (1988) from The College of New Jersey. I passed my Register Nurse licensure exam in 1988. I have a Master of Science in Nursing (1993) from Rutgers, the State University of NJ and the specialty is Clinical Nurse Specialist in adult critical care. In 2008, I completed the Pediatric Nurse Practitioner Certificate Program at Rutgers, the State University of NJ. I passed by Nurse Practitioner licensure exam in 2010.

This phenomenological qualitative research study is being conducted to complete the requirements of my doctoral degree. Presently, I am a matriculating graduate students who is completing Dissertation Advisement in the School of Health and Medical Sciences at Seton Hall University within the Department of Interprofessional Health Science and Administration. As a nurse educator, a doctoral degree is strongly recommended in many institutions and required in others. The expectation for Nursing Faculty is to conduct research and publish the research in nursing journals. Many of my colleagues have their doctoral degrees. In my last teaching position, I was the only faculty without a terminal degree. I am the only person in my circle of friends to pursue a doctoral degree. Neither my parents nor my brother have college degrees, however, my parents have been very supportive. My uncle, my father's brother has a PhD in clinical psychology. As I move through this doctoral journey, we have shared stories and my uncle has been a means of support.

I was born in the Bronx, New York and lived in Staten Island New York with my parents until the age of 11 years. At that time my parents moved to Hazlet, New Jersey and I lived in Hazlet until I graduated college at the age of 21years. When I graduated college I moved to New York City in June of 1988, lived in midtown Manhattan while working at New York University Medical Center. I lived in New York City until October of 1990. I moved back to New Jersey in October of 1990 and lived with my parents until I got married in

February 1994. I worked at Robert Wood Johnson University Medical Center in New Brunswick New Jersey as a staff nurse in the adult intensive care unit. During this time, I also attended Rutgers University to obtain my master's degree to pursue an academic position. When my husband and I got married in February 1994 we continued to live in our home in Hazlet until our oldest son was 1 year of age and we moved to Marlboro New Jersey. Both Hazlet and Marlboro New Jersey are suburban towns in Monmouth County. Hazlet, New Jersey is a working class/blue collar town, and both my husband and I are professionals with graduate degrees. Having a graduate degree living in Hazlet was an anomaly. Marlboro, New Jersey is a town considered to be an upper middle class with professionals and business oriented individuals. However, my husband and I continued to be different from other households. The majority of the household in Marlboro, New Jersey are a working male figure and a stay at home female figure. This became challenging when my children were school age. Parent-teacher meetings and school functions were all during normal business hours.

As a nurse working with adult critical care patients my familiarity of ADHD was limited. I did not interact with children on a daily basis until my own children were born starting in 1995. I did not become a licensed Pediatric Nurse Practitioner until 2010, 15 years after the birth of my first child. My husband was a $7^{th}/8^{th}$ grade language arts teacher until 1999, when he became an elementary school principal. He worked with children 5 days a week for 10 months out of the year. My husband did interact with children diagnosed with ADHD when teaching. However, he was not always convinced the diagnosis was appropriate for the children in his classes. We did not discuss the disorder and did question its prevalence. It was not until our oldest son was 2 years of age, my husband and I started to

notice our son behaved differently from other children. At the age of two years, my eldest son was displaying symptoms of ADHD. This would be my first experience with children who display symptoms of ADHD. Diagnosis and treatment of the disorder began by seeking the assistance of a clinical psychologist specializing in this disorder. The psychologist provided us with insight and behavior modification interventions to help prevent behavior issues, meltdowns, impulsive behavior and curb some of the hyperactivity. At the age of 4 1/2 years of age the behavior modifications were no longer working and we sought out a neurobehaviorist physician who started my son on a stimulant medication. There was an immediate change in behavior. The hyperactivity decreased as well as the impulsivity, and he was able to follow some directions. As my son entered school he progressed through the second grade without issues. My husband and I were very supportive and kept the environment at home structured with little variation. In the third grade, we noticed he began to have difficulty within school. He need more support in the classroom to complete work, so with an increase in support, and continued use of medication and behavior modification he was able to progress satisfactorily through high school. During his senior year in high school he was given the opportunity to take an advanced placement course in history, his previous grades in history were extemporary. He struggled in the class and received a D in the class. We received a call from the AP History teacher prior to the final exam, he was concerned my son would fail the course. He gave the class a study guide and met with my son to review the material. My son needed more support in the classroom once again in order to receive a D in the course. When my eldest son went away to college, I saw him struggle academically again. He was not able to maintain his grades in college and he failed out of college his freshman year. The difficulty he displayed in the AP history course was a preview to his academic

success in college. He continued to struggle for an additional two years while taking courses at the community college. He was suspended for a semester from the community college. My husband and I were at a loss and there was nothing we could do to assist him. After three years of struggling, failing all of his college courses, he seemed to change. He started to pass the majority of his courses. He would still fail at least one course a semester but he was making progress towards an associate degree. My son completed enough courses in the Spring of 2018 to graduate with this associates degree and transfer into a university. He continues to struggle and his GPA is 2.3.

Unfortunately, this process was repeated by my second son. My second child was born in 1997 and it was in 2000 his preschool teacher began to complain he was difficult to manage in school, had difficulty focusing and at times would be impulsive and display "stubborn" behavior. My second child's symptoms were different than my first. However, my husband and I had read enough self-help books on ADHD to realize he was displaying symptoms of ADHD, he was just presenting the disorder differently. His level of hyperactivity was not nearly as severe as my first child, he also seemed brighter, however, he was more oppositional. Behavior modification techniques were used to contain his behavior until the age of 7. At that time, we began seeing the neurobehavioral physician and he was started on stimulant medication as treatment. There was a decrease in his impulsive behavior and focusing had improved, however, the oppositional behavior continued and was treated with a behavioral rewards system. Results from the reward system were mixed. The teacher also noticed he was excellent in math and was a veracious reader, reading well above his grade level. He picked up on concepts quickly. My second son was a bright child and he moved thorough primary school with little effort until 8th grade algebra. Because he excelled

in math he was given the opportunity to take high school algebra in middle school. However, he didn't like his teacher, he complained about her teaching styles and his test scores in the course were 30s and 40s. A tutor was hired and at the end of the school year he was able to pass the state comprehensive math exam. His end of the year grade in the course was a D+. My second child did well in high school, he completed 6 years of math received a 690 on his SAT Math score and 590 in Language. He completed several AP course math and science. I thought for sure he would do well in college. He received multiple scholarships for his excellent grades and SAT scores. My second child failed both Math and Chemistry his first semester and when he repeated them in his second semester, he failed them again. He too failed out of college his first year. Once again I was at a loss as to how my bright child who excelled in school all of his life failed multiple courses and was left with a 1.7 GPA. This child has an IQ level over 135. How can this happen again? He now attends the community college and like his older brother he spent his first 2 years at the community college taking courses failing them and retaking them. He has changed his major and seems happier but it is still not easy for him. He, like his brother no longer fails all of his classes. My second child has a plan to graduate in the Spring, however, his grades are in the C range and I am concerned his options will be limited. He has so much more potential and I do not know how to help him.

My third child is a girl and I thought she would be saved from this disorder but she was not. She was diagnosed in first grade and started on stimulant medication. Her focus and academic difficulties were severe enough she need and individual education plan (IEP) with a resource teacher in the room throughout elementary and secondary school. She does well in school now that she has an IEP. She is only 16, so I have no idea how she will perform in

college. She is not nearly as bright as her brothers and her impairment is more severe than her brothers. She works harder for her grades than her brothers ever did. Her GPA in high school is 3.6. I am concerned what affect her impairment will have on her ability to academically succeed in college.

In September of 2008 I began my PhD journey at Seton Hall University. I was employed by Seton Hall University at the time, and it became clear to me, I needed a terminal degree to continue to teach in the academic arena. I had been teaching nursing for over 15 years at the time, however, in 2008 teaching with a Master's Degree was no longer sufficient. Initially, when I entered the PhD program I was overwhelmed by the entire process. There was no specific topic that was of interest to me. As my children moved through the school system and began to have difficulty in school, I knew this was the topic I would study, this topic interested me immensely. I wanted to understand why some children with ADHD have difficulty succeeding, what is the cause of the difficulty, and what can we as parents and educators do to help the children succeed. Once I began reviewing the literature on the topic I began to identify gaps in the literature. I found there was little empirical research on college students with ADHD. Most of the literature was completed on young children. The literature talks of strategies to utilize in the classroom, but there is no empirical research discussing success in the ADHD population. As my children continued to grow and struggle, I continued to look for strategies that would assist them in their academic progress. I continued to look to the literature for information and have not found success. I have spoken with other parents, educators, and medical professionals about this issue. The other parents of children with ADHD have shared similar stories but do not offer helpful suggestions. They too are at a loss as to how to help their children. Educators provide information on learning strategies and

education theories that have been helpful with "normal" students. I have not found these strategies to be helpful with my children. Physicians discuss the disorder and want to know if the medication has decreased the presenting symptoms and do not offer any assistance with educational matters.

My expectations for this study is to explore ADHD and its impact on the education of college age students. Will the participants in this study verbalize similar stories? I am expecting the participants will be able to provide information on how they manage their studies and the strategies they use to assist them in their course work. The participants should be able to explain previous issues they have had with ADHD within the education system and what interventions have proved successful for them. The extent of the impact ADHD has had on the participant's life is undetermined and I am anticipating they will be able to discuss this issue with me. I am anticipating this study will provide insight into the unspoken elements the disorder has on the participant's life and learning.

I do feel that I am an insider on the issues of ADHD because I have three children diagnosed with the disorder and have seen the impact ADHD has had on their successes in school. I did share my intention of the study with my participants additionally I shared my familiarity of the topic with them after the interview was completed. My prior knowledge of the subject according to Heidegger is believed to augment the interpretation of the phenomenon and is seen as valuable and adds meaning to the research (McConnell-Henry, Chapman, & Francis, 2009; Koch, 1995; Lopez & Willis, 2004)

The next strategy used to provide trustworthiness and credibility in this research study was to use rich thick descriptions. Rich thick descriptions describe in detail the participants or the setting in which the data was collected (Maxwell, 2005). This information is obtained

from detailed interviews and other sources such as field notes. When a study has rich thick description, the reader can make decision regarding transferability. Within this study, to maintain credibility the researcher transcribed the audio recorded interviews verbatim and reviewed the transcripts comparing them to the audio recordings. In addition, the researcher maintained detailed field notes describing verbal and nonverbal behavior immediately after the interview. The field notes consist of the researcher's observations and impressions. Field notes are used by the researcher to remember nuances that may not be evident in the interview transcripts (Creswell, 2007).

The third strategy used to provide credibility to this research was to have an individual who is an experienced qualitative researcher act as a peer reviewer. Peer reviewing is utilization of an individual outside of this research study, who checks the research process. The peer reviewer examines, analyzes, and questions the methods and the interpretations of the study findings. Furthermore, a peer review can act as a mentor "sounding board" for the researcher's feelings (Creswell, 2007: Lincoln & Guba, 1985). To further add to the rigor and credibility of this research study, a peer review was utilized. The peer reviewer reviewed the research questions and methodology. Once the interviews were transcribed, the peer reviewer examined the transcripts and used the same method of coding as the researcher. The researcher and peer reviewer met to discuss the codes that emerged from the data. Upon reviewing the material, there was 100 percent interrater agreement on the codes and the themes that emerged from the data.

Audit trail is the final strategy used to provide validity to this research. An audit trail is a written account of the research process (Lincoln & Guba, 1985). It is important for the researcher to provide information that is accurate and detailed. To maintain and audit trail in

this study the researcher collects the raw data from the participants that was rich, thick and detailed. The interviews were audio recorded and transcribed for accuracy. The data collected, both interviews and field notes, were reduced and analyzed. The information was categorized and summarized. From the categories or codes themes were developed, which Lincoln and Guba (1985) refer to as data reconstruction. Maintaining this level of detailed information about the process and data collected help maintain the credibility of the findings.

Chapter IV

Results

A phenomenological research design was utilized in this study to discover the "lived experience" (Creswell, 2007) of college age students with ADHD and its effect on their academic success from their perspective. This research methodology, allowed the researcher to describe the lived experience using the words of the individual who has experienced the phenomenon firsthand (Creswell, 2007). This chapter will first describe the demographic information about the participants. Then the chapter will continue to discuss the findings as they related to the research questions. Participants are not identified by name; they are only identified by a code to protect their privacy and maintain anonymity.

Study Participants

The researcher was contacted by 15 potential participants, three of the potential participants decided not to participate in the study after study requirements were discussed. Twelve participants were interviewed. Eight participants were male and four participants were female. During the interview, it was determined two male participants number 7 and 9 did not meet the inclusion/exclusion criteria, and their interviews were removed from the findings of the study. Specifically, the final study sample consisted of 10 participants from three different northeastern universities. Interviews took place on three university campuses. One institution was a public research university consisting of 19, 000 students. The second university was a public liberal arts university with 9,000 students. The third university was a private catholic university with 11,000 students. The participant ranged in age from 18 to 71. The average age of the ten participants was 26.4 years. The median age was 20.5 and the mode was 18 years of age.

The courses and program of study varied for each of the participants. One participant was pursuing a second degree with their first degree attained being a baccalaureate degree in history. Two participants were working on graduate degrees and the other seven participants were working on undergraduate degrees. Participants' academic majors included one graduate level Biblical Studies, two undergraduate Criminal Justice, one National Securities/Homeland Securities, one graduate Business degree, one undergraduate Business/Marketing, two Diplomacy, one Biology/International Relations, and one Psychology. Two of the participants had chosen a career path and were already in the workforce. One as a police officer the other a retired teacher. Other proposed careers included, physician, police office, chief executive officer/philanthropist, child psychologist, field researcher, unspecified business and two others were uncertain as to their projected career.

The exact age when the diagnosis of ADHD was made by a health care provider was difficult for the participants to recall however, they were able to identify the school grade they were in when diagnosed. Eight of the participants were diagnosed in elementary school. One participant was diagnosed at the age of 44 years and the other participant was diagnosed at 19 years. Two participants identified themselves as white, three participants identified themselves Hispanic and five participants identified themselves as Eastern European.

Eight of the ten participants identified that they were prescribed stimulant medication for the treatment of ADHD at some point in time in their life. Two participants reported never using stimulant medication for the treatment of the disorder. Presently, only four participants continue to use stimulant medication. Self-identified reasons for discontinuing the medication included: "I no longer need them, I am at the other end of the bell curve," "My

mom took me off of it said I was aggressive." "I didn't like the way they made me feel." "I am living in a half-way house so I can no longer use them." One participant who never used medication for the treatment of ADHD noted that discussion surrounding the usage of medication had taken place with his mother previously and that he plans to discuss the use of medication when he goes home for the semester break. This participant stated, "College is much harder than I thought it would be." Another participant who discontinued using the medication for behavioral issues is contemplating going back on the medication because she is still struggling academically. However, she verbalized being afraid of the potential side effects of the medication.

Of the eight participants who utilized medication for the treatment of ADHD during some point in their life, five verbalized a difference in symptoms experienced. Two participants stated they felt more tired and slower when not using the medication. Two participants stated they noticed a difference in their focus when they did not take their medication.

The number of college credits earned varied between each of the participants. Three of the participants had earned a previous bachelor's degree and were unsure of the number of credits they needed to complete their present degree. Four participants were in the fall semester of their freshman year, so there were no earned credits towards the degree to date. Two of those participants have 15-17 Advanced Placement (AP) credits from high school. The remaining three participants had earned 61, 78, and 89 credits. Similar to the variation in their earned number of college credits, there is a variation in their college grade point average (GPA). Four of the participants at the time of the interview, did not have a GPA because they were first semester freshman. Other participant's struggled in college and their GPA was

reflective of their difficulties. The students that struggled reported a GPA of 2.4, 2.4, 2.67, and 2.5. Two participants verbalized a GPA of 3.97 and 3.86.

One of the participants, who did well in high school, received 4 scholarships to college and reported being a member of Mensa with a reported IQ over 155. Mensa is the oldest intelligence quotient society in the world. It is a nonprofit organization that is open to individuals who score at the 98th percentile on standardized test (mensa.org). She has a bachelor's degree in Math and Science Education, a Master in Business Administration and a Master in Theology. Interestingly, her GPA for her bachelors of Math Science Education was below average at a 2.4. This participant stated "I couldn't focus, couldn't get organized." "I did not have the structure that I got from the Sisters and I fell apart." "I got teaching jobs…. people would be impressed with what I said… then they would get the transcripts and come say to me you present differently than what that piece of paper say always been dragging that chain around with me." Another participant who has a GPA of 3.97 stated, "I got an A- last semester… that was the first time." One participant with a GPA of 2.4 stated, "I had to repeat three classes." "My teachers have always stated I am smart, creative, but I cannot stay focused." Another participant who is a first semester freshman with no current GPA in college discussed his high school GPA and stated "I was bright but I never did my homework…. I found out around junior year the GPA was cumulative." "When I had my epiphany my GPA it was 2.5-3.0."

Three of the ten participants had to repeat at least 1 course. The participants who reported repeating classes also reported their GPA as 2.4, 2.5, and 2.67. One of the participants stated, "I repeated one class three times." One of the subjects stated while she did not repeat any courses she had a very poor GPA. "They wouldn't let me student teach".

Five participants reported never receiving any accommodations in classroom based upon the, 1973 the Individual Disabilities Education Act (IDEA). One of the five participants went to college in the 1960s and stated "no none of that existed. The nuns didn't need accommodations because everything was so regimented. And if you were failing you were asked to leave the school. They said they were meeting your needs." Another participant received accommodations in primary and secondary school but not in college. Three of the ten participants did utilize accommodations while in college. One of those three verbalized, "They are not beneficial they only give you extra time on test." Two of the participants who are not utilizing accommodations in college do not view accommodations as helpful or a beneficial mechanism for learning. One of the subjects feels, "Accommodations are a crutch, but not using then is more harmful." Another participant who doesn't like accommodations feels that "you are treated different" "not normal." "Is it making me normal?"

Research Questions

Prior to conducting the interviews, the researcher developed a code book to document all codes and themes. Initially, this code book contained provisional codes used to answer research questions one, two, and five. The provisional codes were words used by Davis Kolb (1984) to describe the four LS within his learning model "The Experiential Learning Model (ELM)". As the data analysis process continued, the researcher would add all emerging codes, categories and themes to the code book. The data analysis process used for this study began initially with the PI listening to the audio recordings of the interviews in their entirety. After the initial review of the audio recordings, the researcher listened to the recordings a second time and transcribed the interviews verbatim at that point in time. Each transcription was then read once by the PI in its entirety to gain ideas and insights into the statements and

meanings within each interview. This first reading allowed the researcher to review the transcripts as a whole (Creswell, 2018; Creswell, 2007; Giorgi, 1986; Giorgi 2018). The PI then completed a second reading of the transcripts as a whole. During this second reading, first cycle coding was completed using in vivo coding. When using vivo coding, the researcher looked for words used by the participants in the transcriptions that matched the provisional codes (Saldana, 2016), used by David Kolb (1984) to describe the four LS within the ELM. The codes identified during in vivo coding were written in the margin of the transcripts and later entered into the code book. The codes identified during this process were placed into categories matching the LS of Kolb's ELM.

Kolb's (1984) ELM has four learning styles: Diverging, Assimilation, Converging, and Accommodating. Provisional codes were developed based on words found in the literature describing the LS's. Words used to describe Diverging include the following: imagination, brainstorming, strong in the arts, listen with an open mind, presentation, debates and discussions. Words used to describe Assimilation include: logical approach, needs clear explanations, organized, focused on ideas, sound theories, reading, lectures, exploring analytical models, and needs time to think. Words within the literature used to describe Converging include: standardized testing, problem solving, prefer tasks, technical tasks, experiments, simulate, and practical application. Accommodating is the last LS and the words found in the literatures to describe this LS include: hands on, feeling, action driven, solves problems, rely on others for information, adapting self to meet circumstances, and experimental approach (McCloud, 2017). To answer research questions three, four and six first cycle coding (Saldana, 2016) was completed using descriptive coding. During the second reading of the transcripts the researcher searched the interview transcripts for key

words, phrases, or concepts as a topic of interest or summary of codes (Saldana, 2016). This search for descriptive codes is the third step in analyzing the text and was used to generate new and emerging codes, and themes as they relate to ADHD and LS. All codes were entered into the code book. Once all codes were entered into the code book, the final step of analysis was to list codes into categories and formulate emerging themes from codes when appropriate (Saldana, 2016).

Research Questions 1

Research question one asked how college age students with ADHD prefer to learn. To answer this question, the researcher used in vivo coding and looked for words, phrases or statements made by the participants which match the provisional codes. The researcher used the participant's answers from interview questions number five specifically to answer this research question. One participant stated "I go way beyond the depth of the topic… the professor gave an incredible lecture… I asked him if he had any books. So he sent back a book title and I will sit down and read it." Another participant stated "I think I like hands on." Using statements like these, the participants' responses were assigned to columns representing the LS from Kolb's model. Diverging was the first category and there were 2 responses from participants that fit into this category. One participant stated they preferred "discussion to assist with their learning". Another participant noted they wanted to use their "creativity". The next category was labeled Assimilation. Words used by participants listed in this category included one participant stating, "they prefer to learn using lecture and reading". Interestingly enough, two participants stated they prefer reading only and another participant prefers to learn from lectures. The last participant listed in this category stated they need time to think through material. Converging was the third category and only one participant used

words from this category. This one participant stated he/she “preferred problem solving”. Accommodating was the fourth category and four participants used words that describe this LS. Two of the participants preferred to learn through “demonstrations”. One participant stated a preference for a “hands on approach” and the last participant in this category preferred “experimentation”. The PI did not identify any new emerging codes or themes for this research question. Not surprising, two participants (participant three and four) used words in their answer that are found in more than one category. One participant preferred to learn through “reading” and “experimentation” while the other participant preferred to “read” and “problem solve”.

Research Questions 2

Research question two asked how college age students with ADHD prefer to study. To answer this question, the researcher again used in vivo coding and looked for words, phrases or statements made by the participants which match the provisional codes. The researcher used the participant’s answers from interview question number five to answer this research question. One participant stated “I don’t remember anything I learned in class so I have to go home and teach myself. I was prepared like I knew how it would be laid out so I made flash cards and went over them and studied everything we learned” “When I am studying I will remember in my head the way they worked it… I can picture it… if I close my eye I can picture the whole board.” Another participant stated “I need to read it.” One participant stated “I feel that self-direction and experiences I have had with learning and my ability to problem solve.” Using statements like these, the researcher categorized the participants’ responses into columns representing the LS from Kolb’s model.

Diverging was the first category identified with two responses from participants. One participant stated they prefer “flashcards and study guides” and another participant prefers to use their “imagination” to study. The next category was labeled Assimilation and there were five participants responses identified in this category. One participant preferred to study by “reading” the material while another participant likes “reading and listening”. Two participants prefer to “use time to think” or “think thought the material to study”. Another participant preferred a “logical approach” and “needs time to teach them self”. Converging was the third category and two participant used words from this category. One participant used “cramming” as a means to study while another participant in this category “completes practice problems”. Accommodating was the fourth category and there were three participants listed under this LS. The first participant preferred a “hands on approach”. The second participant in this category stated they like to “problem solve” and the last participant preferred to “rely on others” to study. There were no new emerging codes or themes identified for this research question. However, one participant did use words in their answer that are found in more than one category. This participant stated they prefer to use “flash cards, study guides, teach themselves, use logic, and prefers a hands on approach”.

Research Questions 3

Research question number three asked college age students with ADHD how they prefer to be evaluated. To answer this question, the researcher reviewed the transcripts of the participant’s interview, specifically reviewing question number 6. Since this question asked about evaluation and not learning, there were no provisional codes for this question. Thus, to answer this research question descriptive coding was used. When discussing evaluation participants stated “listen to me and standardized scores… I was always off the charts with

standardized testing. It was the other stuff that was difficult." Another participant stated "I need to watch them do it and I am going to watch them do it and then I am going to do it and then if I don't do it I will ask the teacher for help." Based on statement like this from participants, 5 categories of codes emerged from the data.

The information that emerged from the interviews can be separated into five categories. The first category that emerged was Tests. Listed in this category are participant's statements which consist of standardized test, exams and weekly quizzes. The second category that emerged was Projects, and the descriptive codes listed within this category included projects, presentations and homework. The third category that emerged as a code was Open Discussion. Participants stated they wanted to be listened to as part of their evaluation. Participants preferred debates and discussions and they wanted the faculty to talk with them, listen to them and understand them. The fourth category that emerged was Simulation. Two participants wanted to be evaluated by acting out a scenario or completing a hands on demonstration. The last category to emerge from the data was Observations. One participant wanted to be observed or watch a video as an evaluation method. There were three participants who preferred multiple different methods of evaluation. Participant one preferred evaluations to occur in the form of standardized tests, homework, or listening to them (discussion). Participant three felt learning could be evaluated best by projects and debates or discussions. Participant six preferred to be evaluated by a hands-on method or with observations and videos.

Research Questions 4

Research question four asked the participants what impact ADHD had on their learning. There were no provisional codes for this research question. The researcher utilized interview

questions four and eight to answer research question four. Statements from participants included “Sometimes the ADHD and not getting my act together was much more frustrating than the ADHD.” Another participant stated “I feel like because of it I have to work double the amount of where I want to get to be because I just because as I said before I wasn’t paying attention to what I needed to do or focus and now I am aware of what I need to do.” After reviewing the transcript of the participants three emerging categories of codes were identified. The first category was labeled, Work Efforts. Comments made by the participants that were within this category included: “ADHD resulted in an increase in work effort, made them work harder, felt learning takes more time than it should, and lastly they don’t see success it too far away”. The second category was labeled, Poor Time Management. Participants felt ADHD was related to not using time efficiently. Phrases such as “not getting my act together, redoing homework, having difficulty with homework, and having to do double the work were responses seen in this category”. The last category was labeled, Distraction. Codes that were listed within this category included “less focused, lack of focus, not focused, not paying attention, needing quiet to focus and a decrease in focus”.

Research Questions 5

Research question five asked what learning strategies are used to facilitate learning. To answer this question, the researcher again used in vivo coding and looked for words, phrases or statements made by the participants which match the provisional codes. The researcher used the participant’s answers from interview question seven to answer this research question. One participants stated “…life is like you have senses. You have sight you have smell, so the more you can implement all of them you then you then have imagination.” Another participant share they use “…class discussion, I feel they are a lot

more engaging. They are a good way to exchange thoughts and test my ideas. Videos can be good if they are the right type of video. Lectures are good for me if I like the subject… if it is something like math they I will stop paying attention and doodle."

Diverging, the first LS category had seven responses identified in the data. One participant liked "flashcards and videos", another liked "discussions and debates". Two participants stated they found "observations helpful" and another participant stated, "discussion with videos was useful". The last two participants wanted to use "self-expression" and "class discussion" as a learning strategy. The next category labeled was Assimilation with responses from two participants. The first participant felt "lecture and reading facilitated learning". The second participant preferred "listening to facilitate their learning". Converging was the third category with responses from two participants. Both participants stated strategies that facilitated their leaning were "laboratory demonstrations". Accommodation, the fourth category was supported by statements from 4 participants. Two participants stated, "physical activity facilitated leaning". Another participant stated they preferred "demonstration" as a learning strategy. The final participant's response in this category supported a "hands on" approach. There were no emerging themes for this research question.

Research Questions 6

Research question number six asked the participants what impact ADHD had on their life. There were no provisional codes used for this research question. The researcher utilized interview question three to answer the research question. Statements from participants included "When I first went to college I found it exciting. I thought I would go into academics and college professor, but then I realized I couldn't get things in on time and didn't

have the organization. That went out the window." There were four categories of codes that emerged from the participant's responses to the interview question three. The fist category was labeled Hypersensitivity. The participants felt ADHD made them "more aware" of what was going on around them and they see things from a different perspective. There were three responses listed in this category. These included: "makes me more aware of things", "I see things differently", and "I focused on the disorder more". The next category that emerged was Lack of Control. Overall, participants felt the disorder gave them less control in their life. There were 5 responses identified in this category. These responses include two participants stating "impulsiveness", another participant stating "he couldn't get things done". One participant felt he was "disruptive in class" and the last participant felt this was the "main reason he was incarcerated". Accepting was the third category that emerged in response to this research question. There were two responses within this category. One participant felt "ADHD was who he is" and the other participant felt "he could not separate himself from ADHD". The fourth and last category was Distracted. There were five responses in this category. Four of the participants felt "ADHD was the result of their lack of focus" or "unfocused". One participant felt "ADHD resulted in him dozing off".

Pervasive Emerging Themes

When reflecting upon the participant's words through the study within the study three themes emerged across all participants. The three themes were not related to any particular research question but, were pervasive throughout the interviews of each participant. The three major themes that emerged included: perception of self, external support, and service/helping. Each of the themes includes subthemes and they will be discussed below.

Perception of Self

Perception of self was a common theme which was pervasive in all the interviews across all participants. Perception of self is how the participant viewed themselves as a learner and what they perceived to have an impact on their ability to learn and be academically successful. Perception of self includes a discussion of ADHD and how the participants viewed the impact ADHD had on their learning as well as their life. There were several subthemes within perception of self which included: motivation, feeling different than others, embarrassment, and perceptions of accommodations.

Motivation was a subtheme discussed by all of the participants within the study. Participants discussed motivation as if it was a behavior, an internal drive or desire, to assist them in moving towards their own personal goal. The goal in which participants referred to was success in academia. All of the participants wanted to be motivated because motivation was believed to be a key factor in successful academic outcomes. All participants felt they needed to be interested in the material being covered within the classroom. Without a deep interest in the material being taught, the participants felt there would be a lack of desire to complete the course requirements and ultimately lead to failure. The desire in the course material was linked to their internal motivation to do well. One participant felt a heightened interest in the course material would give them the internal motivation needed to concentrate on his school work. The participant stated "If I am motivated to learn…like it is a topic that I want to learn. Then I find it a lot easier to pay attention." Another participant had similar feelings "I have to be interested in the subject and have to be motivated to learn." This next participant not only felt motivation was necessary to succeed, they felt without motivation they would ultimately fail and be dismissed from college. "I feel like if I wasn't motivated to

learn I wouldn't try. If I didn't try I think I would fail out and I wouldn't try…. And I feel I would like fail out and have to go home without something like that would be worse and I don't want to do that. I want to stay here".

One of the participants felt her lack of motivation was the reason for her previous college course failures. This participant identified that she continues to struggle with her course work, has a GPA of 2.5 and has repeated courses in her first undergraduate degree. She stated, "As I said before I wasn't paying attention to what I needed to do or focus and now I am aware of what I need to do…. and now I have to do extra work. I am doing the extra bachelors program then to do my master. It is a lot to go through…. that is if I had done it right the first time I would be better off now…. And a lack of motivation…. it's like you have ADHD so it is what it is and you have to deal with it…. motivation, lack of motivation and only learning the necessary points… I felt in the past I had lack of motivation."

The second subtheme within Perception of Self is feelings of being different from others. All of the participants verbalized they have feelings of being different from others people who do not have a diagnosis of ADHD. Being different from others could be social, academically or emotionally. Some participants stated they were told they are different by other students/coworkers/teachers. Throughout the study participants expressed feelings of being different than others, not being normal, or felt ADHD was part of their person and cannot be separated from them. All of the participants noted that at some point in their life they were made to feel they had a behavior issue, they were lazy, they were not listening, or they were not smart. Some of the participants were told by others that they were not normal or that they were an outlier. The participants verbalized feelings of self-doubt and embarrassment as a result of their disability. These feelings of being different with some

participants led to behavior difficulties within the classroom that further exacerbated their ability to learn.

One participant shared his feelings of being different and he believed his view of the world was different than the majority. He stated, "I have been dealing with this all my life. And I try not to use it as a crutch. I try not to seek help but I kinda find the realization that I am doing myself more harm…. I don't do things like everyone else. I have my time with everything I do it differently I see things differently than others." The participant went on to further discuss how ADHD has impacted his life. He believed ADHD directly related to his incarceration and his poor grades in his undergraduate degree, "I am my biggest critic and I don't see too much success because I have so much to go…. It is a double edge sword…. Ultimately they help me but they also work against me. Like I said… no matter where I go I am not going to be accepted. That is not normal. There are certain things that I am distracted easily. I mean common sense is that everyone else is regular." Based upon the participant's statements he feels ADHD has had a major impact on his life and even was the reason for his incarceration for weapons possession.

Another participant discussed how he felt a diagnosis of ADHD has impacted his life. He believes a diagnosis of ADHD has both a positive and a negative impact on his life. He stated, "It has impacted me both positively and negatively. Well my teacher always said I was smart and that I am creative. But they would always say that I would not focus or I would daydream and that I am lazy." "I didn't know what was wrong with me. I think there was something wrong with me. But not at first I just couldn't focus."

Another participant shared a conversation she had with a man she the participant recently met. During the conversation with the man, the participant did not her diagnosis with

the man, but she was angered by the man's lack of knowledge of the disorder and dismissing the disorder as real. She stated, "This happened to me last week. I was talking to this guy and he was telling me that ADHD is not a real thing and he thinks that those kids are just lazy. And I was like oh…ah… I was so mad. I didn't say anything to him about me but I did tell him it was real and they are not lazy."

The third subtheme within Perception of Self was feelings of embarrassment. All of the participants verbalized feeling of embarrassment resulting from the ADHD disorder. The embarrassment could be a result of their actions such as, disruption in class, inability to follow along in class, or their feelings of being different from the other students. Embarrassment could also stem from their feelings of not being as smart, using accommodations, being told by others they are different. One of the participants recalled his experience of being classified as a special education student in middle school. He was embarrassed to be in the smaller classes and while he was embarrassed by it, it also motivated him to do better in high school. He was sharing his reason for not using medication to treat his ADHD. He felt as if he had something to prove to those who thought negatively about him. He stated, "That is why I haven't taken any medication because I know I can push through it, work thorough getting distracted…. I would say it goes back to middle school. Remember I said I got bad grades in middle school. I never wanted to be looked at as a dumb person and in middle school I guess I just accepted it because I was getting bad grades in school and when you get bad grades that is kind of how people look at you. That is how it worked that motivated me to prove to people that I was not dumb. … In middle school, people would say oh this kid is in small classes and he must be dumb blah. I got embarrasses at some point."

One participant discussed how his lack of focus led to behavior issues in the classroom. He shared how his feeling of being different triggered his disruptive behavior in the classroom in an attempt to make him feel like the other students in the classroom. He stated, "It is frustrating to with work like math, reading, writing…I feel ADHD... Because I couldn't focus because I didn't listen, everything took me so much longer…. I would get into lots of trouble with my teachers… I would disrupt the class so I would… all my classmates…would then be off topic so that meant it made me feel better because I was never on topic so it made me feel better if I got all of my classmates off topic…… Lots of teachers really didn't understand it (ADHD). Lots of teachers in middle school were old school teachers and they didn't understand ADHD and they really didn't understand my accommodations they would yell at me if I needed extra time and sooo…. It was very embarrassing. I was embarrassed…. I never told my parents. I just never told them. I felt they didn't need to worry about me having that issue… they didn't need to hear me that I was humiliated….it was something I just dealt with…. I would play a lot of video games and just to forget it…… when I wasn't in school I had a TV in my room… I would watch TV and leave it on and watch TV all night long. Because I felt if I turned if off I would hear my own thought and say to myself why I have this problem? Why can't I focus or why me I am embarrassed and humiliated. I would fall asleep to the TV and I wouldn't have to think about it."

The forth subtheme categorized within the perception of self, is the participant's feeling about the use of accommodations. Within this study, the use of accommodations was not perceived positively by all the participants. Participants felt accommodations were not helpful and some viewed accommodations negatively impacted their lives. Use of

accommodations caused participants to feel embarrassed and participants believed accommodations amplified the differentiation between them and the students without a diagnosis of ADHD. Study participants experienced derogatory comment from peers and family for using accommodations. One of the participants felt accommodations were not helpful but at the time of the interview she was receiving them, specifically this participant was given extra time on test. She shared a conversation she overheard between her mother and another family member. The participant stated, "I knew I had a problem and she (mom) was always helpful…. she tried to get me help like 504. But my aunts and uncles were like why are you enabling her to be lazy and not do her school work…. It really didn't bother me at the time but now that I feel the impact, it is like um it is very, I don't know what the word I am looking for …. It makes me feel that they are ignorant."

One participant who is not using accommodation now in college, but did receive them in elementary school felt very strongly he didn't like them. The participant felt the use of accommodations made him feel different than others and they made him feel not normal. The participant stated, "I had accommodations in elementary school… I would get like extra time for writing… I don't like accommodations. It feels like a defeat. If feels like um sometimes it feels like ADHD is like the worst. When growing up I sometimes felt as if I was not normal. I was treated differently. I will never know like how much is normal. Is this medication making me normal? Or is it like I am going too far or I don't know like what other people live or what their mental process is in compared to mine."

Another participant when asked if she had accommodation in college; she stated, "Not in college but in high school they (the teachers) did like a modified study guide…. First year of high school and then I decided I didn't need it anymore." Another participant felt the use of

accommodations were not beneficial. This participant stated: "they are not beneficial they only give you extra time on test." One of the participants who is using accommodations now for his college courses believes the accommodations are helpful with exams. He stated, "I have accommodations here. I have extra time to take the test but I have to take the test on the same day and if I cannot do that they will make a new test."

External Support

External support was a strong theme that emerged thought the interviews and was mentioned by each of the participants. Support from an external source was discussed by all of the participants throughout the interviews. There were three different types of external support mentioned by the participants which include: faculty support, parent support and peer support.

Throughout the study, the participants discussed a need to have a connection or a relationship with the faculty. Faculty support was very important to all of the participants. The participants believed a positive relationship between the student and faculty was crucial to their academic success. Conversely, the participants felt a lack of connection with the faculty could lead to a poor outcome in the course. Some participants felt previous failures were the direct result of a lack of connection with the faculty in the course. This lack of connection could be a language barrier, not feeling as if the faculty member is interested in their success, or the student feels as if the faculty member does not like them. Some participants wanted to feel the faculty have a vested interest in them, in their personal wellbeing. Some participants will try to bridge the gap between students and faculty by reaching out to the faculty and make a connection because they feel it is necessary to succeed. Not all students have the ability to initiate the relationship with the faculty and those students

seem to struggle more academically. The students who reach out to the faculty member have a higher GPA.

One of the participants stated he has never, not connected with the course faculty member. He stated, "I have always made a concerted effort to see them… I go out of my way." Another participant expressed feeling of anxiety and uncertainty when she doesn't connect with the faculty member. This participant stated there is and uncertainty and concern as to how the faculty will perceive her if there is no connection. She stated, "I get nervous…I feel like I don't know and I am afraid if I ask it is it going to come out confrontational or… there is a Mexican expression like being a smart-aleck. I was worried is he going to think I am a smart-aleck and life is complicated because you second guess a lot of stuff."

A participant shared an experience from high school. The experience discussed an instance where there was no connection between them and teacher and this resulted in poor performance in the class. She now realizes, in the college environment, she can no longer go through the process of not connecting with the faculty and stated, "Back in high school I didn't like the Spanish teacher I didn't try. But I don't do that anymore because I will deal with it and just try. Like in high school I was very stubborn, like if I didn't like the teacher I wouldn't try. I would be like why am I going to pay attention but now I like totally changed I now think about my grades. Prior to now I had to have that connection to get a good grade. If I had the connection, I would do well if I didn't I didn't try."

Another participant only recalls having one faculty member who he did not develop a connection. This participant feels he now has the ability to talk with the faculty and ultimately develop a rapport with them. He also stated there is a need to feel he is liked to

achieve that connection with the faculty member. The participant stated, “Besides the one person we talked about I think I have connected with all the faculty…… I am just nice and they like me. I’m very outgoing and kind to them…. I smile and they develop a liking to me. If they like me, I like them back. This person I don’t know if she liked me but she didn’t help me…. She didn’t show interest in students and if you don’t show interest in me I’m not going to show interest in you. …. Why if you are not going to help me why would I want … to have you as my teacher.”

There was another participant who vocalized similar feeling about the faculty. This participant needed to know the faculty member was going to assist them in the coursework and show a vested interest in him. He also wanted the faculty to share personal information with them. This sharing of personal information to provide the participants with a feeling they have a strong interpersonal connection and which helps the students becomes more accepted in the classroom. He stated, “Wanted a teacher who was involved… need to be able to really influence kids be like… interactive and be involved with them on a personal level. I felt most of my teachers are like… one teacher talked about how he was he try to save money and redo his kitchen and then after he ripped if up he figured out that he didn’t know what he was doing and had to hire someone. He was sharing with us and talking to us on a personal level…I respect that. And it should be like they should brighten your day. If they don’t have a personality and don’t want to brighten your day, then why are they teaching?”

Some participants in addition to needing faculty support, also need the support of their peers. Participants found academic assistance and social support from their peers. Seeking out help from their classmates to help with studying, obtaining notes, or assistance with long term projects was a learning strategy used by the participants. When participants

procrastinated with assignments, were unable to focus and/or did not have the notes that were need to study they often turned to their peers for assistance. Participants also at times verbalize difficult starting a project or not managing their time appropriately to get the assignment completed. It was during these times they would seek out their classmates for assistance with notes and summaries of reports.

One participant stated, "We had those quarterly projects to do. We had an entire quarter to do them, with readings outside the class. I was always the one, two nights before it was due running around the library trying to find the articles that are necessary for completion. One time…I didn't finish… I bamboozled a friend of mine to giving me her index cards with her summaries on them…I was desperate." Another participant discussed difficulty with focus in the classroom. The lack of focus lead to sporadic notetaking. Participants would then ask classmates for notes to use to study. Another participant discusses using the discussion in class as a strategy to prepare for exams. He stated: "I like to hear what others took away from what we are learning. If someone says something smart, then the teacher will be like yeah that was very smart of you. And I will remember that and catch if for a test."

Service/Helping

The final theme that emerged in this study was that of helping or service to others. This theme was expresses by all the participants within the study. During the initial stage of the interview, participants shared with the interviewer the reasons for making the contact with the investigator to participate in the study. They wanted to help with the research or they were hoping this research would help others understand ADHD. Each participant at the end of the interview asked: "was this helpful" or "did this help you". One participant was having

difficulty getting her thoughts together during our interview. She was very apologetic because she felt her answers were not being helpful. She stated, "I am sorry I am having difficulty getting a concrete answer. It is hard on the spot to think of this." Two other participants were involved in a research study prior to this one. Both participants indicated taking part in a research study was helpful to them, but they also felt the results from those studies were helpful to the others "understanding ADHD and people who are not typical learners."

The career choices of the participants in this study centered on service oriented professions. Participants within the study had chosen careers of police officers, teachers, diplomacy and psychology. The participant who chose to be a policer officer was a volunteer firefighter and EMT before her entry into the police academy. She stated, "My mom says ever since I was little I wanted to be a police officer but I don't want to work on Christmas… When I was 14 I started to volunteer as a firefighter…. I still do it and I went to EMT school and started to do dispatch and became a class one then a class two…. They are related to first responder stuff. So firefighting and first aid helps me a work…" Another participant is studying criminal justice and plans to become a police officer after college. He stated: "I want to be a police officer… I like helping people and my dad worked for the New York Police Department and so I grew up around the precinct."

Some of the career paths discussed were not specifically service oriented professions. But when you discussed the career path with the participants, service or helping emerged from the conversation. One participant who is in diplomacy and languages wants to conduct field research. She stated, "I signed up over the summer to take part in a research expedition thing… it is going abroad for this biodiversity project…I would like to be a research assistant

to help others ah to help science and things I realize how it is really an interesting thing to me." Another participant discussed his career future after the completion of his graduate degree in business management. When asked what he wants to do in the future he stated: "I want to do philanthropy. I want to be a CEO… I want to be to majority shareholder for various companies… Work my way up…. I want to fix diseases and poverty. I will find joy along the way."

Several participants want to work with children. One of the participants shared her desire to be a psychologist. She stated: "I don't know what to do school psych or forensic psych. They are kind of different but I want to work with children, that is something I definitely want to do…. That is why I am back in school." This next participant has a desire to work with children, sick children. His desire to work with sick children was because he felt children are the future and without them there is no future. He stated, "ADHD it has had a negative effect on me…it has taught me…how I can succeed in life…. I want to study pediatric oncology. Or pediatric emergency. I feel children are the future and if they are not surviving then there is no future. Peds oncology is not a happy or um…its bad moments can be bad. But someone needs to do that. It is necessary for these kids…. My mother and grandmother doesn't want me to do it…. They are worried… they tell me about the ones I will lose… but I tell them I don't plan on losing any…. I've changed my major so many times. I was originally wanted FBI/CIA. I wanted to help people but never knew exactly what I wanted to do. I always wanted to help people the world. … I wanted a more altruistic profession to help other not just a corporate lawyer. When I wanted to be a lawyer it was and environmental lawyer not just any lawyer….."

Conclusion

The participants within this study with ADHD, verbalized a preferred method of studying and learning. Half of the participants within the study had a LS preference of assimilation. They preferred a logical orderly approach to learning, and they enjoyed reading and listening to lectures. Almost all of the remailing participants vocalized a preference for accommodation which is a hands-on approach but also includes the orderly process of problem solving. Needing time to process information was a preference of the participants. The preferred LS method used by participants to facilitate learning strategies is divergent. Nearly three quarters of the participants want to be creative, use brainstorming methods, and work with others. When being evaluated by faculty participants in study prefer test, projects and class discussions.

The participants in this study felt their learning was impacted by ADHD in three different ways. First, participants felt the disorder forced them to work harder than students without a diagnosis of ADHD. Secondly, ADHD impacted their ability to manage their time. They noted that they often procrastinate and lose track of time. Lastly, they are distracted as a result of the disorder. The impact of ADHD is not only contained to their learning but also to their life. Participants felt that they are more aware of their surrounds than others and see this as a positive attribute. However, the participants noted having decrease control over their actions which can have negative consequences. They can be easily distracted and unfocused which leads to issues in their life. However, all the participants see ADHD as a part of them which cannot be separated from their person but must be dealt with to succeed.

The inability to separate the ADHD from their person leads to the first emerging theme perception of self. ADHD is part of who they are and they cannot separate it from

themselves. The participants feel the disorder causes them to be different than others. They are aware others see them different or in a negative light. They do not like when people tell them they are different or their differences are exaggerated. The second emerging theme was external support. They need the support of faculty and peers to succeed. They want a connection to the faculty and they feel the faculty should be supportive of their needs. Parents are also part of the support system. Knowing their parents support them they feel is important to their success. Finally, the last emerging theme was service orientation. Interestingly, all participants verbalized a need to help others throughout the interview. This need to help others was clearly apart of how they see themselves whether working with the underserved, children, or ill. This need to serve can been seen in many of the career paths that the participants choose.

Chapter V

Discussion/ Interpretations

With the increase in the number of students with a diagnosed of ADHD entering college and the academic difficulties of these students noted in the literature, it is important for educators to identify learning strategies and teaching methodology that will assist the college age students with ADHD to meet their educational needs A key aspect of this study was to explore if college age students with ADHD have a preferred learning style and to understand their perceptions that the diagnosis of ADHD has had on their ability to learn, study, and be academically successful. Additionally, the research sought to explore the impact ADHD has had on the participant's life. This qualitative phenomenological research study was conducted to gain a deeper understanding of the college age student with ADHD and their life experiences as they are related to learning. The participant's described the impact ADHD has on their learning as well as the impact it has had on their life.

Demographic Findings

The age, gender, and ethnicity of the participants in this study were similar to what is documented in the literature. Participants in this study were 60 percent male and 40 percent female. The disorder is seen more in males than females. The male /female ratio is in the literature is a 3:1 ratio in the general population (Fuller-Thomson, Lewis, & Agbeyaka, 2016) and in this study the ratio was a 2:1. Research suggests females with ADHD are under diagnosed and under treated, which may account for the different ratio for this study from the literature. Additionally, the sample size of the present study is small and can affect the male to female ratio.

According to the DSM V (APA, 2013) diagnosis of ADHD should take place prior to the age of 12 years of age. Of the 10 participants in this study, 80% reported a diagnosed of ADHD in elementary or middle school. The participants were not able to give an exact age of diagnosis, but they were able to determine the grade in which they began to have behavioral or educational difficulties. (Barkley, 2006). Academic difficulty in school is one of the key factors leading children to be diagnosed with the disorder (Loe & Feldman, 2007). The symptoms of ADHD are believed to have a great impact on the child's cognitive and academic ability (Huang-Pollock & Karalunus, 2010; Kieryian et al, 2014). While eight of the participants in this study were diagnosed with the disorder during their primary education, one participant displayed symptoms in middle school but was not diagnosed until he was19 years old, even though he was having difficulty earlier in school. This participant was led to believe the difficulty he experienced was a result of him being lazy or not paying attention. The other participant who was not diagnosed with ADHD until she was 44 years old, did not have trouble in school until college. She felt the rigor and structure of the catholic education system received early on in elementary and high school, provided for her educational support she need at that time.

Stimulant medication is widely used as the gold standard treatment of ADHD (Biederman, et al, 2006; Biederman et al., 2011; Fabiano et al., 2010) and 80% of the participants in this study were treated with stimulant medication at some point during their primary education. However, at the time of the study only 40% of the participants were using the medication as part of their treatment plan. Adverse effects of the medication were the most common reason participants provided for not continuing use of the medication. The medication to address the symptoms associated with ADHD has multiple side effects such as:

elevation heart rate and blood pressure, anxiety, and decrease in appetite and weight loss, sleeping deficits, and mood swings (Adams Holland, Urban & Sutter, 2019). For this reason, individuals with ADHD often stop using the medication even though it has the desired effects of increasing focus, decreasing impulsivity and hyperactivity. Participants in this study stated the medication helped with symptom management, focus and impulsive behavior. However, participants discontinued the medication usage because they didn't like the way it made them feel, their parents discontinued the medication, or they could not use it in their present living arrangements.

The last demographic question in the interview discussed the students' GPA. The cumulative GPA of the participants in this study varied. There were four participants in the study who did not have a GPA because this was their first semester of college. Two participants had a cumulative GPA at the A or A- level. The remaining four participants had a reported cumulative GPA at the C level. The participants with the lower cumulative GPAs reported more difficulty with course work and reported one or more course failures with subsequently repeating the courses. Other studies have spoken to a lower cumulative GPA in the ADHD student as well as repetition of courses (Kent, 2011), however, this study is from the participant's perspective.

Research Questions Findings

There were six research questions within this study, developed based upon the gap in the literature. The research questions acted as a conduit to the development of the questions used during the interviews. The interview questions were designed to provide the college age student with ADHD an opportunity to share their experiences and gain insight into how the experiences affected their ability to be academically successful**.**

RQ 1, 2, 5

Research questions one, two and five were developed to identify the participant's preferred method of learning, studying and identify strategies they used to facilitate learning. The participants were encouraged to express their thoughts, feelings and discuss how ADHD has impacted their learning. The words the participants used to describe their learning were listed under one of the four LS in Kolb's ELM (1984). The words the participants used to describe their learning were rich and provided a deeper understanding of their learning process.

The words used by participants to describe how they prefer to learn, study and strategies to facilitate learning were categorized into the four different LS of Kolb's ELM (1984). In this study, 50% of the participants described the LS assimilation when learning, while another 40% described using the LS accommodation to learn. When participants described their preferred method of studying, 50% of participants had a preference for assimilation, while 30% preferred accommodation. When discussing strategies used to facilitate learning, 70% of the participants described using the Divergent LS. The terms learning and studying are closely related, however, learning is the method in which an individual acquires new knowledge and studying is the method the student uses to memorize and retain the new knowledge (Billings & Halstead, 2012).

Participants in this study, whose LS preference was identified as assimilation, were comfortable learning and studying in a lecture environment. They also found reading as a desirable method of learning new material. The material being taught to the students with a LS of assimilation needs be organized, concise and conducted in a logical, orderly manner. In general, the learner with an assimilation LS wants the opportunity to read the material more

than once. Additionally, they need time to think about the material and review the material to process the information. In the present study, participants discussed the need to go home and review the material, to study the material on their own. Additionally, they wanted textbooks with reading material which reflected the content being taught in class. The participants in this study did not like pop quizzes because it did not give them the time they needed to review and process the information. Participants need class lecture to be organized and informative but also it needed to be interesting to capture and hold their attentions. The rereading of material to process the information is consistent with the findings by Lewandowski, Lovett, Coding, Gordon, (2008). Lewandowski et al., (2008) found college students with ADHD who needed to reread material frequently to process the information. Although not tested in this current study, it is worth noting, that the need to review and reread material found in Lewandowski et al., (2008) was greater in college age students with ADHD then those without ADHD.

Almost half, 40% of the participants in this study described their preferred LS method for learning new material as accommodating. Additionally, 30% of the participants in the study described their preferred LS method for studying to be accommodating as well. Learners that have a LS preference of accommodating have a desire for a hands-on learning. This method of learning is interactive, the learner is action driven and is comfortable using a problem-solving approach. Hands on learning allows the student to be more engaged in the material being taught. It lends itself to an increase in retention of material because it is not a passive method of learning, but more active and engaging. Interestingly, this method of learning which includes problem solving and experimentation utilizes a logical organized approach which can also be found in assimilation learning. Participants in this study

verbalized a need to have learning situations demonstrated to them, and then the participants need to complete a return demonstration.

Interestingly, nearly three quarters of the participants in this study described strategies to facilitate learning using methods listed in the divergent LS. Strategies that facilitate learning are methods to assist the learner in connecting the dots, putting all the pieces together and understanding the learning concept (Billings & Halstead, 2012). When using a divergent LS approach, the learner, enjoys working in groups, developing new ideas, and brainstorming with other learners. The development of study guides, use of flashcards, and having open discussions are techniques used with this LS. In addition, the divergent learner prefers to watch a demonstration or video; they do not enjoy lectures. This LS tends to use more creative approaches to leaning. In this study, the participants described strategies to facilitate learning which include the following: study guides, flashcards, videos, and group projects. The participants in this study like to gather information on a subject and utilize it to master their learning experience. Development of study guides, flashcards and incorporating group discussions into studying are a method of active learning, they assist with building confidence and they help with the memorization of the material (Wissman, Rawson, & Pyc, 2012). While assimilation and accommodating are more structured, logical and organized LSs. The divergent LS is unstructured and utilizes a creative. Interestingly, 80% to 90% of the participants in this study preferred to learn and study using a structured LS of assimilation or accommodating. However, 70% of the participants preferred a more creative approach and use strategies to facilitate learning.

As we look into the literature, there is evidence supporting that assimilation and accommodating LS are prevalent in the general population. Adesunloye et al (2008),

examined the LS preference in 42 medical students and found assimilations was the most prevalent LS reported by students. In Adesunloye, et al., study, students specifically preferred to learn in an organized logical learning environment. Johnson, et al., (2016), explored LS preferences in college age students studying anatomy and physiology. The faculty in the course instituted hands on activities and 86.6% of the students found the hands-on activities to be beneficial to their learning. Gonzolaz, et al., (2017) examined LS preferences in graduate nursing students and found that nursing students had a preference for logically organized factual learning 87%. Interestingly, though in this study while nursing students prefer using diagrams, flow charts and demonstrations 78.7% to learn, there was a group of students who preferred completing group projects (59.9%). It is important to note, that while the studies mentioned above were conducted on college age students, the participant in the study are not learning disabled and do not have a diagnosis of ADHD. Additionally, the medical student and the nursing student studies are graduate level college students and these student groups traditionally have successfully completed an undergraduate degree.

While, the students with ADHD in this study have similar LS to the general population via the interview process they were able to share with the researcher the difficulties they experienced with learning and speak to the use of learning and teaching strategies used to facilitate learning. Through this research we have gained greater clarity as to the learning process impacted by the symptoms of the ADHD disorder in college age students, which is not related to intelligence (Barkley, 2006). Difficulty with coursework, repetition of courses, and overall lower cumulative GPAs can be related to the inability to focus and concentrate. Inability to focus, lack of organization, poor planning and decision making, can all impact the academic success of the students with ADHD. Students with

ADHD do not have the same level of working memory as students without a diagnosis of ADHD. This altered working memory leads to more difficulty in the classroom and lower GPAs. These findings are consistent with the other findings in the literature (Reaser, Prevatt, Petscher, & Proctor, 2007). In the present study, participants had more difficulty with organization, time management, concentration, and selecting main ideas from a reading passage. As noted in the literature all of these functions are related to the role of EF, specifically working memory. Helping students with ADHD to employ effective strategies that promote learning is paramount for all educators even at the college level.

RQ 3, 4, 6

When participants were describing their preferred method of evaluation, there were five categories that emerged from the participants' responses which included: test, projects, open discussions, simulation and observations. Tests was the most prevalent with 50% of the participants preferring this method of evaluation. Projects and open discussion were discussed, each with 30% of the participants finding this method of evaluation favorable. Tests or exams are a more objective method of evaluation with standardized tests being the most objective. Tests are a quantitative method of evaluating a student's knowledge. The process of preparing for a test or exam increases the knowledge of the learner in the subject matter. Exam preparation strengthens memory and allows the learner to learn the material on their own, which is important for the ADHD college students (Billings & Hasting, 2012). This may be why the participants in this study found tests to be a preferred method of evaluation. However, not all student are good tests takers. Lewandowski, Lovett, Coding, Gordon, (2008) found students with ADHD have trouble with finishing timed tests and are more likely to score lower on standardized tests than the normed group. It is interesting that more than 50%

of the participants in this study found tests to be a favorable method of evaluation when test taking can be difficult for them. When discussing tests, participants want to have weekly test or quizzes in their courses. They found weekly quizzes keeps them accountable for the material and weekly assignments. Weekly quizzes decrease the amount of material the student is responsible for each week. This method of "chunking" breaks up that material into a more manageable amount so that it is easier for students to process. Participants described the difficulty they have studying for a midterm or final exam. The amount of material is too great, they procrastinate, do not keep abreast of the weekly readings, and leave preparation for the test to a few days prior. By the time the participants begin to prepare for the midterm or final, the amount of information to study is to great and the participants stated they cannot get through all of the material. The participants need the assistance from an outside force to help them be accountable for the material in manageable chunks. The faculty member who requires weekly quizzes or assignments hold the ADHD student accountable for the course work and thus may hinder the student's ability to procrastinate.

The use of open discussion and projects is a more collective method of evaluation and can be subjective in nature. Participants who found these methods of evaluation favorable felt they were more creative and learned better from their peers. They preferred to show their knowledge creatively. Thus, projects whether group or independent, provided them with the opportunity to demonstrate their knowledge of the material using their strength of creativity. Use of the group discussion again requires interaction from multiples members of the class and can be more subjective in nature for an evaluation method. However, open discussion learning allows the students to see the perspective of other students and learn from their perspective. Evaluation through projects and class discussion require diligence on the part of

the faculty and may not be feasible in all disciplines. However, open and discussion and projects also provides the ADHD student support from classmates and faculty, once again holding them accountable for the work, assisting them with organization, and not allowing them to procrastinate.

When asking participants about how ADHD has impacted their learning, three categories emerged from the discussions: work effort, poor time management, and distractibility. These three categories are interrelated, and can all be linked back to the characteristics of the disorder, inattentiveness (APA, 2013; Barkley, 2006). The inattentiveness of the disorder causes the learner to be easily distracted or unfocused. All participants felt ADHD was the reason they were distracted, and this distracted behavior negatively impacted their ability to learn, study and prepare for assignments. The participants felt the lack of focus made the learning process more difficult. Being unfocused in the classroom would lead to daydreaming, doodling, or just not paying attention to the lesson. In some situations, the inattentiveness could lead to disruptive behavior leading to faculty frustration. For example, the more difficult the material being taught or the more uninteresting the material is, the more unfocused the participant becomes. Interestingly, the participants all vocalized the disappointment they experienced at not being able to focus and how it made learning more difficult.

Not surprising, the participants felt they worked harder than other students who did not have a diagnosis of ADHD to have the same or similar outcomes. They identified that they often needed to retake classes, redo projects, reread material multiple times to process the information, and in general had to spend more time to complete their academic requirements than their peers. This level of increased work and difficulty mastering the

course material exacerbates their feelings of being different. Unfocused behavior in the classroom, repeating courses previously failed, lower grades than non ADHD students and inability to complete work in a timely manner are consistent findings in the literature (Huang-Pollock & Karalunus, 2010; Kieryian et al, 2014) Interestingly, though the participants in this study felt there was a relationship between the distractibility they experienced and poor time management.

Poor time management was described as redoing work, not getting their act together to do the work, as well as difficulty completing homework. Difficulty with homework or assignments outside of the classroom was pervasive with all of the participants. The difficulty they experienced when completing homework was frustrating to them and led to anxiety. The anxiety developed from fear they would not have enough time to complete the assignments. Some of the participants felt that a little anxiety was needed to complete the task. Other participants were completely paralyzed by the anxiety and it made completing the assignments even more difficult. The initial writing or beginning a class project was often most difficult for the participants. They verbalized struggling to start the assignments, however, once they were able to start the project it seems to be manageable. Participants vocalized strategies they use to complete the assignment could be extreme. One participant discussed her need to go to the library with sound eliminating headphones to complete class assignment. The participants found procrastination was common when completing assigned task. Homework was not the only task they had difficulty with, completion of any out of class assignments, studying, reading and writing papers were all difficult and the participants procrastinated in completing the tasks. Ultimately, this procrastination or poor time

management would increase the time needed to complete projects, study and engage in general school work.

When participants were asked how ADHD impacted their life, four categories emerged. The participants discussed feeling of hypersensitivity, lack of control, acceptance, and distraction. The impact ADHD has had on their life was profound. The participants shared they do not separate ADHD from themselves. They verbalized "ADHD is who I am". They see the disorder as a part of them. They "don't know what it is like to live without the disorder", it is all they have ever known. They accept the disease as it is who they are, and they accept the consequences of the disease. Accepting the disease and consequences does not mean that they are not angered, saddened, frustrated, or experience despair by the implications of the disease. The disease for some has affected their ability to learn, develop relationships, financial implications, or freedom. Several participants recall an experience where they were told by others, they are different, they are outliers, using stimulant medication is cheating, or use of accommodations gives them an unfair advantage. The participants feel people/faculty who do not have a diagnosis of ADHD do not understand them and do not understand the disease. For many they have come to accept they are different from "the norm" as a result of the disorder.

The lack of focus is not limited to academics. Distraction or lack of focus was a category that surfaced when discussing the impact ADHD has on learning. The participants mentioned it again when discussing the impact ADHD has on their life. Distraction, unfocused behavior, demonstrating inattentive behavior in the classroom are common symptoms of ADHD and not limited to this study population (Huang-Pollock & Karalunas, 2010; Morningstar, Trainor, Murray, 2015). Participants felt the distraction impacted all areas

of their life. They described starting a task and then "winding up" on a completely different thought process/task and not knowing how you got there. During the interview process, one participant had difficulty completing her thoughts and answers. She would completely lose her train of thought and move on to a different conversation. She was apologetic; she felt she was not providing answers to the questions. It was profound, at how distracted she became and couldn't complete her train of thought during the conversation.

The participants in this study equated their impulsive behavior to a lack of control. Impulsive behavior is a common symptom of ADHD which causes the individual with ADHD to act upon impulses that a person without ADHD would not act (Huang-Pollock & Karalunas, 2010; Morningstar, Trainor, Murray, 2015; DSM V, 2013). Participants in the study felt this impulsive behavior impacted their life. The loss of control was described as not being able to complete tasks in a timely manner, having impulsive disruptive behavior, inability to focus made the participants feel they have a lack of control. Completing assignments on time, finishing their degree in four years like their contemporaries, doing well in school, are examples the participants described as a lack of control. One participant felt this lack of control or impulsive behavior was what lead to his incarceration. The impulsive behavior, the difficulty in finishing a college degree in four years, or the difficulty students exhibit when completing homework are discussed behaviors observed in individuals with ADHD. However, the literature does not discuss the feelings of lack of control described by the participants (Barkley, 2006; Huang-Pollock & Karalunas, 2010; Morningstar, Trainor, Murray, 2015).

When interviewing the participants, there were topics discussed in which the participant had a heightened interest. One participant was interested in biblical studies and

would seek out reading material on the subject and read as many books on the topic as she could obtain. Another participant described his love for the air force. His mother had old books about the air force and her would read and reread the books, not because he didn't comprehend the material, but he said he was "obsessed" with the books. Several other participants had similar stories discussing football, sports in general or law enforcement. The literature refers to this heighten vigilance or increased focus as hypersensitive or hyper focused (Mahdi, 2017). Individuals with ADHD are able to focus vigilantly on things that are of interest to them. When individuals with ADHD are interested in a topic, they may read multiple books on the topic, reread a book, or watch a movie multiple time. In the Mahdi (2017), study this high energy and drive was perceived by the participants as a strength of ADHD. In the present study the participants viewed their hypersensitivity as a positive. They felt they had a different perspective than others, they could be more focused when interested, and they believed when engaged they could be more observant than others

Emerging Themes

The focus of this qualitative research study was to obtain a deeper understanding of the college age student with a diagnosis of ADHD and gain an understanding from their perspective of the impact of the disease on their life and learning. The expectation of a qualitative research study is to provide an understanding or a deeper meaning of the experience the participants have in common (Creswell, 2018). During the analysis of the transcripts, there were three common themes that resonated with each of the participants. The themes emerged through rich thick descriptions the participants shared during the interview process. The three themes were not related to the specific research questions but were

discussed by all the participants throughout the interview. The three themes that emerged were Perception of Self, External Support, and Service Orientation.

Perception of Self

The first theme is Perception of Self. This theme discusses how the participants see themselves and how ADHD fits into their views about themselves. The participants were very open during the interviews. They discussed feelings, family, and relationships and the difficulty they have experienced within the education system.

Motivation is the first subtheme of Perception of Self. Motivation was described by the participants as a behavior and internal drive to stimulate them to meet their academic goals. All of the participants discussed motivation and often it was discussed in combination with interest. The participants in the study often discussed a link between interest in the course material and being motivated. Several of the participants felt without interest in the material, it would be difficult to get a passing grade in the course. One participant felt her previous failures were directly related to lack of motivation. Some participants were able to overcome the lack of interest and do well in subjects they found uninteresting. One participant stated, "I just do it." This participant had the highest GPA of all the participants. She was very driven and goal oriented. She found a way to identify the internal motivation that was necessary to be successful. This drive to succeed was not evident in every participant.

The lack of internal motivation in ADHD students is discussed in the literature. Volkow, et al., (2011) suggests a decrease in dopamine in the brain of the ADHD adult, leads to a decrease in motivation in the individual. The Adult Learning Theory developed by Malcolm Knowles (1984) list internal motivation as an assumption of the andragogy theory.

The theory assumes an adult learner has internal motivation that drives them to learn. This is in contrast to pedagogy theory which suggests the child has little internal motivation and all of the motivation to learn is provided by the educator.

Motivation is a key concept for academic success in the adult ADHD learner. Participants discussed their lack of motivation and the need to have motivation when concentrating on their work, paying attention in class, and completing school assignments. They also described the difficulty they experienced completing these assignments when there was no motivation. According to Barkley (2006), adults with ADHD need to have an internal motivation to be successful academically. However, this internal motivation must be strengthened and supported by a more powerful source of external motivation. The internal motivation in the ADHD adults is weak and to be goal driven, there must be an outside source. This theory is consistent with the descriptions the participants shared during their interviews.

The second subtheme in Perceptions of Self is the awareness the participants had of themselves. Throughout the interviews the participants discussed their feeling of being different than others. They also discussed how ADHD was part of their identity and they could not separate themselves from the disorder. They had always lived a life with ADHD and never knew what it was like to live without it. The feelings the participants have stem from the difficulty they have academically, socially, or emotionally (Ahmann, et al., 2017; Sibley, Olson, Morley, Campez & Peham, 2016). The literature is equally rich with studies discussing how ADHD children and adults have difficulty with academics, relationships and difficulty with employment (Fuller-Thomson, et al., 2016; Morningstar, et al., 2015; Weisler & Goodman, 2008). The participants were able to verbalize what is documented in the

literature and it has led to feelings of being different. All the participants at some point in their life have been told by a teacher, parent, coworker, friend, or relative they are different, lazy, or and outlier. They have been told they have behavior issues, they are lazy for not being motivated, they don't follow directions, or they do not listen.

Embarrassment is the third subtheme in Perceptions of Self. All participants shared feeling embarrassed about their ADHD diagnosis. During the interviews participants shared their stories of the embarrassment, many which happened at school or when they were with peers. Clearly, the feeling of being different was the leading factor impacting their feeling of embarrassment. One participant stated how he often would go out of his way to make sure all other students in his classes were off topic so that they would not notice he was the only one-off topic. Another participant noted how he hated being in the "small classes" or the "dumb kids' class". The term small class to him, just intensified his feeling of being different and embarrassed. Failure was also seen as a source of embarrassment especially, when having to go home and share with their parents that they failed a course, and knowing their parents would be disappointed in them.

Accommodations was another theme that was discussed throughout the interviews. Use of academic accommodation is the final subtheme in Perceptions of Self. Many of the participants did not see accommodations as a positive. Again, several participants viewed accommodation as source of embarrassment. Participants discussed the lack of usefulness of accommodations. The accommodations that were provided in college didn't meet their needs. Many participants stated they received extended times on exams, and they felt that didn't meet their needs. Miller, Lawandowski, & Antshel, (2015) discuss extended times on exams for ADHD adults. The study suggests extended times on exams is not a specific

accommodation and may not meet the needs of the students and is not needed in all circumstances. The participants in this study do not see the values in extended time on exams. However, the literature discusses the difficulty ADHD students have on timed exams and supports the use of giving ADHD students more time (Ahmann, et al., 2017; Loe & Feldman, 2007). The participants discussed the use of accommodations within the universities they attend. The perception of the participants is the faculty do not like to use accommodations and they often have to ask for them to be implemented. This perception is supported in the literature. There is a variation in use of accommodations and their use is dependent on the professor's willingness to provide them (Vance & Weyandt, 2008). Interesting, one of the participants found the use of accommodations to be embarrassing. This participant had very strong feelings regarding accommodation usage. He was adamant not to use them. He felt they amplified his feelings of being different and it was a source of embarrassment to him. This participant was told by an online video gamer that using accommodations and medication for the treatment of ADHD was cheating.

External Support

External support is the second theme that emerged in the study. It became evident when analyzing the data, external support was important to the participants. The external support could be from a teacher, a parents or peers. However, most often the participants discussed needing support from the faculty of their course. This support or connection with the faculty was believed to be necessary to be successful academically. The participants need to know the faculty member has a vested interest in them as a person, as a student, and they need to feel the faculty wants them to succeed. As part of the discussion in the interviews, the participants identified reasons preventing the relationship with the faculty from developing.

The barriers included a heavy accent or language barrier, a dislike for the faculty, or feeling the faculty does not like them. While, some of the participants had enough confidence to initiate a connection with the faculty in their courses, not all participants had that level of confidence or were unsure how to pursue the connection.

Surprising, a connection with peers or parents was not emphasized as highly as a connection with the faculty. Peers were relied on for classroom issues. Some of the participants would seek out peers for notes, studying, or assistance with long term projects. Parents were more supportive financially, for living arrangements, or when the participants were in grade school and needed an advocate.

Barkley (2006), theorizes ADHD adults need an external force to assist with the motivation to learn. The support the participants seek from their faculty could be the outside force that is needed to motivate the learner. The participants in this study felt that it was necessary for them to connect with faculty. When the student connected with the faculty, some verbalize more interest in the coursework, others verbalized more confidence. The external support they received from the faculty helped strengthen their internal motivation. According to Barkley (2006), internal motivation in the ADHD adults is weak and must be a goal to improve.

Service/Helping

The final theme that emerged in this study was that of helping or service to others. This theme was expresses by all the participants within the study. During the initial stage of the interview, participants shared with the interviewer the reasons for making the contact with the investigator to participate in the study. For many they just wanted to help with the

research while for others they were hoping this research would help others understand ADHD.

When reflecting upon the career choices of the participants in this study many were centered on service oriented professions such as police officers, teachers, diplomacy and psychology. The participant who chose to be a policer officer was a volunteer firefighter and EMT before her entry into the police academy. Although, some of the career paths discussed were not specifically service oriented professions when the PI discussed career path chooses with the participants, service or helping emerged from the conversation. Several participants wanted to work with children in the future and more specifically the underprivileged or underserved.

Chapter VI

Conclusion

This qualitative phenomenological study explored the learning style preferences of the college age student with ADHD. The unique experience, descriptions of preferred learning methods, and the difficulties college age students with ADHD have encountered have never been studied before. The participants in this study were recruited from three different universities in the northeast as an attempt to provide institutional diversity. Additionally, gender and cultural diversity was sought. Through rich descriptive discussions, participants shared their experiences describing the affects ADHD had on their ability to learn, study and achieve academic success. Not surprising thought, the difficulty the participants experienced was not limited to the academic environment. From the narratives provided during the interviews, the participants share the impact ADHD has had on their life in general. The descriptions provided by the participants were rich and thick and described the essence of the lived experience of the ADHD learner. The participants were open and honest and shared their unique experiences, describing ADHD and the challenges they encounter both in and out of academia.

Participants in this study verbalized a preference for the assimilation and accommodating LS when studying and learning. A learner with an assimilation LS has an inclination for organized, concise lectures, reading material, and prefers to be given adequate time to process the information being taught. A learner with an accommodating LS has a predisposition for hands-on learning, problem solving, and prefers an active learning process. Armed with this insight on perceived LS preferences of college aged students with ADHD, teacher in higher education can now utilize this information to assist them in meeting the

needs of their college students with ADHD. Moving forward, educators can match the teaching methodology used in the classroom to that preferred by the student with ADHD and ultimately assess whether their perceived preference meets their actual learning needs. Participants also verbalized their preferred method of studying, being evaluated and the strategies they prefer to use when learning, all of which can offer insight to the educator.

The unanticipated participant's open discussion on the impact ADHD has had on their ability to learn as well as their life provided valuable insight specific to their "Perception of Self" and preference for "External Support". These insights further help in deepening ones understanding the perceptions of and needs of college age students with ADHD.

Limitations

As with all studies, there are limitations that must be noted. Specifically, the participants were recruited using purposeful and snowball sampling, thus using a non-randomized method. It was necessary to use this method of sampling since all participants needed a diagnosis of ADHD and to attend college. Additionally, all participants self-reported a diagnosis of ADHD and the experiences they encountered. With self-reporting of information, there is always the potential for bias or inaccuracies. This method of collecting information was necessary to obtain the participants' perspective of the disorder using a qualitative phenomenological approach. Although data saturation was reached following the 10th participants interview one might suggest the sample size of 10 is small, and that the findings in the study cannot be generalized. However, one must recognize the reason for reaching saturation in qualitative research and that the purpose of a qualitative study is not to generalize the findings but to provide a deeper understanding of a phenomenon that has not been explored.

Recommendations

The results of the study spark numerous areas for future research for educators working with college age students with ADHD. Given that faculty were identified by the participants as having a great impact on their academic success, it would be valuable to identify the perceptions of faculty toward the ADHD college student. It is equally important to examine the teaching strategies faculty currently use to assist the ADHD college student and compare them with various alternate teaching and learning strategies that might support the college age student with ADHD LS preference. This author would argue that while until recently ADHD was considered to be a childhood disorder, there is a clear need for educators, medical professionals, parents and researchers to see it as a life span disorder. Thus, future research discussing the perceived implications of this disorder in the adult is warranted. Finally, longitudinal research is warranted to examine the effects ADHD has on the psychological, social and emotion aspects of the individual with ADHD across their life span so that educators can better assist them in their continued learning endeavors.

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Appendix A

Internal Review Board Approval Letter

SETON HALL UNIVERSITY
1 8 5 6

April 24, 2018

Denise Nash-Luckenbach
[redacted]

Dear Ms. Nash-Luckenbach,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Exploring Learning Style Preference of College Age Students with Attention Deficit Hyperactive Disorder (ADHD)". Your research protocol is hereby approved as revised through expedited review. The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form, the stamped Recruitment Flyer, and the stamped original Consent Form. Make copies only of these stamped forms.

The Institutional Review Board approval of your research is valid **until February 5, 2019**. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,
Mary F. Ruzicka, Ph.D.
Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

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