

2019

# Attention to retention: Implications of institutional practices of four-year colleges and universities on graduation rates of students with ADHD

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## Suggested Citation

Michael Dass, Paula L., "Attention to retention: Implications of institutional practices of four-year colleges and universities on graduation rates of students with ADHD" (2019). *UNF Graduate Theses and Dissertations*. 888.  
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Attention to retention: Implications of institutional practices of four-year colleges and  
universities on graduation rates of students with ADHD

by

Paula Louise Michael Dass

A Dissertation submitted to the Department of Leadership, School Counseling & Sport

Management

in partial fulfillment of the requirements for the degree of

Doctor of Educational Leadership

UNIVERSITY OF NORTH FLORIDA

COLLEGE OF EDUCATION AND HUMAN SERVICES

April 2019

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This dissertation titled, Attention to retention: Implications of institutional practices of four-year colleges and universities on graduation rates of students with ADHD, is approved

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## Dedication

To my husband for supporting my dreams, no matter how grand, my sons for your patience, to friends and family for your encouragement, and to my Aunt Kate for planting a seed by assuredly telling my 10-year-old self that I would most certainly get my doctorate one day.

## Acknowledgments

Thank you to Dr. Webb for your enduring support, intuitiveness, positive energy, and willingness to go on this adventure with me even in your retirement. Much appreciation to my dream team, Dr. Ohlsen, Dr. Indelicato, and Dr. Schramm-Possinger for your consistent encouragement, flexibility and insights during this process.

## TABLE OF CONTENTS

	Page
Dedication.....	iii
Acknowledgments.....	iv
Abstract .....	8
<b>Chapter 1: Introduction.....</b>	<b>10</b>
Problem Statement.....	10
Purpose Statement .....	14
Significance of the Research.....	14
Policy .....	14
Practice.....	15
Theory.....	16
Research Questions.....	17
Research Design .....	17
Participants.....	17
Participant selection.....	18
Site Selection.....	18
Instrumentation.....	18
Data Collection Procedures.....	19
Factors Influencing Retention .....	19
Assumptions, Limitations, and Delimitations .....	22
Limitations.....	22
Delimitations. ....	23
Overview of the Remainder of the Paper.....	25
<b>Chapter 2: Review of Literature .....</b>	<b>28</b>
Student Characteristics .....	29
State & Federal Laws.....	34
Retention Policies and Practices.....	36
Faculty.....	37
Career Services. ....	38

Coaching.....	42
Geometric Model of Student Persistence and Achievement (GMSPA).....	49
Overview of Theoretical Framework.....	51
<b>Chapter 3: Methodology .....</b>	<b>58</b>
Approach to the Study .....	61
Research Participants.....	63
Research Procedures .....	64
Consent & Confidentiality.....	64
Research Design .....	65
Instrumentation.....	66
Data Analyses.....	66
Methodological Limitations .....	67
<b>Chapter 4: Results.....</b>	<b>69</b>
Introduction.....	69
Presentation of Data Analyses.....	71
Table 1 .....	72
Table 2 .....	75
Student Status.....	77
Registered students use of services.....	77
Table 4 .....	79
Table 5 .....	79
Table 6 .....	81
Comment sections.....	82
Summary .....	83
<b>Chapter 5: Discussion .....</b>	<b>85</b>
Summary of Findings .....	88
Evaluations of research questions.....	88
Conclusions and Interpretations .....	89
Career Centers .....	92
Advising Centers .....	93
Faculty .....	94

Implications for Practice .....	97
Recommendations for Further Research.....	98
Appendix A: Study Questionnaire .....	<b>111</b>
Appendix B: Comments .....	<b>114</b>
Comments-Campus Collaborations .....	<b>115</b>



## **Abstract**

Advances in medication and support services in high schools have influenced the growing number of students with Attention Deficit Hyperactivity Disorder (ADHD) enrolling in colleges and universities. Unfortunately, their lower graduation rates and extended time to graduation creates multiple challenges to themselves, their institution's, and their communities. Limited information is available regarding how disability services impact graduation rates for students with ADHD in higher education. More information is needed about how the practices instituted by disability support center leaders in post-secondary institution's impact the graduation rates of students with ADHD. Retention, a financial and ethical concern for universities, is pushed to the forefront by lawmakers who demand an increased return on their state's educational investment. Disability resource directors, school registrar officials, and disability resource center websites were data sources. Information was gathered about the number of students with ADHD that have graduated from each institution over the past three years. A non-experimental quantitative design (correlation) was used that provided a process for gathering information about use of disability services, which was then correlated and compared to the overall graduation rate of college students with ADHD over a three-year period. Qualitative information regarding types of services highlighted commonly used services and responses from directors were discussed regarding collaborative partnerships and training for faculty and staff. A positive correlation between use of services and graduation rate was found from examining one school that submitted complete data. Overall, the response rate was low, particularly for the colleges, which impacted the ability to respond to some of the research questions. Some directors noted a preference

for the social theory of retention in support of why they don't collect data on specific groups of students with disabilities, while others chose to not participate at all due to a lack of data tracking. Because funding for programming and targeted services depend on knowledge gained from data tracking, these findings may have implications for policy and practice. Educational leaders may be able to utilize the results of this study to shape future institutional policies and practices that impact the success of their students.

## **Chapter 1: Introduction**

This dissertation examined the associations among the types and numbers of support services found in offices for students with disabilities and the corresponding graduation rates of students with ADHD in four-year colleges and universities. This study examined to what extent increases in use of services increases the likeliness of students graduating. Also investigated was the predictive value of services types and student type (First Time in College/FTIC and transfer) on the outcome of interest: graduation. This study established the need for enhanced and highly collaborative services that support students with ADHD throughout their academic studies. The significance of the role of disability resource leaders to create cross-campus, highly collaborative programming promulgates a platform by which at-risk students can be successful. This dissertation used a non-experimental quantitative design (correlation) that provided a process for gathering information about types of disability services, student type, use of services, and the overall graduation rate of students with ADHD. A questionnaire was completed by disability services leaders to gather information that identified these variables from information gathered on students with ADHD on college and university campuses in Florida.

### **Problem Statement**

Limited information is available regarding how types and use of disability support services impact graduation rates of undergraduate students diagnosed with ADHD. With the rapidly increasing number of students with ADHD enrolled in four-year institutions, and lower than average graduation rate of these students (DuPaul, Weyandt, O'Dell, &

Varejao, 2009; Barkley, Murphy, & Fischer, 2008), leader-practitioners need more information about the association between types of disability services at schools, and the graduation rates of students with ADHD.

Attention to at-risk student populations has become increasingly popular as colleges and universities seek ways to reduce attrition and increase graduation rates (Florida Board of Governors, 2014; The EAB Daily Briefing, 2016). Institutions have seen a tremendous growth within certain groups of students with disabilities, particularly, students with hidden disabilities, e.g., ADHD, learning disabilities, emotional disorders, medical conditions, autism, (Frazier, Youngstrom, Glutting, & Watkins, 2007). With the Americans with Disabilities Act, more advanced medical treatment, and increased societal awareness of hidden disabilities, there has been a tremendous growth of students with ADHD on college campuses (Madaus & Shaw, 2004; Frazier, Youngstrom, Glutting, & Watkins, 2007). Public colleges and universities in the United States have seen a substantial increase in the number of students with ADHD over the past 12 years, growing from 7.2% of students with disabilities to an average of 27% (U.S. Department of Education, 2000; 2012).

Some researchers believe that growth has typically outpaced the cultivation of updated policies, designed to adequately support the academic needs of students with hidden disabilities (DuPaul et al., 2009). Disability resource centers on college and university campuses serve the needs of students with a wide range of disabilities. In 2000, students with physical disabilities represented the largest group of students with a disability (U.S. Department of Education, 2000). However, with a 3% annual growth in

the ADHD population on campuses, students with ADHD now represent the largest group of registered students with disabilities (DuPaul et al., 2009).

Researchers have found that students with ADHD are more likely to be on academic probation and far more likely to drop classes than students without ADHD (Advokat, Lane, & Luo, 2011; Heiligenstein, Guenther, Levy, Savino, & Fulwiler, 1999; Prevatt, Petscher, & Proctor, 2007). Repeated failures may eventually prevent students from continuing their academic program and may create an increased financial burden for the school and student. However, other reports indicated that the most successful of these students show characteristics of the non-ADHD population in retention and graduation, even excelling beyond this average (Turnock, Rosen, & Kaminski, 1998). This small group of students with ADHD may have exceptional characteristics and supports not represented among the majority of ADHD students on a college campus (Cordeiro, Farias, Cunha, Benko, Farias, Costa, & McCracken, 2011). Overall, these students elicit high levels of creative problem-solving skills (Fugate, Zentall, & Gentry, 2013; White & Shah, 2011). Additionally, Wilmshurst and Wilmshurst (2011) found that successful students with ADHD had a high level of environmental mastery compare to students without ADHD. Their findings indicate an above average level of resilience.

More commonly seen with students with ADHD, are the persistent challenges to their social and academic lives. Students who struggle with impulsivity are more likely to abuse alcohol and drugs on campus, which increases the likeliness of failing courses and dropping out (Fleming & McMahon, 2012). Lack of focus and attention can lead to procrastination, poor retention of class material, and a lack of organization and planning

which can also lead to failures and attrition (DuPaul et al., 2009). Additionally, students with ADHD are more likely to be on academic probation and far more likely to drop classes than students without ADHD (Advokat et al., 2011).

Dwindling budgets and increasing legislative pressure on return of investment is creating a need for administrators to focus on retention efforts (National Conference of State Legislatures, 2015). States have responded to retention issues in a variety of ways. In Florida, in the ambitious 2025 System Strategic Plan report, the Florida Board of Governors has established three markers of achievement (2014). The 12 state universities have been tasked with increasing benchmarks for teaching and learning, scholarship, research and innovation, and community and business engagement. One consistent objective of each targeted goal is the attention to retention, graduation rates and graduate's salary/employment outcomes. This example represents key areas of interest for many colleges and universities today.

Most colleges and universities serve students with disabilities by meeting the basic requirements of the Americans with Disabilities Act (Glutting & Watkins, 2007). Graduation rates of students with ADHD indicate that this group may benefit from added support services (The Florida College System, 2013; Newman, Wagner, Cameto, & Knokey, 2009; Herbert, Welsh, Hong, Soo-Yong, Atkinson, & Kurz, 2014). These findings indicate rates ranging between 18% and 65%, trailing the overall average graduation rate by 20-32 percentage points. There is a need for a reexamination of institutional practices that addresses the challenges these students face. A review of the number of available services in disability support centers serving students with ADHD,

illuminates the relationship and differences each of these types have on graduation rates.

### **Purpose Statement**

The primary purpose of this study is to better understand the association between offered disability services and graduation rates of students with ADHD in postsecondary education settings. This quantitative (correlational) study is designed to examine disability services at Florida colleges and universities to determine if there is a significant difference between service type as well as to determine the relationship between type and graduation rates of students with ADHD. This study examines the types of support needed for undergraduates with ADHD, as a whole, to understand effective approaches that may improve their retention and graduation rates. Additionally, information and recommendations are provided to faculty and staff to inform the implementation of individual, department and/or campus-wide improvements that address success of students with ADHD.

### **Significance of the Research**

#### **Policy**

To ensure effective policies are implemented that impact retention of students with ADHD, this study generated factual information that can be used to provide recommendations to policymakers responsible for creating services and programming for this population. Specifically, results provide a base of knowledge to these policymakers about how institutional practices of disability resource centers impact the graduation rates of students with ADHD at Florida colleges and universities. For those schools and

university systems that hope to develop, refine and implement programming for growing, at-risk populations, this study provides knowledge to support these initiatives.

Potential implications for disability service center directors include prospective changes in budget allocations and in policies that reflects prioritization of staff and services. The intent of these changes would be to positively impact graduation rates of students with ADHD. Data should influence the leadership style of disability service directors by encouraging more inclusive and interconnected partnerships across campus units to provide comprehensive support for students. This would include the creation of collaborative partnerships with mutual goals to reduce attrition of their student body with ADHD. Once higher education leaders are aware of this information, they may have the ability to influence the goals, objectives and action plans in ways that structurally change the layout of available services to these students. These changes also can impact a broader base of students, including those without identified disabilities that could also benefit from added resources from disability centers (Weyandt & Dupaul, 2008).

#### Practice

Implications for practice may impact the activities of college and universities, specifically, staff, and professors that interact with students with disabilities. Results indicating a significant benefit of increased services should encourage professors to become more involved with research on students with ADHD. Additionally, findings would create reason for faculty to adjust instruction in ways that reflect use of effective resources and practices known to improve attendance and learning for these students. This could likely include technological updates to the delivery of course content that has



been shown to increase attention and interaction (Taylor & McAleese, 2002).

Specifically, research indicates that the increased use of technology in the classrooms can be associated with students' enhanced memory, and subsequent retention of academic content (Ofiesh, Rice, Long, Merchant, & Gajar, 2002).

Post-secondary institutions that offer the most effective institutional practices and policies that support students with ADHD, may get a boost in reputation and recognition in their communities and around the country. Students with ADHD and their families wish to find schools that boast high support and graduation rates, thus confirming data would elevate schools with the highest level of disability services. State education governing boards could utilize this information when determining funding for programming that supports degree attainment and future employment. Institutions within states that tie graduation and employment rates to funding, may also see an increase in financial allocations as changes begin to impact graduation rates for those schools that invest in the highest level of services for students with ADHD (University Leadership Council, 2008).

### **Theory**

Since little is known about the impact various types of disability services has on graduation rates, findings add to the knowledge base for understanding in this area.

Additionally, results expand on the field of study on retention and timely degree completion of a growing group of at-risk post-secondary students.

## **Research Questions**

To better understand the association between disability related services and use of disability services and graduation rates of students with ADHD, the following research questions have been presented.

1. What is the graduation rate of students with ADHD at four-year state universities and colleges in Florida?
2. Is student type (FTIC, transfer) associated with of a higher graduation rate?
3. Does percentage of use of disability services predict graduation rate?
4. Which types of disability-related services are most associated with graduation of students with ADHD?

## **Research Design**

In this descriptive study, a correlational design was selected to provide a process for gathering information about the types of available disability services, use of services, and student type, which is then correlated and compared to graduation rates of these students. Elements of the data were presented in a rich and descriptive view of leader responses and patterns were noted within the responses.

## **Participants**

Key informants for this study were disability resource directors at four-year colleges and universities in the Florida. At some institution's, the needed information may have come from the school's registrar's office and websites of disability resource centers. Information was gathered about the number of students with ADHD that have graduated from each institution over the past three years.

**Participant selection**

To gain an understanding of the practices currently being implemented at Florida colleges and universities, all colleges and universities with active disability resource centers in Florida were invited to participate in this study. Directors of disability resource centers influence the number and types of available services for students with ADHD, therefore they were selected as participants for this study.

**Site Selection**

This study examines four-year public and private colleges and universities. Decreased enrollment over the past few years has prompted both public and private post-secondary institutions to direct their attention on retention and matriculation of students (Juszkiewicz, 2015; National Student Clearinghouse Research Center, 2016). Because of these facts, the results of this study may be highly relevant to administrators within both of these school types.

**Instrumentation**

A Qualtrics questionnaire was used to gather consent, graduation rates from the past three years, and a listing of services. The consent form was on the first page of the questionnaire where participants acknowledged consent by submitting this form and moving to the first set of questions. Additionally, some information was obtained via a phone call and email.

**Data Sources/Data Analysis**

Data consisted of a list of services created from the Qualtrics questionnaire responses and historical graduation rates as a percentage. Database information on

graduation rates for students with ADHD at each institution could have been reported from administrative offices such as the registrar or admissions. Participants were encouraged to gather information from these offices if needed.

### **Data Collection Procedures**

A Qualtrics questionnaire was emailed to selected participants. Questions that arose about submitted responses were clarified via a phone call. Data were stored on the secure Qualtrics server and an encrypted USB drive. Any emailed responses were saved to the USB drive as well. Data obtained are considered public information, so the approaches above are consistent with the requirements necessary for ensuring the data are securely stored.

### **Factors Influencing Retention**

Retention-focused activities promoted by the policies of educational leaders are the primary focus of this study. Retention as defined by Berger and Lyon (2004), is an educational institution's ability to continuously retain a student from freshmen year until graduation. Various models of retention have been proposed by many theorists as early as the 1930s, but none have provided a broader base of knowledge than that of Vincent Tinto (Swail, 2004).

More than 30 years ago, Tinto proposed and refined his model of retention that now offers a more holistic approach to understanding and addressing retention issues in colleges and universities (Tinto, 2005). His model of integration addresses the institution's ability to meet the expectations of students on and off campus with attention to academic, social and personal needs (Tinto, 1975, 1993, 2000). This is accomplished

through a collaboration of cross-campus departments working together to address specific student concerns. Particularly, Tinto claims that students' levels of commitment to their academic institution are correlated with their graduation rates, meaning that the more socially and academically involved students are on campus the more likely they will be to graduate (Tinto, 2007). He proposes that engagement or integration of faculty, staff and peer interactions is a critical component to this approach. With a current average attrition rate of 50% in the United States (Alao, 2015), dwindling budgets, and increasing legislative pressure on return on investment (National Conference of State Legislatures, 2017), there is a critical need for cross-campus collaborations to address the complex issue of retention. Tinto's model of integration provides an avenue for understanding these complexities by examining the factors influencing retention and proposing a framework for addressing these concerns.

Although the overall rate of retention has remained steady since educators began researching the causes of attrition in the 1930's (Swail, 2004), rates vary between types of educational institutions, race, gender, and disability. Retention of students with ADHD may be influenced by some of the same issues that influence all students in an academic institution (Weyandt & Dupaul, 2008). However, retention of these students may be unduly impacted by additional factors caused by challenges associated with their disorder (Fleming & McMahon, 2012). For example, impulsive students are more likely to abuse alcohol and drugs on campus, which increases the likeliness of their failing courses and dropping out (Fleming & McMahon, 2012). Wilens and Upadhyaya (2017) found a high comorbidity between ADHD and substance abuse and noted that approximately 20% of

adults with ADHD also have a problem with substance use. Additionally, lack of focus and attention can lead to procrastination, poor retention of class material, and a lack of organization and planning which can lead to poor academic outcomes as well (DuPaul et al., 2009). Students with ADHD are more likely to be on academic probation and far more likely to drop classes than students without ADHD (Advokat et al., 2011).

Although students with ADHD have added concerns and challenges compared to students without a disability, policies and practices aimed to increase graduation rates of all students would likely have a positive impact on them as well (Weyandt & Dupaul, 2008). Tinto's integration model provides a modern approach that is often seen in colleges and universities with highly progressive disability service centers such as University of Arizona, and Curry College. These institutions have made a significant and impactful commitments to addressing the needs of students with ADHD with integrative, cross-campus services that are congruent with their corresponding mission statements. Thus, they directly address specific concerns of this population with high types of involvement with student's social, academic, and personal needs. As expected, graduation rates of students with ADHD at these institution's reflect the high level of service these students receive.

For this study, Tinto's retention model provided a framework for understanding retention policies and practices of educational leaders with a focus on personal factors, social integration, academic experiences and matching of university mission statements to student expectations as tools for increased retention (Tinto, 2003, 2007). This model highlights the importance of institutional factors on the retention of students at risk.

Burns Transformational Leadership Theory (1978) is used to frame leadership behaviors needed in rapidly changing institutions that are sensitive to the needs of individual groups and that inspires collaboration across units. Additionally, Tinto (2007) examines student motivation as a basis for understanding the factors influencing retention, so a review of specific motivational theories is included to create a framework for understanding the causes and approaches to improving graduation rates of students with ADHD.

Tinto advocates for increased student and faculty interactions as well as student use of supportive resources across campus (2007). This would include such offices as advising centers, tutoring, career centers, counseling centers and disability services centers. When purposely integrating these at-risk students into the college/university community, graduation rates increase (Habley, 2004). In a 2015 Educational Advisory Board report, California State University-Fullerton indicated an 11% increase in the graduation of students within three years by bringing together services across campus involving advising, career services and academic deans. Additionally, they added graduation and retention specialists as part of a program that included mandatory workshops for at-risk students. This indicates that collaborative, organized and purposeful planning aimed to address specific retention issues, is often an effective tool to improve graduation success.

### **Assumptions, Limitations, and Delimitations**

**Limitations.** Differences in retention between selective schools and non-selective schools, and private versus public schools are expected. Differences found between these

groups cannot be completely controlled for due to varying characteristics and factors that create the types of students that enroll in each type of institution (Green & Rabiner, 2012). For example, more protective factors are likely to influence the retention rate of students at private non-profit schools versus the less selective for-profit private schools. Additionally, conditions co-occurring with ADHD are not considered in regard to a student's response to services and types of services offered. A student with ADHD and a mood or anxiety disorder would have added challenges to retention than a student with only ADHD. The same could be expected for a student with ADHD and a learning disability.

**Delimitations.** When considering the scope of this study, elimination of other potential influences on graduation rates is necessary. Delimitations include focusing on all students with ADHD at selected universities regardless of the impact of any co-occurring diagnosis, limiting discussions on retention theory to Tinto's integration model as a framework for understanding how institutional behaviors and student interaction reduce attrition, and the correlational nature of the quantitative data. These challenges limited the types of assumptions and conclusions that were made.

A causal relationship was not drawn since correlational and relational methods were used to draw conclusions. Also, so many factors contribute to attrition of students with ADHD, so it is not feasible to address every area in one study.

It was assumed that disability services directors would be able to a) provide an accurate list and description of services and graduation data about students with disabilities that they serve; and that b) information about graduation rates was answered



truthfully and accurately based on department or university records.

### **Definition of Terms**

1. ADHD: Attention Deficit Hyperactive Disorder as described by the DSM-V (2013).  
This includes all three types of ADHD, combined, primarily inattentive, primarily hyperactive.
2. Retention policies: Decisions made by educational administrators that describe procedures and actions based on goals of the department or university to reduce attrition.
3. Retention practices: Programs, services, activities, and resources that derive from the objectives of retention policies.
4. Attrition: The annual loss of students at the university/college level through dropout.
5. Graduation rate: Graduation rate is defined as the percentage of student that either transfer in or start at 4-year university/colleges as freshmen and graduate at that same university within six years.
6. Retention Rate: The continued enrollment of full-time students from one school year to the next (Berger & Lyon, 2004). The Retention Study Group (2004) found that an increase in retention is directly and positively correlated with graduation rates, so for the purposes of this study, a focus on improving retention, therefore, is a focus on improving graduation rates.
7. Colleges and universities in this study are not referring to those post-secondary institution's that do not receive federal funding, and therefore, have a decreased

responsibility to provide accommodations. Additionally, colleges and universities in this study are used similarly to simply denote institutions of higher education.

### **Overview of the Remainder of the Paper**

This chapter highlights positive and negative factors that influence the graduation rates of college and university students, particularly those with ADHD. Additionally, disability laws that support fair and equal education for students with disabilities is discussed in relation to their impact on graduation rates, and as a base/minimal level of service offered to students with disabilities.

Retention-focused theories are used to provide a theoretical framework for understanding the challenges, factors of influence and strategies to address retention among students with disabilities. Research is used to examine retention issues and solutions broadly as well as specifically for students with disabilities and even more precisely, those with ADHD.

Retention theory is used to understand how campus departments can interact to support students, specifically those with disabilities. A review of studies that show how collaborative partnerships with various departments across a campus can create supportive and highly involved disability services program for students is provided.

Chapter two reviews contextual information regarding the needs of the growing population of ADHD students at U.S. colleges and university campuses as well as how institutions have responded to these needs. These studies include findings from schools that have implemented successful retention practices for at-risk student populations, an understanding of challenges students with ADHD face on college and university

campuses, and actions taken to address the requirements of federal and state laws for students with disabilities. This chapter reviews literature effective types of service some universities have undertaken to address issues of retention and to improve graduation rates of ADHD students. Additionally, to gain a perspective of what works, practices that disabilities centers and other campus partners implement to support these students are reviewed. Beliefs, understanding, and behaviors of faculty and staff as well as general campus retention policies and actions are discussed to provide a broad view of all potential influences on retention, and thus graduation rates of students with ADHD.

Research on the practical and effective uses of technology to address retention of students with disabilities is important to explore since technology continues to be a heavily used and critical element in student's lives and in the learning process (Izzo, 2012). Also, to identify common and effective practices on campus that support students with ADHD, research that examines coaching, career development, and mentoring as practices, all derived from retention policies, was reviewed.

The second chapter provides a review of literature relating to characteristics of the growing ADHD population on higher education campuses, popular retention theory, past and recent state laws impacting the types of disability services for students, and common retention policies and practices established to support students with ADHD today. In addition to identifying the theoretical framework for this study, chapter two also includes a discussion of the approach to the study and measurement techniques. It also addresses how the results of this study can impact laws and practices by advancing knowledge of how improvements in disability services impacts graduation rates.

Finally, to provide examples of effective approaches to change across campus, a review of research that details successful change models is reviewed. Examining what works as well as challenges and ways to maximize buy-in across departments is important when developing a comprehensive program that supports not only students with ADHD, but potentially all students.

## Chapter 2: Review of Literature

The three areas of interest in this study address *characteristics of the growing population* of students with ADHD in U.S. four-year colleges/universities, *past and recent state laws* that impact students with ADHD, and *common retention policies and practices for students* with disabilities. To understand why retention of students with ADHD is important, an examination of the rate of increase of students with ADHD on college campuses is informative. Additionally, an evaluation of common challenges students with disabilities face and the academic consequences of these issues is critical to gain a broad perspective of these issues. How these challenges are being addressed by schools, and how policies and services improve retention, and thus graduation rates are critical topics. A review of past and recent laws provides an understanding of how the government has attempted to address educational challenges persons with disabilities face and how these laws structure policies and services offered in college and university disability centers.

Because this study explores how different institutional policies and practices impact graduation rates of students with ADHD, an understanding of the types of services offered at institutions would provide essential information. It is important to identify this variable to gather clarity into how increasing services may impact graduation rates. The base level represents services that meet the minimal requirement by law. It is important to know if higher levels of service have a positive influence on graduation rates of the target population. This research provides support for the theoretical framework of this study

that suggest services beyond the minimal required by law are needed to effectively address retention issues among these students.

Additionally, a review of extant literature on student retention is provided with a focus on at-risk populations to understand what has worked in the past and to create a framework for understanding characteristics of student retention. This would allow for a better understanding of effective practices that lead to positive educational outcomes for students with ADHD.

### **Student Characteristics**

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (2013), defines ADHD as a disorder that creates difficulties with attention, hyperactivity, and impulsiveness. It explains that a requirement for diagnosis includes, “clear evidence that the symptoms interfere with, or reduce the quality of, social, school, or work functioning”. Of those diagnosed with this disorder, approximately 41.3% of these cases are considered to be severe (Kessler, Berglund, Demler, Jin, & Walters, 2005). This is important to note given research indicating that successful students with ADHD have stronger cognitive abilities than those that do not go to college (Frazier, Youngstrom, Glutting, & Watkins, 2007). In a comprehensive study of the prevalence of ADHD in higher education, the average percent of students on campus with ADHD was believed to be around 4.4% at that time (Kessler, Adler, Barkley, Biedermann, Conners, Dimmler, Faraone, Greenhill, Howes, Secnik, & Spencer, 2006). Other studies indicate the prevalence of students with ADHD on campuses ranging between 2-8% (DuPaul et al., 2009).

In a study by Barkley et al., (2008), a longitudinal study of high school students with and without ADHD showed that only 9.1% of the students with ADHD graduated from college, whereas 60% of students without ADHD graduated from college. Other researchers found ADHD was linked to lower retention and graduation rates, with one study noting a difference of 20 percentage points in the graduation rate of students with ADHD compared to those without ADHD (Herbert et al., 2014; DuPaul et al., 2009). Similar results found by Advokat, Lane, and Luo (2011), indicated an overall lower grade point average in comparison to students without ADHD. Additionally, the Florida College System (2013) reports that only 18% of students with disabilities graduate from college. Considering that students with ADHD represent the largest group of students with disabilities on college campuses (DuPaul et al., 2009), examining the services that support this population is important.

This study is concerned with examining the challenges of college students with ADHD, how these issues are being addressed through the implementation of retention practices, and the effectiveness of various types of service as measured by graduation rates. Understanding ways this group differs from non-ADHD students in regard to their challenges in college, is an important first step to understanding appropriate practices to address these concerns.

Some inattentive behaviors that impact college work includes a lack of focus during instruction/easily distracted, problems following multi-step directions, lack of organization, not finishing or forgetting to do assignments, avoiding work/homework that requires sustained attention, and problems retaining information/forgetfulness (Reaser et

al., 2007; Advokat et al., 2011). Hyperactivity can manifest as excessive talking in class, and impulsivity is shown to increase the chances that students will participate in dangerous behavior such as drug and alcohol abuse (Upadhyaya, Rose, Wang, O'Rourke, Sullivan, Deas, & Brady, 2005). Managing ADHD symptoms, in addition to the challenge of adjusting to college life, can often feel overwhelming for students with ADHD. This is especially true for those in their first year of college when students are most likely to struggle (Blase, Gilbert, Anastopoulos, Costello, Hoyle, Swartzwelder, & Rabiner, 2009; Tinto, 1999). Blasé et al., (2009) examined retention of first year students and found that GPA differences are most significant between the first and second year. With a decrease of parental guidance and observation, these students are less likely to take their ADHD medication as well (Wolf, 2001), and appear to struggle with organization, planning and time-management (DuPaul et al., 2009). Even with medication, some research has found that symptoms of inattentiveness did not improve academic outcomes (Rabiner, Anastopoulos, Costello, Hoyle, & Swartzwelder, 2008).

The number of students with ADHD pursuing a degree in higher education in the U.S. from public four-year institutions has increased by 275% over a 12-year period according to the U.S. Department of Education (2000; 2012). Among registered students with disabilities, this represents an increase from 7.2% to 27% for students with ADHD. Awareness of how ADHD impacts educational success and general knowledge of ADHD by the public over the years could also impact this upward trend. Institutions have responded through the years by creating offices of disabilities services and designing



specialized services to address the needs of students with ADHD (Pazol, & Griggins, 2012).

Originally, university and college disabilities support centers focused on providing services to students with physical disabilities, but each year has brought increasingly more students with hidden disabilities seeking a degree in higher education (DuPaul et al., 2009). With the Americans with Disabilities Act, more advanced medical treatment, and increased societal awareness of hidden disabilities, there is a tremendous growth of students with ADHD on college campuses. (Frazier, Youngstrom, Glutting, & Watkins, 2007; Madaus & Shaw, 2004). Researchers have found that this rapid growth has typically outpaced policy updates required to adequately support the academic needs of students with hidden disabilities (DuPaul et al., 2009). Indeed, the most common level of services for students with disabilities on a college/university campus, does not extend beyond the basic guidelines of the Americans with Disabilities Act of (ADA, 1990; Vickers, 2010). These often include providing extended time and a quiet space to take examinations.

There may be a need to pay especially close attention to disability services provided at community colleges and private institutions. The distribution of students with ADHD is not evenly distributed across institution types (e. g., private/public, competitive/open, small/large). A National Center for Education Statistics (NCES) 2009 report indicated that students with ADHD are more likely to attend a public 2-year college or a private university or college than a public university (National Center for Educational Statistics, 2009). It also noted that students with ADHD are more likely to

attend a small college or university over a large institution. Additionally, students with ADHD are not proportionately represented at top-rated, competitive universities. The overall percentage of students with ADHD in colleges and universities is estimated to be approximately 5% of the total student body (Pryor, Hurtado, DeAngelo, Blake, & Tran, 2010) with a range between 2-8% (DuPaul et al., 2009).

Some researchers suspect that ADHD is underdiagnosed in college settings. In a study of 1080 college students, 10.3% of these students without an ADHD diagnosis reported a high degree of ADHD symptoms (Garnier-Dykstra, Pinchevsky, Caldeira, Vincent, & Arria, 2010). At most colleges, students are not required to notify their schools of their diagnosis or register with their disability resource center, so knowing exactly how many students are struggling with ADHD on a college campus is difficult (Weyandt & DuPaul, 2008). For these reasons, retention planning for students with ADHD should be a collaborative, cross-campus approach that has the potential to impact all students, not simply those with a diagnosis of ADHD.

The challenges students with ADHD face creates a need for new policies and practices. Leaving the structured and protective environments of their homes, new students may be confronted with an added need for organization and attention. Having left the structured and protective environments of their homes, new students suddenly are confronted with an added need for organization and attention. Many novel experiences and campus activities may be distractors to studying and class attendance (Norwalk et al., 2009). As indicated in the introduction, students with impulsive behaviors are more likely to abuse alcohol and drugs on campus, which increases their likeliness to fail courses and

drop out (Fleming & McMahon, 2012). Lack of focus and attention can lead to procrastination, poor retention of class material, and a lack of organization and planning which can lead to failures as well (DuPaul et al., 2009).

The college transition experience presents with many challenges for the average student, and a seemingly limitless number of challenges for the student with ADHD. With the consistent growth in this population, educational leaders can no longer afford to remain complacent. This study may add to the body of research by providing an understanding of how to address the many challenges students with ADHD face on college and university campus. By reviewing the various types of services aimed at improving academic outcomes, this study may help students, staff, and faculty gain an understanding of adequate services to appropriately address the needs of students with ADHD on college campuses.

### **State & Federal Laws**

With the passing of the Americans with Disabilities Act by congress in 1990, the Individuals with Disabilities Education Act of 1975, and Section 504 of the Rehabilitation Act of 1973, college has increasingly become accessible to students with ADHD. Additionally, more advanced medical treatment, and increased societal awareness of hidden disabilities has influenced the tremendous growth of students with ADHD on college campuses (Frazier, Youngstrom, Glutting, & Watkins, 2007; Madaus & Shaw, 2004; Dupaul et al., 2009).

Disability laws require post-secondary institutions to provide supports to access all aspects of higher education for students with ADHD (ADA, 1990; U.S. Department of

Education, 2010). The types of support offered is left up to each school. Common resources provided by disability resource centers on campuses include, note-taking, extended time on test, a separate and quiet room for test-taking, technological tools, coaching, targeted career counseling, and faculty curriculum enhancements (Baverstock & Finlay, 2003).

Dwindling budgets and increasing legislative pressure on return on investment is creating a need for administrators to focus on retention efforts (National Conference of State Legislatures, 2017). Most U.S. states are now involved in performance-based funding which financially rewards colleges and university for their retention efforts. With the push for undergraduate completion within four years, students with constant academic challenges are not as likely to meet these new requirements (Frazier et al., 2007). Clearly, policies that address these issues and create supports to counteract the consequences of these challenges are much needed for students with ADHD.

Approximately 37% of students in Florida's public institutions of higher education are not graduating, according to data from the Florida Board of Governors (2014). More surprising is that six of the twelve universities listed in this report have graduation rates of 50% or lower. Collectively, these six schools have a higher percentage of minority students. This is important because minority students have a higher incidence of ADHD according to a 2009 U.S. Department of Education, NCES report.

Within the ambitious 2025 Strategic Goal Report, the Florida Board of Governors have recently established three markers of achievement. The 12 state universities have

been tasked with increasing benchmarks for teaching and learning, scholarship, research and innovation and community and business engagement. The rubric for assessment is based on level of excellence, productivity and strategic priorities achieved for each of these focus areas (2014).

Currently, the Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD, 2017), is working to support legislation to update the current laws in effect for students with disabilities with an appeal for more required resources. Their argument is that the minimum requirements of support enacted by ADA in 1990, are not sufficient because this minimum is outdated and does not bring a person with ADHD to an equal playing field. This study on service types attempted to provide information that distinguishes various types of services based on their ability to influence graduation rates of students with ADHD. It provided support for agencies such as CHADD and others advocating for higher/more involved levels of service on college campuses.

### **Retention Policies and Practices**

ADHD may impact several areas of life's domains including social, work, and school. This conglomeration of life components calls for a collaborative and multi-unit approach for supporting this population (Fleming & McMahon, 2012). Limited information is available regarding the effectiveness of policies and practices within disability resource centers that aim to improve academic outcomes of students with ADHD. Faculty and staff in various departments across campus are essential to the success of these students. More importantly, their ability to work collaboratively with each other in support of students with disabilities is essential.

**Faculty.** Faculty may play an essential role in the success of college students because much of a student's college experience is spent in class, interacting with classmates and instructors. However, several studies have indicated that faculty perceptions of students with ADHD may have detrimental effect on a student's academic success, (Stamp, Banerjee, & Brown, 2014; Stein, 2014), and the graduation rates of this population (Habley, 2004). Problems indicated by students as a challenge to academic success included a lack of understanding by faculty as a common noted concern (Stamp et al., 2014; Habley, 2004). Additionally, this study found that interactions with faculty has a direct impact on graduation for students, meaning that positive interactions resulted in higher graduation rates.

Additionally, student and faculty interactions are essential to positive academic self-concept, which is linked to student retention (Tinto, 1975). When students believe that faculty are respectful, approachable and available, they are more likely to report higher types of academic self-confidence (Komarraju, Musulkin, & Bhattacharya, 2010). A student's self-concept is his or her beliefs about his or her capabilities in an academic setting.

Clearly, faculty play an essential role in supporting the academic success of all students. A multi-modal approach to address challenges of students with ADHD suggests that poor retention is due to a variety of concerns, one being a student's relationship with their professors (Thompson-Ebanks, 2014). Other methods suggested for professors to support students within the classroom includes faculty addressing the differing ways that students with ADHD learn compared to their non-ADHD counterparts (Orr & Goodman,

2010). Lynn's University's Institute for Achievement and Learning is an example of an attempt to address this concern and targets students with ADHD and learning disabilities. An understanding of the ways students with ADHD are challenged in the classroom and implementation of successful practices that address these concerns are first steps for faculty in their role to support student retention (Weyandt and DuPaul, 2008; Retention Study Group, 2004).

**Career Services.** Studies have found that partnerships with campus career centers plays an important role in retaining and graduating students (The Education Advisory Board, 2014). Additionally, some suggest that a specialized approach to career services is needed for students with ADHD to address specific concerns of this group. Of interest are career and major choice, interviewing challenges, and challenges with success in the workplace (Nadeau, 2005). Researchers have found that students with ADHD are more likely to have poor self-efficacy and change their major than those without ADHD, and later are far more likely to quit or change jobs and quit college (Tomevi, 2013). This amounts to approximately 400,000 students quitting college per year in the U.S.

Like other groups of people with disabilities, they are also more likely to be unemployed (Erickson, Lee, & Schrader, 2013). Interestingly though, a large study (13,112 sample size) on the link between ADHD and entrepreneurship found that those with ADHD are far more likely to start their own businesses (Verheul, Rietdijk Block, Franken, Larsson, & Thurik, 2016). Their impulsivity and hyperactivity lead to a propensity towards risk, and a high level of creativity is shown to work well for this group in entrepreneurship (Verheul, Block, Burmeister-Lamp, Thurik, Tiemeier &

Turturea, 2015). From this, one can see that a concerted effort of career services to address the specific challenges and in particular, a focus on the strengths of students with ADHD, may have potential to lead to a more rewarding and successful academic and career experience for this population.

Underlying the retention rate of students in general, is a concern created by the lack of student engagement in career development activities. This problem impacts college retention and time to completion for many students (Florida Board of Governors, 2014; The Education Advisory Board, 2014). When students change majors during college, a program restart can occur which extends time to graduation. Essentially, students are often set back in class level based on course requirements needed to complete a new program to which they may have recently changed. Additionally, the federal government mandates maximum allowed credit hours which limits how many total credit hours a student can take before graduation (The Florida College System, 2013). In Florida, as many as 35% of students in college have exceeded their maximum allowed credit hours (Florida Board of Governors, 2014), thus increasing time to completion. This is important because students with ADHD are less likely to graduate within the expected four to six years than students without ADHD and more likely to change their major several times (Tomevi, 2013).

Universities are being challenged to raise the bar on issues that influence retention and time to graduation. For example, some of the funding for each state university in Florida is allocated based on each school's ability to improve on three predetermined goals. Two of these strategic goals relate directly to a student's ability to choose an



appropriate major and career path that leads to a successful career (Florida Board of Governors, 2014). These strategic goals create a sense of urgency that impacts university career centers tasked with preparing students to make career decisions and then to later successfully interact with employers. This sense of urgency highlights the need to study factors influencing the large number of students who repeatedly change their majors in college, are undecided about their major, or quite college because they are unclear about their major or career path.

One consistent objective of each targeted goal is the attention to retention, graduation rates and employment. These are key areas of interest for university career centers that assist students with major and career selection as well as prepare them for the workplace. These centers have been tapped to initiate many of these newly revised strategic goals and funding was allocated for these objectives (Florida Board of Governors, 2014). A significant challenge exists, however, that threatens to derail efforts. Most freshmen students enter college undecided or uncertain of their major and career path, and by graduation, up to 75% of students have changed their major at least once (Gordon, 1995). These changes have serious implications on university and state graduation goals. Many students lack the necessary tools to begin the exploration process and are unfamiliar with required steps along their career paths (Dipeolu, 2011). Even of those students that do enter college with a chosen major, most in this group claim to have made the decision based on assumptions about careers or expectations and pressures from family members, instead of basing their decision on facts (Beggs, Bantham, & Taylor, 2008).

Issues commonly seen in the general student body are often exacerbated for students with ADHD, therefore partnerships between careers centers and disabilities support centers have the potential to positively impact the odds of graduation for this population. Additionally, these partnerships should occur early in a student's career (Barkley, 2008abst) by career counselors trained to work with students that have ADHD (Reilley, 2005). In a 2015 case study by The Education Advisory Board, the Virginia Commonwealth University identified at-risk students and found that connecting them to resources such as career planning classes improved the number of graduation candidates by 19%. Additionally, the 20% of students that drop out of college with student loans have a decreased capacity to pay them back because they do not have the same earning potential as graduates, earning substantially less over a lifetime compared to those with a degree (Carey, 2004; National Center for Education Statistics, 20011).

Collaborative partnerships between these two centers should start during a student's first year in college, a time that Donald Super (1963a) believed is a prime time to receive career-related information. According to Super, Jordan and Super, and Martin (1963), career maturity and self-concept are two critical elements of a young student's career development. High school freshmen can make decisions on job preferences, research career options and actively engage in self-awareness (Super et al., 1963). This knowledge of self is the bases for personality assessments that are commonly used in the career development process. These assessments reflect the influences of nature and nurture on self which forms one's identity (Jung, 2016). During this critical stage of self-

exploration and identity development, students would benefit academically from being fully engaged in the career development process.

**Coaching.** A growing trend, on and off campuses, is the use of ADHD coaching as a support tool to improve retention of students with ADHD (Parker, Hoffman, Sawilowsky, & Rolands 2013; Murphy, Ratey, Maynard, Sussman, & Wright 2010). Available research on coaching indicates that it is an effective resource that helps improve focus, organizational and time management skills (Swartz, Prevatt, & Proctor, 2005), learning skills, well-being, self-control, and improves confidence (Field, Parker, Sawilowsky, & Rolands, 2013; Parker, et al., 2013; Parker & Boutelle, 2009; Murphy, Ratey, Maynard, Sussman, & Wright, 2010). Additionally, students in one study reported that they felt better able to develop and stay focused on achieving their goals with the help of ADHD coaching (Parker, Hoffman, Sawilowsky, 2011). The evidence also shows improvements in executive functioning for students that used ADHD coaching.

With such success seen from implementation of ADHD coaching on college campuses, coaching as a practice to improve retention and graduation rates is a positive strategy of colleges and universities. As one option in a set of department resources offered to students with ADHD, use of coaching as a retention tool would be expected to lead to higher rates of graduation for students that use this service.

**Mentoring.** Mentoring programs have shown to increase retention by reducing the negative symptoms of ADHD and increasing positive behaviors and overall well-being (Habley, 2004). In a study by Anastopoulos and King (2014), a mentoring program for students with ADHD resulted in improved organizational skills, enhanced

executive functioning, higher grades and an increase in overall well-being. In a study where two groups of students with ADHD consisted of a group provided with academic mentoring, and the other a control group, findings indicated a significant difference in outcomes. The experimental group demonstrated improved learning and executive functioning skills (Field et al., 2013). Additionally, from their case study on student attrition, Maher and Macallister (2013), endorsed academic mentoring as a strategy for reducing drop-out based on their findings. Academic mentoring has proven to have a significant impact on graduation rates; however, most institutions do not have a formal system of mentoring to support students with ADHD. Schools without this resource are predicted to have a below average graduation rate (Maher & Macallister, 2013).

**Technology.** The current generation of students have spent most of their lives attached to electronic devices. Due to this familiarity, use of technology as an aid to learning continues to gain credence and popularity (Education Advisory Board, 2014). Specifically, using universally designed hardware and software to assist with student learning is found to enhance academic outcomes, as seen with the University of California-Fullerton in 2014 (EAB, 2015).

Assistive technology is any device or program that helps an individual communicate, learn or function better (Fichten et al., 2012). Of those diagnosed in college, research indicates that students are more likely to be diagnosed with ADD rather than ADHD, indicating a need for assistive technology that addresses attention and focus (Schwanz, Palm, & Brallier, 2007).

Much of the assistive technology used in higher education today, originally was purposed for use with those with vision and auditory disabilities (Fichten et al., 2012). For example, Ficheten et al, 2012 points out that screen readers were initially made as an aid for people with blindness. Today, screen readers also help students with ADHD to attend to written material and improve memory and comprehension (Ofiesh, Rice, Long, Merchant & Gajar, 2002). Other assistive tools include text-to-speech programs, audible books, and proofreading programs. Administrators and students both agree that use of these tools would be useful aids to learning and can support retention efforts (Fichten et al., 2012). More importantly, assistive technology can be used as a tool across campus to both improve interactions between students and the university, and as an aid to learning (Ofiesh et al., 2002). Since implications of technology integration across campus units has the potential to improve retention of all students, not just those with disabilities, it is important that educational leaders identify and develop specific practices that can be implemented in multiple departments that serve students (Margaretha, 2012; Belson, Hartmann, & Sherman, 2013).

Continuous advancements in technology will likely impact policies and practices of leaders in these postsecondary settings. Understanding the organizational changes and demands that technology places on universities, leaders must be prepared to create collaborations across campus units (Swail, 2004). This would provide an appropriate response to the increased accessibility and availability of assistive technology useful for improving student persistence.

Section 504 of the Rehabilitation Act guarantees appropriate academic accommodations for students with disabilities which could include assistive technology (Madaus & Shaw, 2004). Use of assistive technology in classrooms would be considered changes to instructional material. To increase academic knowledge using assistive technology, professors can ensure class material is in an online format such as Blackboard, with files in MS Word or PDF formats so they can be screen read. This program also offers a calendar for the organization of class material as well as test reminders. Additionally, it provides an easy method for gaining feedback on assignments from professors which students highly value. Research indicates that timely feedback from professors is correlated with retention (Hovdhaugen, Frølich, & Aamodt, 2013).

Over-the-ear headphones can be provided to reduce distractions and to listen to screen readers, audible books and videos in the library. Since reading can be a challenge for students with ADHD (Garnier-Dykstra et al., 2012), campus libraries could invest in audible versions of all their books. Many publishers are responding to this need and producing textbooks in audible formats (Young, 2009). Another effective technological tool found to increase retention of class material, is the electronic pen (Belson, Hartmann, & Sherman, 2013). Additionally, use of hardware and software that aims to assist with student learning outcomes has also been found to supportive student retention (Margaretha, 2012).

Educational leaders in postsecondary education settings must adapt and grow with the changing needs of our global high-tech economy for continued success (Lichtenstein, Uhl-Bien, Marion, Seers, Orton, & Schreiber, 2006). They must be visionaries for

tomorrow's ideas with the ability to predict changes and create forward momentum in their organizations (Tinto, 2004). This is especially needed today to address factors influencing the retention of students with hidden disabilities such as those with ADHD. Assistive technology is found to be useful for a wide range of students beyond those with disabilities, so implications of creating a technologically advanced campus environment has proven to have great impact (Fichten et al., 2012). The benefit of integrating assistive technology across campus units, is to engage students in more meaningful and deep learning opportunities, help students manage their disabilities and increase students' abilities to focus and learn (Pascarella, Wang, Trolan, & Blaich, 2013).

Except for Ivy League colleges and universities, the difference between a school with high graduation rates and one with low graduation rates is funding of resources (Ryan, 2004). In this study, Ryan found that for every additional \$100 spent on each student, retention increased by .6%. This has implications for educational leaders that are attempting to address the retention issues at their own schools. With half of American students dropping out of college and 95% of students with ADHD dropping out (Lee et al., 2009), surely the appeal for funding of technology support centers would be attractive. This would require a change in funding policy or creation of new funds specifically for improving the technological needs on campus for students and faculty. Use of assistive technology should be a requirement of all faculty after adequate training is provided. Educational leaders must acknowledge their power to significantly influence the student experience on campus as well as their cognitive development, two factors proven to affect persistence (Swail, 2004). Providing research that supports the need for

increased technology for students with ADHD on campuses has the potential to positively influence policies and practices for this population of students.

### **Retention Theory**

Student retention has been a focus of research for nearly 90 years and continues to demand the attention of educational leaders in higher education (Berger & Lyon, 2005). The ability of an institution to retain a student from the first semester, until graduation is a commonly referenced definition of retention (Berger & Lyon, 2005). Swail (2004) found that approximately 50% of students that start college actually graduate. He discovered that supportive opportunities within a campus environment influence students' abilities and desires to complete their education. However, students with ADHD are commonly not aware of supportive resources because policies and practices on many campuses do not support an interconnectedness of resources for this group (Stamp, Banerjee, & Brown, 2014). This indicates a need for collaborative partnerships across campus to positively impact student retention. Swail (2004) found that educational leaders have the most influence on institutional factors through policies created to ensure curriculum enhancements, professional development of faculty, incentives for achievement, the connection of classroom and real-world experiences through the creation of a connected campus.

Tinto created the Student Integration Model which posits that students that are socially integrated into the fabric of their institution, are more likely to persist and graduate (1975). As this theory has evolved, he also added elements that highlight the importance of motivation theories. Tinto's model of student integration actively



influences the thinking and research on student retention today as well as the policies and practices of educational leaders (Swail, 2004). His Student Integration Model includes discussion of influences on retention: social integration and institutional factors, allowing strong ties to the institution which concurrently has a positive impact on retention (Tinto, 1993). According to Tinto (2004), leaders must be visionaries for tomorrow's ideas with the ability to predict changes and create forward momentum in their organizations. This is especially needed today to address factors influencing the retention of students with hidden disabilities such as those with ADHD.

### **Institutional Factors**

Supportive opportunities within a campus environment influence students' abilities and desires to complete their education (Swail, 2004). Educational leaders have the most influence on institutional factors through policies created to ensure curriculum enhancements, professional development of faculty, incentives for achievement, the connection of classroom and real-world experiences and through the creation of a connected campus (2004). For example, using assistive technology to create opportunities for deep learning to occur, would have a significant effect on cognitive factors (Pascarella et al., 2013).

More modern and comprehensive models of college retention stress the importance of collaborative programming between departments on campus (Salinitri, 2005; Lehr, 2004; Tinto, 2000). Creating an educational space where academic, personal, and social supports are promoted with students and made readily accessible establishes a campus where students feel connected. This connection has proven to improve retention

of at-risk student populations (Tinto, 2004). This level of involvement is typically seen in schools that boast the highest types of disability support services.

Positive changes made to disability services practices should impact the availability of assistive programs and devices for students and indicate a university's level of commitment to student learning and success. Addressing issues of retention may require adjusting the institution's mission to include a priority on financial policies that provide funding for campus technology.

### **Geometric Model of Student Persistence and Achievement (GMSPA)**

The GMSPA explains persistence and achievement through the relationship between the university and the student. Specifically, persistence is seen to derive from the interaction between a student's personal qualities and university practices (Swail, 2004). In this model, the primary focus is on the student. It examines the interaction of social, cognitive and institutional factors and how they influence a student's retention. Cognitive qualities relate to a student's academic abilities, social qualities relate to external influences on the student that effect perceptions and institutional factors are policies, practices and university culture (Swail, 2004). Examples of these factors include study skills, financial issues, learning skills, attitude towards learning, time management, and communication skills.

The primary concern of this model is what universities and colleges can do during their interactions with students to enhance the student experience and encourage persistence. There are campus-wide opportunities to engage students in learning and skill development of their cognitive and social qualities. Purposefully connecting students to

these opportunities systematically may have a positive impact on their college experience and academic success (Lau, 2003).

The Geometric Model of Student Persistence and Achievement (Swail, 2004) provides a plan for both understanding the interaction between universities and schools and provides clear examples for implementing change within various departments across campus. This model addresses complexity in organizations and demonstrates how the interconnectedness of the larger campus body can be used to create lasting change. It views educational organizations as complex adaptive systems where leaders are required to recognize and act on internal and external influences that necessitate change (Swail, 2004).

Transformational leaders in higher education are best suited for the complexities of this environment where the use of emotional intelligence to create group cohesiveness is needed (Wang & Huang, 2009). In an ever-changing, fast past environment, educational leaders may need to unify to gain the input and creative decision-making talents of those across departments. The problem of retention has persisted for such a long period, clearly there is a need for universities to create a new identity for themselves and their current roles (Gioia, Shultz, & Corley, 2000). Educational leaders across campuses must gain a new understanding of who they are and define the intent of their interactions in a way that serves the needs of all students (Lichtenstein et al., 2006). Students are a part of this interconnected group. However, an interconnected group is only as strong as its weakest member, so the majority loss of one group of talented students, is indeed a loss and challenge for all members (Helgesen, 1995).

Universities are obligated to serve more than the needs of their enrolled students. Public universities are institutions that work toward meeting the needs of the larger community they serve. With such poor retention rates, many previous students are exiting back into their communities unprepared and unqualified for the professional workplace. Additionally, most U.S. states are now involved in performance-based funding which financially rewards colleges and universities for their retention efforts (National Conference of State Legislatures, 2017). Universities with poor retention must deal with a loss of much-needed funding. A sense of urgency generated from within the organization and based on the needs of each organization is suggested by the GMSPA to create change.

By layering the GMSPA model with Tinto's (1993) retention theory, the role of the educational leader becomes clearer. This study attempts to show how departments across campuses work as a collective to support retention efforts by adding services that go beyond the minimum requirement, and by reaching across departments to create partnerships with faculty, and staff. The highest level of disability services of examined schools was expected to exemplify the highest level of positive effects of institutional factors.

### **Overview of Theoretical Framework**

Theoretical perspectives that most inform this study are detailed by Tinto's model of social integration (1975, 1993, 2007) and Burns Transformational Leadership Theory (1978). Tinto attempts to provide a comprehensive understanding of retention issues and practices to combat challenges by positing that the issues lie in social and academic

integration. Tinto believes that social integration allows strong ties to the institution which concurrently has a positive impact on retention (Tinto, 1993). In the case of students with ADHD, the most involved and proactive disability centers would be expected to have high rates of retention and thus above average graduation rates. Involvement of students at this level of service would integrate staff and faculty support as a matter of policy.

Tinto's retention model offers guidance that provides insight into the cause of poor retention and practices that have a positive influence on graduation rates. Increasing disability services represents incremental attempts to address these challenges through improvements in institutional practices. It is useful to know how types of service and amount of use of these services, impact the graduation rates of institutions. Since many schools still provide a basic level of service to students with ADHD, it is essential to understand the impact of increasing these the number of resources. Many helpful disability services require departments across a campus to be interconnected.

Burn's Transformational Leadership Theory is in support of this interconnected environment where members share knowledge and develop collaborative approaches to resolve conflicts (1978). A team of faculty and staff effectively communicating and working together towards a shared goal of improving graduation success for students with ADHD is an example of this theory in action. The transformational leader in a disability resource center can rally support from across campus by providing a motivating and inspiring message that creates a sense of urgency for a purposeful cause, that being helping students with ADHD graduate college. Effectively working to incorporate

student input when creating policies and practices and motivating faculty and staff around a noble and common mission, are important elements of transformational leaders (Trautwein, Lüdtke, Köller, & Baumert, J. (2006).

Tinto states that when faculty and departments reach out to students through support programs and activities, this increases student commitment and satisfaction with their school, thus reducing drop out (1993, 2007). These two theories hint at the need for campus disability centers to create policies and practices that encourage involved members to reach out to campus partners with the purpose of creating mentoring opportunities for their students, to enhanced faculty interactions and the classroom experience, to improve knowledge and practice of the specialized career needs of students with ADHD and to increase the use of supportive technology for this population.

Examining Kotter's eight step change model (1996) helps to understand effective approaches to change on college campuses. Bringing awareness of the rapidly growing increase of students with ADHD on college campuses paired with the low graduation rate of this group should create a sense of urgency that stirs action by campus leaders. Disability resource center directors are positioned well to lead a comprehensive campus-wide program of top-down change that aims to improve graduation outcomes of students with ADHD and indirectly, all students potentially. In this study, Kotter's model would support training programs that educate staff and faculty on specific approaches and actions that support this population, implementing these changes across campus, making appropriate adjustments to fit the needs of students, staff and faculty, and then examining effectiveness of program through program review.

Kotter's change model was used by Taylor and McAleese (2012) while implementing a mandated technology system aimed at supporting retention at Paul Smith's College. Change was comprehensive and campus-wide, requiring participation of both staff and faculty. Kotter's model was used to increase acceptance of the implemented program, change campus culture, and to establish a sense of urgency.

The tone and message of urgency and need was set in place by leadership early, before implementation of the new technology to establish expectations and increase buy-in. The effectiveness of this applied change model was seen in the 22% reduction of expenses, a decrease of 36% in students on academic probation, a 50% decrease in academic suspensions, a 23% increase in overall retention, an increase in efficiency and effectiveness, and quick implementation and acceptance of their technology program. Most importantly, Taylor and McAleese (2012) felt that keeping the focus on financial savings resulting from an increase in graduation rates was an effective tool for long-term leadership support and commitment.

Kotter's model provided a simple, easy to follow, clear process. Effective communication of goals and progress, as well as implementation of a rewards system for faculty with the most success were positive factors in the success of their program. The process encouraged feedback from faculty and staff that worked collaboratively to implement change. Reorganization of offices and systems allowed for a more simplified process, saving money and put the focus more so on student success instead of retention. Additionally, the researchers noticed this focus improved commitment from faculty.

Some schools have elected to increase funding for programs that aim to increase graduation rates and research validates the effectiveness of increased funding on graduation rates. For example, in a study by Webber and Ehrenberg (2010), they found a correlation between increased funding (approximately \$100 per student) and graduation rates (increased by .09%). Additionally, in a study to determine if a new early alert system would be effective, Ryan (2004) discovered that increased instructional and academic funding was positively correlated with graduation rates.

Strategies to address graduation rates includes Fouad, Cotter, & Kantamneni's (2009) suggestion that campus staff work collaboratively to refer students to the career center for career exploration and career planning courses where students can gain knowledge of self and careers to improve their confidence in their career decision-making. Grier-Reed & Skaar (2010), found that these classes went well beyond simply helping students with career decision-making, assisting the student's self-awareness and

### **Chapter Summary**

With a growing population of students with ADHD entering institutions of higher education (U.S. Department of Education, 2000; 2012), there is a growing need to address challenges of this student population to improve retention and thus graduation rates. Academically, students with ADHD are more likely to struggle than those without ADHD (Advokat et al., 2011) for a variety of reasons.

Disability laws that cover students with disabilities in post-secondary education are broad, which requires schools to determine what is reasonable as supports for students



with disabilities. However, a base level of service as suggested by Section 504 is often seen as a minimum level support at most colleges and universities.

In post-secondary education, the American's with Disabilities Act (1990) and Section 504 of the Rehabilitation Act of 1973 prohibit discrimination of students with disabilities as well as requires schools to provide reasonable accommodations in classrooms, campus programming and other campus activities. To provide equal access and prevent discrimination, colleges and universities assist students with ADHD by making changes to policies and practices. Common academic adjustments such as extended time on test, tape recording, note takers, and electronic readers, providing written notes, distraction free space, are common and basic types of accommodations for students with ADHD (ADA, 1990; Victors, 2010). These basic types of services are essential for academic success of students with attention issues. The ADA does not specify which services a school must implement though, so policies and practices of schools are not uniform across institutions.

Most schools have responded to the growing needs of students with ADHD through basic modifications to programs and academics. However, going beyond this basic level to provide needed enhanced quality of services continues to be a challenge for many schools (Hong, 2015; Oslund, 2014). However, these enhanced services have proven to have a positive impact on graduation rates of students with disabilities (Brink, Diamond, LeMaster, 2012; Oslund, 2014; Tinto, 2004). For example, an exploratory study by O'Neil, Markward and French (2012), found that students with disabilities that

used distraction free spaces on campus, were four times more likely to graduate than students that did not.

Tinto (1993) believed that attention to academic, social and personal needs of students is critical for retention. Student interactions with faculty and staff that allows them to become academically and socially involved on campus, is found to increase the likeliness of graduation (Tinto, 2007). He has provided a framework for understanding the reasons for retention and provided a guideline to address challenges students face to improve retention and graduation rates (Tinto, 1993). The purpose of this study is to examine the impact varying types of service have on the graduation rates of students with ADHD.

## **Chapter 3: Methodology**

### **Introduction**

This chapter describes the study design, which contains the conceptual frameworks and procedures used, hypothesis and a research question, questionnaire used, and participants and process to ensure confidentiality and consent. The interview procedures, data collection, validity, analysis and methods are also discussed. The intent of this study is to improve understanding of how increasing types of disability services impacts graduation rates of students with ADHD to provide information that can impact policy and practice in disability resource centers.

To effectively address the research questions at the core of this study, a quantitative research design was selected. This approach incorporates the collection, measurement and analysis of data in a manner that explicitly and logically addresses the research problems. A statistical analysis was conducted to examine the graduation rates of students with ADHD over a three-year period from schools to determine if type, amount of service use, and student status influences graduation rates.

Information from the questionnaire was used to create a comparison among variables. Identification of student status (FTIC and transfer), service type and use, and a comparison of graduation rates were the variables selected to be analyzed using a logistical regression. This methodology was identified as an effective approach to analysis because identifying predictors of graduation was important.

Results provided timely information about best practices that can be used to support student success in higher education and provide information that may encourage

prioritization of funding for programs and resources that support retention efforts of students with ADHD. Since the unemployment rate of students with hidden disabilities is well above the average (The National Collaborative on Workforce & Disability for Youth and Workforce Strategy Center, 2009), more of these students graduating would have a positive financial impact on local communities and the individual's well-being. Also, the return on investment of taxpayer money used to partially pay for the cost of college, would be substantially improved if students complete their degree. Florida colleges and universities are accountable to the Board of Governors that provide a monetary reward for graduating an increasing number of students (Florida Board of Governors, 2014), so any direct impact of this study's findings would have an impact on funding opportunities for public colleges and universities. It can be implied that implementing changes in policy and practices on campus that directly supports the success of students with ADHD, would likely have a positive impact on graduation rates of these students.

### **Research Question**

More frequent use of services and the matching of services according to students' strengths and weaknesses may be associated with increases in their college completion rates. Several schools such as the University of Arizona, have implemented support programs, that directly address the specific needs of students with attention issues. Graduation results at the University of Arizona for the population of students that use its SAIL program, boast an above average graduation rate of 55% over a two-year period (Molina, 2014). This program has a collaborative relationship with several campus departments and provides individualized services to students. This collaborative approach

creates a highly interactive and clear communication channels between students, faculty and staff under one defined goal of improving graduation rates. This supports changes to policies by educational leaders to allow for a more collaborative system of addressing the needs of students with ADHD on campuses.

An examination of college and university disability center services in Florida colleges and universities was useful for identifying programs with above average success at graduating students with ADHD. Additionally, it was useful to know how collaborative programs in Florida institutions of higher education are effective at positively impacting graduation of students with ADHD. Examining student status (FTIC vs transfer), disability service use and types of services used by students would have helped to determine if these factors indeed predict graduation. To address this, the following research questions were presented. *What is the graduation rate of students with ADHD at four-year state universities in Florida? Is student type (FTIC, transfer) associated with of a higher graduation rate? Does percentage of use of disability services predict graduation rate? Which types of disability-related services are most likely to predict graduation of students with ADHD?*

### **Hypothesis**

Whether the student type and type or use of services has an influence on graduation rates is unknown. If this relationship is found to have a predictive value, knowing if that influence is significant may be important in determining impact of services on intended outcomes. Additionally, the degree that transfer students benefit from services compared to FTIC students is important to know to determine if additional services are needed for transfer students. In the 2015-2016 Annual Accountability Report

from the Florida Board of Governors (2017), transfer students graduate at half the rate of first time in college students. Analysis of results could have indicated that type and use of service have a positive, negative or no impact on graduation rates. Additionally, findings could have also indicated that there is no significant correlation between type and use of service and graduation rates of students with ADHD. However, this study is framed by extant research and retention theory supporting the hypothesis that there will likely be a positive correlation between level of services and graduation rates. Moreover, this study's hypothesis asserts that the positive relationship between service type, use and student type on graduation rate will indicate a significant correlation.

This author intended to reject the null hypothesis that more frequent use of services and the matching of services according to students' strengths and weaknesses may be associated with increases in their college completion rates. Several schools such as the University of Arizona, have implemented support programs that directly address the specific needs of students with attention issues. Graduation results at the University of Arizona for the population of students that use its services is well above average. Findings were expected to support that there is a relationship between the independent variables (type of service, use, and student type) and the dichotomous dependent variable (graduation/non-graduation).

### **Approach to the Study**

Retention-focused theories are used to provide a theoretical framework for understanding the challenges, factors of influence and strategies to address retention among students with disabilities. Research is used to examine retention issues and

solutions broadly as well as specifically for students with disabilities and even more precisely, those with ADHD. Since the author wants to know more about influences on graduation rates of students with ADHD, framing the study around retention-based concepts allows a clearer understanding of relevant variables. Although this study focuses on graduation rates of students with ADHD, a general understanding of challenges that prevent graduation and the supportive services and programs that address these concerns, may provide a clearer framework for understanding differences in graduation rates. Additionally, it may provide educational leaders with valuable information that can be used to create effective policies aimed at improving graduation rates of students with ADHD.

Retention theory is used to understand how campus departments interact to support students, specifically those with disabilities. To gain a perspective of current strategies that address overall campus retention, retention theory is used to identify common services. Retention theory implies that going beyond the basic requirements of ADA law, has positive impacts on retention of students (Tinto, 1975, 1993, 2000). Schools taking this approach are expected to offer a variety of support services for students to choose from. Knowing to what degree these services increase a student's chances of graduation is essential to continued funding and commitment to certain programs in place in disability centers. Educational leaders are concerned with effectiveness of their programs, so findings from this study should provide timely and critical information for policy and program planning. Additionally, it is important to determine if an increase in use of disability services predicts graduation rates. If this is

found to be a predictive factor, educational leaders in disability centers may be more inclined to create policies and procedures that aim to increase the number of students using their services and repeat use in their centers.

If there is an association between graduation rates and services and student type, a predictive model of analysis was expected clearly address the research questions. Therefore, the theoretical framework, provides the basis for identifying relevant characteristics of the independent variables as well as provides evidence for the hypothesis.

#### Research Participants

The key informants are disability resource directors at four-year colleges and universities in the state of Florida. Some of the needed information may be requested from a schools' registrar's offices depending on how this information is stored at each school. Graduation data, for example, may be retained only at the registrar's office instead of the disability support centers.

This study examines four-year colleges and universities in the state of Florida. Decreased enrollment over the past few years have prompted both public and private post-secondary institutions to focus added attention on retention and matriculation of students (The Florida College System, 2013). Because of this focus, the results of this study may be highly relevant to both private and public institutions. All state colleges and universities with an established disability support center was contacted and requested to complete a questionnaire for this study. A list of all state colleges and universities was created with contact information for the disability resource center and the director's



name. This was followed by a phone call to address questions and encourage participation. Since participants are directors of disability resource centers at colleges and universities in Florida, results of this study should have a direct impact on their work with students and could increase awareness about the benefits of collaborations across campuses, impact of specific offered services, and the needs of transfer students. Findings could potentially expand a field of study on retention of at-risk students and provide participants with a base of knowledge that can be used for prioritizing and funding programs and services for students with hidden disabilities. Schools with above average graduation rates for students with disabilities may be provided with recognition for the institution and subsequently increased enrollment by students with ADHD.

Since many services available to students with ADHD come from various departments across a campus, a leadership approach that addresses the need for collaborative and interdependent relationships across campus units would be recommended if this study hypothesis is true. Additionally, the results may be used as support for funding request for programs and activities that serve this population as well as the general student body.

## **Research Procedures**

### **Consent & Confidentiality**

The study received IRB approval as a non-human subject study. Consent was be obtained via a Qualtrics form at the beginning of the research process before the research questionnaire is released to the study participant. The consent form included the researchers contact information and a message that encourages potential participants to

address any concerns with researcher before signing form. Additionally, the consent form noted that participation in this study is optional. The expedited nature of this research as well as the population from which the data was pulled, is highly unlikely to exert coercion or undue influence on potential participants. However, to reduce the likelihood of coercion, a clear and honest description of the benefits of this study to directors was provided by use of clear language. Also, there was mention in the consent form that no financial reward would be provided. Participants were given one month to complete the emailed questionnaire.

Personally-identifying information of students was not gathered since only the overall graduation rates of students with ADHD from each school's disability resource center, student status, amount of service use and service type were the only data needed. Additionally, names, email addresses and phone numbers used to communicate with disability center directors and other campus staff were required in order to commence this research, but this is not personal information, rather it is publicly available. Additionally, director and department contact information was only used to solicit participation in this study. As an added precaution however, to protect the identity of the directors that chose to participate, their names and school names were coded instead of using actual names.

### **Research Design**

A correlational, quantitative design was used that provides a process for gathering information about the independent variables which was intended to be used to predict the dichotomous variable (graduation/non-graduation). A list of common disability service as well as space for comments was added to the questionnaire.

Additional student use of services and student type were also gathered. The appropriate statistical analysis for this study was determined to be a logistical binary regression. This method can be used to identify the predictive value of the independent variables on the dependent variable. Specifically, logistical regression can predict the likeliness of a student graduating based on the three independent variables: student status, amount of use of disability services, and service type. Additionally, a qualitative design was applied to provide a deeper understanding of findings.

To test for assumptions, a case wise diagnostic was determined appropriate for testing for outliers. A Box-Tidwell was planned to test for linearity and identification of multicollinearity was planned to review correlation coefficients.

### **Instrumentation**

Service type, use of service, student type and graduation success were requested from schools. A report written by Wolanin and Steele (2004), notes that there are two types of accommodations on a college campus for students with disabilities: academic adjustments and auxiliary aids and services. Types of services used were expected to reflect these categories and be in support of academic-related concerns for students. According to the latest Diagnostic Manual, the DSM-V, (2013), academic-related concerns includes problems with sustaining attention, attention to details, poor organization, task completion, forgetfulness, and distraction.

### **Data Analyses**

Data consisted of information in a database that includes graduation information, service use, type and student type. The plan was to code the dependent

variable as 1 and 0, which represents graduate and non-graduate, respectively. Service use was based on the total percentage of use by students with ADHD. Service type is a nominal variable, as is student type. To understand how the amount of use, service type is nominal as is student type. To understand how amount of use, service type and student type predicts graduation of students with ADHD, a logistical analysis was planned to examine the impact each independent variable has on the dependent variable.

A baseline analysis was planned for comparison of the model with and without the independent variables. The logistical regression should show how well this model predicts categories compared to no variables. A goodness of fit test was planned to be used to determine how effective the logistical regression was at predicting outcomes, and an R square was planned to be computed in order to determine how much variation in the dependent variable was accounted for by each independent variable. In addition, ultimately the logistic regression analysis could have indicated the probability of a student graduating or not graduating by examining category predictions. Thus, determining how each variable impacts the dependent variable in the model was the goal. This could elucidate the degree of predictive power among each independent variable regarding factors associated with whether students with ADHD graduate.

### **Methodological Limitations**

This study is restricted to colleges and universities in the state of Florida, and therefore, may not be generalizable to all colleges and universities in the U.S. The focus on type and use of services, does not account for the impact many other variables have on graduation such as personal factors. There are many factors that impact retention and thus

graduation rates, and this study does not examine all possible influences or how much of the difference is accounted for by each influence. The correlational method used does not provide evidence that explains the cause of differences in graduation rates.

Additionally, many students with ADHD also have other mental health or physical concerns that could be impacting their chances of graduating, but this study does not differentiate between students with only ADHD and those with ADHD and some other mental or physical challenge.

### **Summary**

The intent of this study was to improve understanding of the relationship between use of disability support services, types of service uses, student type and graduation of students with ADHD. At the start of this research, a letter was e-mailed to directors of disability resource centers requesting information about each variable in study. This request identified students use of disability service, types of services uses, student type and graduation success from the past five years. A deeper understanding of how graduation rates and predictors are connected can better inform leaders in higher education and assist them with policymaking, leading to changes to support programs and activities in colleges and universities.

## Chapter 4: Results

### Introduction

Students with ADHD at colleges and universities must manage many challenging obstacles during their progression from matriculation to graduation. The impact these challenges have on academic's results in substantially lower graduation rates for this special population (Erikson et al., 2013). The population of students with disabilities, including those with ADHD, has rapidly increased over the years (Youngstrom, Glutting, & Watkins, 2007). Disability resource centers at post-secondary institutions are in a position to address many of these challenges these students face with hopes to improve their graduation outcomes. However, general findings in this study indicate a lack of consistency across responding institution's in addressing specific concerns of students with ADHD.

Although some challenges faced by students with ADHD are common with students in a college population, many students with ADHD experience these challenges at a level of severity not observed among nondisabled students; these challenges may have a deleterious impact on retention, and thus graduation. In the current study, recognition of the unique challenges of this student population, enactment of policies that directly addresses their concerns, and integration of supports across campus departments was not widely reflected in all responses. These results were surprising to the researcher, given the literature that supported the formation of the research questions. General findings indicated a lack of consistency across responding institution's in addressing specific concerns of students with ADHD. Poor tracking of data for this population was

observed in the findings, as well as recognition of the need to directly address concerns of this population through targeted services.

Implications of these findings are discussed in chapter five along with recommendations to further study services for this population to better understand how disability services impact graduation rates. Additionally, chapter five appeals to the necessity to gather and analyze data for the purpose of informing best practices and improving the efficacy of disability services for students with ADHD. Issues experienced while attempting to secure responses from institution's are detailed in the current chapter. These concerns subsequently required adjustment of the methodology due to a low response rate.

The total number of instruments sent to respondents at state universities and colleges in Florida was 39, which represents 12 questionnaires sent to state universities, and 27 sent to state colleges. Contact information for each center's director was acquired primarily via each school's website, but four colleges were called to acquire an email address since this information was not listed on their websites. Directors were emailed the questionnaire twice and all were called at least once. Follow-up was completed on some schools where voice messages were left to connect with the director or designated personnel for the requested data on the questionnaire.

One university and two colleges requested to be removed from list of participant contacts. Five universities responded to the questionnaire and one college responded twice. Both results from the community college were retained for discussion since some responses of the same question differed. Overall, the response rate for this study was

6.5%, representing a lower than expected response and thus requiring an adjustment in this study's methodology to adequately examine data and make meaningful observations. Additionally, it should be noted that most responses acquired came from universities, representing a favorable response rate of 42%. The response rate for colleges was only .04% with only 1 return out of 27. The low college response rate was concerning and therefore deemed relevant for further discussion in chapter 5.

### **Presentation of Data Analyses**

This section reviews the demographics of respondents and their institution's as well as challenges that presented themselves while attempting to gather data for this study. Directors from five state universities and one college responded to this study's questionnaire. Universities represented in the responses were coded with numbers 1-6 to ensure the confidentiality of the directors' responses.

To provide a point of comparison for later discussion, an overview of registered students in disability centers of responding schools is provided along with enrollment and overall graduation rates. In 2009 in the U.S., of the students registered with an institution's disability office, 23% of them had ADHD. This represents the second highest noted disability in these centers behind learning disabilities. This number dropped to 18% for institution's with more than 10,000 enrolled students (U.S. Department of Education, 2009). The table below shows the total enrollment of each of the responding institution's in this study, along with the percentage of undergraduate students registered with their disability office and the overall university or college graduation rate.



**Table 1**

## 2017 Institution Demographics

Institution Identifier	Total Undergraduate Enrollment	% Registered w/Disability Services Office	Total Grad Rate
1	7151	3%	37%
2	10002	3%	44%
3	13854	7%	48%
4	14255	3%	57%
5	35247	4%	88%
6	56853	3%	70%

*Source: U.S. Department of Education, National Center for Educational Statistics, 2018*

The respondents from the universities and the college were all at the director level within their centers. The questionnaire was sent out on August 5, 2018, and the first questionnaire response was returned that same day by the director of school #1. The last response was received on October 1, 2018 from school #4. South Florida State College requested IRB documentation be sent for a review before allowing the director to submit a response. The IRB material was reviewed and approved by this institution. The questionnaire was then resent to the appropriate contact, but was not returned.

One university's director emailed early after the questionnaire was sent to request removal from list, "...due to the volume of requests for such data I receive, I limit my

*responses to request from national organizations such as AHEAD and our students only.*” The associate director of a large college also withdrew from participation and stated,

“...although we serve students with ADHD, I do not feel that I will be able to provide accurate data for your questionnaire. Our school is one of the 28 state/community colleges in the Florida College System (FCS). Our school does not have a disability code for ADHD, and it would be difficult for our office to determine the correct number of students that we serve with this diagnosis. Our office currently serves over 1200 students with disabilities and other than go through each individual follow, we have no way to easily disaggregate the information data for ADHD students. Please accept my apology but given the limitation in our ability to track data specifically for students with ADHD diagnosis, that I would not be able to provide reliable data, that I feel I should decline participation in your questionnaire.”

The director of a two-year institution college withdrew from the study stating, *“I wouldn’t qualify for the parameters of your study. We do now have a few four-year programs but our numbers are mostly based on two-year degrees, AA and AS, as well as technical certificates.”*

The Associate Director for school #2 was concerned about responding because she does not gather the types of data that was requested. She was encouraged to send what she did have, which she subsequently did. Her responses reviewed question number one only and did not include any numbers and percentages requested in questionnaire

(number of registered students, graduation data, number of students using services, and percentage of transfer).

Overall, the response rate for this study was 6.5%, representing a lower than expected response and thus requiring an adjustment in this study's methodology to adequately examine data and make meaningful observations. Additionally, it should be noted that most responses acquired came from universities, representing a favorable response rate of 42%. The response rate for colleges was only .04% with only 1 return out of 27. Since most colleges are less competitive than universities in the admissions process (NCES, 2018), and students with ADHD have lower GPA's on average (Advokat et al., 2011). these schools may be more likely to have a higher percentage of students with ADHD on their campuses compared with universities (NCES, 2011). The low college response rate was concerning, and therefore deemed relevant for further discussion in chapter 5.

**Types of Service.** This study investigated the relationships that service types may have on graduation rates. Since types of services and graduation rates were a potential correlated value, the first question listed many common accommodations of disability services offices and included an area for respondents to leave comments as well. Question one provided a list of 26 services and accommodations commonly provided in disability services centers. Respondents were asked to, *“Please mark the accommodations and/or services offered in your center to support students with ADHD. If you would like to provide a comment about accommodations or services, you will have the opportunity after each item.”* The below table provides a review of the first question regarding types of provided

services. They were listed by sub-question and then sorted by count with the least common service listed first.

**Table 2**

Question #1, Available Services

#	Answer	Count
14	Other classroom accommodations	0
20	Other academic accommodations, services or supports for students	0
13	Audio instructions	1
15	Alternate assignments	1
16	Written or printed assignment instructions	1
21	Support groups for students with ADHD	1
12	Assistants	2
18	Course substitutions	2
4	Testing over multiple sessions with breaks between sessions	3
11	Scribes	3
19	Reduced course load	3
7	Reading assistance services	4
10	Note takers	4
22	Describe collaborative efforts/partnerships with Academic Advising	4
6	Audio version of textbooks	5
8	Access to assistive technology needs assessments	5
9	Access to assistive technology or software	5
1	Extended time on tests/exams/quizzes	6
2	Testing in a quiet and separate space in the disability office or testing center	6
3	Testing in a quiet and separate space arranged by the course professor, but not in the disability office or testing center	6
5	Permission to record class sessions	6
17	Priority registrations	6

The low response rate necessitated a shift in how the first research question was analyzed. Since only two institutions provided graduation data of students with ADHD for each of the three requested years (2015-2017), services and graduation rates cannot be correlated with confidence; instead, it is more valuable to look for patterns within the data for this first question.

Respondents did not add comments to this section but did mark many of the listed common services. The following table indicates types of services provided in the respondents' centers for students with ADHD. Common resources were those most respondents acknowledged as a type of service offered in their center. Common services that *all six* respondents marked were;

- Extended time on tests/exams/quizzes
- Testing in a quiet and separate space in the disability office or testing center
- Testing in a quiet and separate space arranged by the course professor, but not in the disability office or testing center
- Permission to record class sessions
- Priority registrations

Services that *five of the six* respondents checked included;

- Audio version of textbooks
- Access to assistive technology needs assessments (either in the disability office or in the community)
- Access to assistive technology or software

Comparisons between college type and services could not be made since there only one college participated in this study. Additionally, services and graduation rates could not be correlated since so few schools reported graduation rates. The low response rate necessitated a change to how this first question can be analyzed. Since only two institution's provided graduation data for each of the three requested years (2015-2017), services and graduation rates cannot be correlated with confidence. Instead, it is more valuable to look for patterns within the data for this first question.

School #4 submitted a response to every question, including comments, so this university's data was used as a comparison to other respondents. This school also reported an above average percentage of registered students with ADHD, so data from this university was examined more closely within this study since the respondent supplied rich, detailed responses.

*Student Status.* The research question relating to FTIC vs transfer students and whether these factors are associated with a higher graduation rate, cannot be calculated due to the low number of responses for comparison. Only two institution's provided data regarding graduation rates and two schools noted that they do not gather this type of information (Appendix B). School #4 reported that 17% of students with ADHD in their center are transfer students.

*Registered students use of services.* For the question, "does amount of use of disability services predict graduation status", and insufficient amount of responses was received to make a determination since only one school supplied information on both graduation rates and student use. Three schools reported their student use of services

percentages which ranged was between 65%-100%. Table 3 below shows responses to questions regarding graduation rate, use of services and registered students. The areas in grey indicate that the director did not provide a response for that particular question. School #3 provided their overall graduation rate.

**Table 3**

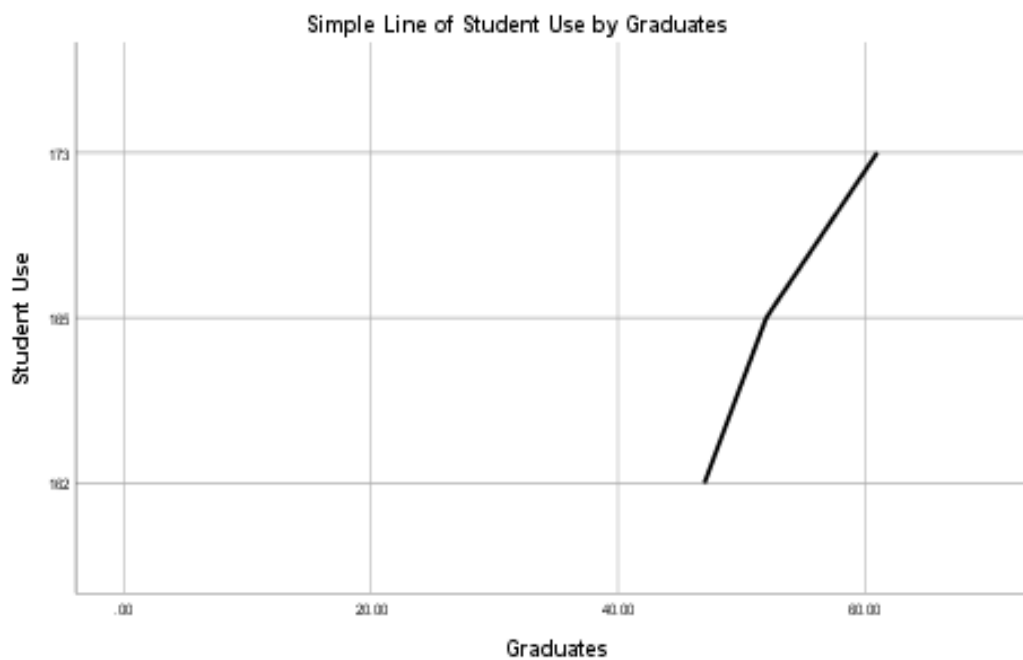
*Registered Students, Use of Services, & Graduation*

School #	2015 Reg	Used 15	Grad 15	2016 Reg	Used 16	Grad 16	Reg 17	Used 17	Grad 17
	231	70%	47	247	70%	61	235	70%	52
1		65%			70%		817	70%	
5	280		136	248		111	265		138
3									
2									
6	140	100%		58	100%		217	100%	

Since the school #6 provided information regarding the percentage of students using their services as well as graduation information, these factors were plotted below to examine linearity. Additionally, before selecting a comparison model, linearity was tested to provide a view of the relationship between variables. Tables 4 and 5 provide a visual of these statistics.

**Table 4**

Scatter Plot of Service Use and Graduates

**Table 5**

Test of Significance

**Test of Normality****Kilmogorov-Smirnov****Shapiro-Walk**

Graduates	.241	3		.974	3	.688
Student Use	.282	3		.936	3	.510

Lilliefors Significance Correction



In regards to student use of disability services, school #6 stated that they do not track numbers based on a specific disability; additionally, they mentioned that, “*We do not know who uses our internal office resources and who uses our overall campus resources (such as online accommodations or working with faculty directly)*”. The director from school number two stated that she does not have information on registered students, percent use of services, or graduation data.

Table 3 includes the total number of registered students at each institution, the percent of registered students that used the services and the number of students that graduated each of the three years in question. School number four was the only institution that responded to every question in this section. Two schools noted a student use rate between 65-70% for each of the three years. School number one stated that they had a 100% registered student use of services for each of the three years.

School number five only reported one year of data for registered students with ADHD which was 817 students for the 2017 year. This number was substantially higher than the other two reporting schools that had an average of 239 registered students. School number five’s total student population is much larger than the other three schools that reported their number of registered students.

Graduation data for school #4 reported 47 graduates for 2015, 61 for 2016 and 52 for 2017. This represents 20%, 22%, and 25%, of all students with ADHD registered with the DRC each of those consecutive years. The National Center for Educational Statistics (2014) reported that first-time, full-time degree-seeking undergraduate students in Florida had a 6-year graduation rate of 64.4% in 2013. Table 6 shows that as use of services

increases at school #4, the number of graduates does as well, indicating a positive correlation between service use and the likeliness of graduation. All assumptions were met for the Pearson's Correlation and this test was statistically significant (when  $p < .05$ ) at .996 for graduates and .996 for service use, therefore rejecting the null.

**Table 6**

Correlations-Pearson

		<b>Graduates</b>	<b>Student Use</b>
<b>Graduates</b>	Pearson Correlation	1	.996
	Sig. (2 tailed)		.059
	N		
<b>Student Use</b>	Pearson Correlation	.996	1
	<b>Sig. (2-tailed)</b>	<b>.059</b>	
	N	<b>3</b>	<b>3</b>

Data was gathered over the phone from the director at school #3 and added to the questionnaire. Additional comments outside of this form were provided that discussed peer mentoring. The director made a point to say that the peer mentoring was available at the school for all students, not just students with a disability. Additionally, the overall department graduation rate was provided since she did not track this variable based on disability. This school submitted their total number of registered students and the number of students that graduated over the past three years, which calculated to 48% on average. This is the same as the college's overall graduation rate.

The most common services offered to students included those that at least five of the 6 schools marked and include, *reading assistance services, note takers, collaborative efforts/partnerships with Academic Advising, audio version of textbooks, access to assistive technology needs assessments, access to assistive technology or software,*

*extended time on tests/exams/quizzes, testing in a quiet and separate space in the disability office or testing center.*

**Comment sections.** Directors were given the ability to write in comments after each question. School #5 and school #3 did not provide written comments in their questionnaire. Other responses provided are listed below by school.

Regarding the question on student use of services, the school #1 director added that they do not *“know who uses their internal office resources or who uses our overall campus resources, such as online accommodation or working with faculty directly.”* In other comments, this school also stated that they *“do not know much with respect to resources specific to this population. We look at campus-wide accessibility and work from that angle rather than specific disability angle. This aligns with the social model of disability.”* School #1 noted that not all students with ADHD register with their office. Regarding collaboration with their advising center, they stated that,

*“Our department works closely with Academic Advising as far as helping the student choose a degree program that is most beneficial for the student, helping students choose classes that complement each other so the student isn’t taking too many rigorous classes at once, keeping a reduced course load for the student or at least checking the student’s progress if the student so chooses to take a full load, granting a course substitution where appropriate as long as the student can meet degree and state requirements, and allowing the student to register for classes early.”*

In the additional comments section, school #4 noted that Students with ADHD,

*“typically do well when given appropriate testing accommodations, along with understanding faculty, and minor classroom accommodations such as a note taker.”*

Also, some schools noted generally how often a resource was used by using words such as, *“infrequently”*, and *“occasionally upon request by student”*. As seen in Appendix B, School number one provided detailed descriptions of their services to students, collaborations with other departments and training opportunities for students and staff. The level of discussion from this school regarding these comments were extensive in comparison to other responding schools. Of note is the fact that this school submitted two forms with responses. The director contacted the researcher via email to say that she didn't have time to finish the first time she attempted the questionnaire, so she went and submitted a second response. These two sets of responses were merged for this school.

### **Summary**

This study aimed to examine how types of disability services, student type, and use of services impact graduation rates of colleges and universities in the state of Florida. Due to a poor questionnaire return rate, comparisons cannot be made between graduation rate and other potentially influential variables such as types of services used, use of service, and student type. Only one school of six responding was able to provide the annual number of students with ADHD that graduate. Three directors noted that they do not gather data specific to a disability.

Schools represented in this study offered many common services to students in their disability support centers. There were some differences in the level and delivery of services (online vs. personalized/individual advising). Only one school knew their

percent of transfer students, so analysis could not be made with this variable and graduation rates. For comparison, one institution that responded completely to the questionnaire was examined using a Pearson's Correlation to compare use of services and graduation rates over a three-year period. A positive correlation was seen over the three-year period examined. Any statistics between groups could not be completed due to potential for low power and poor generalization due to low respondent rate. A qualitative review of comments within the questionnaire provided a more detailed review of collaborative relationships with the disability resource centers and other departments as well as with faculty.

Chapter five addressed the challenges and concerns regarding the minimal response rate in this study. The response rate itself was deemed interpretive of a larger concern regarding attention to concerns of students with ADHD on college and university campuses. Implications of these practices were highlighted in the discussion along with recommendations.

## Chapter 5: Discussion

Students in postsecondary institutions with ADHD often manage multiple challenges to their academic success (Advokat et al., 2011). Campus disability service centers are pivotal partners in the navigation of resources that address the needs of these students. Tinto's retention theory attempts to understand how campus departments interact to support students, specifically those with disabilities. Retention theory implies that going beyond the basic requirements of ADA law, has positive impacts on retention of students (Tinto, 1975, 1993, 2000). Schools taking this approach are expected to offer a variety of support services from which students can choose. This is true of the institution's represented in this study as well. Knowing to what degree these services increase a student's chances of graduation may be essential to continued funding and commitment to certain programs within disability centers. Educational leaders are concerned with effectiveness of their programs, thus collecting information relevant to specific groups of students with disabilities should be commonplace and necessary for effective evaluation of services.

The research stage of this study was challenged by the low respondent rate of participants. Additionally, the minimal response itself was deemed interpretive of a larger issue regarding the attention provided to concerns of students with ADHD on college and university campuses. Findings did indicate, however, that institutions are likely taking a collaborative approach to address concerns of students with disabilities on their campuses. Results highlighted poor data tracking for this population and a lack of recognition of the need to directly address concerns of this population through targeted

services across campus. Suggestions for supportive strategies are provided to guide a more effective implementation of collaborative services to students with ADHD at post-secondary institutions.

The social model of disability views a disability as only limiting to an individual based on how restrictive his or her environment is to them socially, culturally and economically (Burchardt, 2004). It focuses on removing barriers and adding supports while not directly focusing on any one particular disability or labeling services as specifically for, or in support of persons with a particular disorder. This theory does not focus on the mental and biological struggles of students, but more so sees these as a challenge with the environment that then needs adjustment. Some professionals in disability services believe strongly in not labeling but changing the environment to meet the needs of all of their students (Anastasiou and Kauffman, 2013).

Disability services personnel may hold different philosophies about disabilities and accommodations. School #6 as well as School #1 both indicated that they follow a social model of disability and thus do not focus on or track information specific to students with ADHD. This may be a common approach of colleges and universities in Florida and may have impacted requested institution's participation in this study. At a minimum, this challenge may have limited the amount of data that was received because most schools that participated in this study, did not provide a lot of numerical information regarding students with ADHD and some had no statistics at all to provide, noting that they do not collect this information. Hughes and Patterson (1997) however, believe that, "disability/impairment distinction is vital for the identity politics of the disability

movement” and Anastasiou and Kauffman (2013) echoed this concern and argue against the idea of a disability as a social construct as well as the separation of word disability from the idea of impairment. If directors of disability centers in Florida do not believe that a particular disability causes impairment for the student, the challenges created by the disability may not be directly addressed as was seen from the responses in this study. This may be problematic in regard to best practices, strategic planning and accountability of funds and resources allocated to universities from the Board of Governors.

The University of Arizona’s disability resource center leaders contend that they have found a solution to the traditional method that focuses on accommodations and instead have created a bridge between the social theory of disability and other theories that address the political, economic, employment, legal, and cultural importance. Their approach has garnered extensive grant funding for a state-of-the art facility focused on disability research that supports and advances their goals. They claim an extensive array of services, greater than any educational institution in the U.S, that provides services to not only students, but faculty and staff as well. They acknowledge the need for accountability and best practices to support the work they do not only for their university, but their city and state (Strauss & Sales, 2010). As would be expected, the graduation rates of students using their services is comparable to that of students without disabilities.

Due to the limited nature of the results, the low number of responses does not lend itself to generalizability. Additionally, because many universities and colleges do not collect data specific to students with ADHD, this would limit the ability to make comparisons across institution’s effectively. Although an adequate number of universities



responded to this study, responses from colleges were not sufficient for comparison. There could be differences inherent to the nature of the college or university as indicated by the differences in overall graduation rates at some of the larger and more competitive institution's such as school number five. Additionally, the differences in student characteristics between colleges and more competitive universities (incoming demographics, age, race, socioeconomic status, grade point average) are not factors controlled for in this study. Limitations also include personal factors that can influence graduation success such as IQ, student efficacy, and family supports.

### **Summary of Findings**

**Evaluations of research questions.** This study is framed by retention theory that supports the hypothesis that there will likely be a positive correlation between level of services and graduation rates. The hope was to explore the possible relationship between service type, use, and student type and graduation rates. A logistical analysis was done to review a potential trend between use of services and graduation rates of students with ADHD registered at the Disability Resource Center at school #4. This was the only respondent that submitted data for this variable. A strong correlation was found, but only three years of information was gathered and thus used in the comparison. More confidence can be put in the results if a longer period of time is examined. Additionally, to be generalizable, data from a representative number of Florida schools would be needed. Nonetheless, the results from school #4 did support the hypothesis that student use of services does correlate positively with graduation rates. This school also noted a strong collaboration with other departments on campus as well as offering faculty and

staff training workshops.

The graduation rate of students with ADHD was only provided by two institution's in this study. The other respondents did not gather data specific to a particular disability. Also, only one school reported the percentage of transfer students with ADHD, so no comparisons could be made between schools or collectively examine a correlation with graduation rates.

A study by O'Neill, Markward and French (2012) examined types of disabilities services and did a logistical regression and stepwise analysis to determine which service was most impactful on student graduation. They discovered that testing in a quiet and separate space was associated with higher graduation rates. This was one of the most commonly offered service among respondents of this study as well.

Of the two institution's providing graduation data, school #4's graduation rate was within the expected range for students with ADHD. However, school #3 indicates an above average graduation rate of 48% for students with ADHD, which is also this college's overall student graduation rate. As seen in Table 1, 7% of this school's student body is registered with their disability services, which represents the largest percentage among the universities and colleges in this study.

### **Conclusions and Interpretations**

Although sufficient data was not provided by respondents to make the types of comparisons needed to address the research questions in this study, other telling variables were seen that were interpretive. Three directors in this study noted that they do not gather specific data on students with ADHD and another two simply did not provide

specific information in their submission beyond listing services. It is possible that the overall low response rate could have been at least partially due to the fact that many colleges and universities in Florida simply do not monitor and measure the impact their policies and practices have on specific students in their disability services office.

Data-driven research used to guide policies and practices on college campuses can be used to advocate for resources specific to students with ADHD, including department and program specific funding. The Institute for Higher Education-IHEP (2012) and the United Nations Girls Education Initiative (UNGEI) conducted studies focused on at-risk populations and discussed the importance of using research-driven data to inform policy and to use these data to advocate for funding and services to support these groups. Like students with ADHD, issues unique to girls and first-year students need targeted services to improve outcomes.

IHEP argues for a collaborative approach that involves several departments on campus working towards a common goal of student success. In this study, collaborative relationships were associated with four of the six responses. These relationships involved training of faculty and staff as well as joint programming and promoting/referral of other campus resources to the student. Stamp, Banerjee, and Brown (2014), however, found that students with ADHD are often not aware of targeted services available to them due to what they deemed “interconnectedness of resources”. This emphasizes a need to attend to the specific concerns of students with ADHD by identifying resources across campus within other departments as well as helping students develop academically beneficial relationships with informed and motivated faculty members. From the perspective of the

social retention model, Swail (2004) believes that those most influential to institutional factors are educational leaders. He believed that educational leaders have the power to impact policies and thus practices that enhance student learning. These include improvements to curriculum, faculty professional development, creation of a connected campus and offering incentives for achievement (2004). One of the respondents of this study believed that applying social retention theory to her programs and services required a focus on accessibility instead of disability achievement. One noted that services are available to any student. They also discussed providing individual advising to students with ADHD to assess what they determined to be their strengths and weakness. School number one also noted that they do not do anything specifically for students with ADHD. This school did state that they educate faculty on the challenge's students with ADHD face in the classroom and operate collaboratively with other departments on their campus to serve all students with disabilities.

Several schools noted collaborative relationships across campus to support students with disabilities. The strongest appeared to be advising. However, NCES found that of all outreach to departments, the lowest percentage was with career services offices (2009) which was only 48%. As discussed previously, students with ADHD are more likely to be undecided and change their major multiple times compared to other students (Tomevi, 2013). They also face challenges in the workplace at a much higher rate than is seen in the general public (Nadeau, 2005). Clearly there is still much work to be done to support the career development of students with ADHD on campuses. Connecting this

center with the disability services center on campuses may be an effective approach for supporting this special population.

### **Career Centers**

In the U.S., 31.7% of the population has a bachelor's degree or above compared to only 12.9% of those with a disability (Erickson, Lee, & Von Schrader, 2014). Career Centers at colleges and universities play a pivotal role in retention efforts and thus graduation rates. In a study on ADHD and entrepreneurship, researchers were able to confirm a connection between those with ADHD-like behaviors and entrepreneurial interest, aptitude, and achievements (Verheul, Rietdijk, Block, Franken, Larsson, & Thurik, 2016). Armed with this knowledge, collaborations between career centers on campuses and the disability services centers can be very beneficial for students with ADHD. Helping students identify appropriate careers based on interest, abilities, work values and personality can be more effective when also considering potential challenges/limitations in certain workplaces (Nadeau, K. G. (2005). Additionally, career libraries can loan their resources or provide copies of career books that focus on best fit careers for people with ADHD. School #4's Disabilities Resource Center collaborates with their Career Services office for a disabilities job fair where there are employers that specifically seeking to hire persons with disabilities. Collaborative and targeted partnerships not only aid in retention and graduation, but gainful employment after college.

In this study, the disability services director at school #1 noted that she discusses the students' strengths and weaknesses based on their disabilities. This type of

conversation can be extended within career counseling sessions to help guide students through the process of career and major selection. Since students with ADHD are more likely to change their major than students without ADHD (Tomevi, 2013), career counseling that considers the students disability specific challenges may prove to be quite beneficial to the student, the school and the state if the result is degree completion.

Additionally, working together with career centers can help the student learn about job fairs that aim to hire individuals with disabilities and help them prepare to interact with these employers by using employment readiness resources such as practice interviews and resume assistance. This collaboration can bring awareness to students about the abilities of career counselors to understand and to discuss potential challenges of college major and career decision-making, and employment challenges these students may face.

Training workshops with career center staff can further enhance how services are delivered to this group of students and enhance knowledge of their specific needs.

Individual career counseling, as it implies, is based on the individual needs of each student. Considering each student's specific needs instead of applying a broad-reaching method, has been found to be a highly effective approach associated with student success (The Education Advisory Board, 2014). Additionally, it could be useful to examine those students with ADHD in colleges and universities that excel.

### **Advising Centers**

Advising centers offer tutoring, study skills workshops, and monitor students on probation, so it was not surprising to see four of the six schools boasting a strong partnership with this department. Garrison-Wade (2012) concluded in her research on

students with disabilities in universities and colleges that a focus on self-determination, postsecondary supports and planning efforts were essential to the success of this group of students. These related to common services offered in many advising centers.

Particularly, Garrison-Wade emphasized the need for an advising to arrange a transition program from high school to college to smooth the transition for students with disabilities as well as cross-campus collaborations (2012).

Training of faculty, along with ideas and resources to adapt curriculum and learning modalities were less common in the research and in the responses in this study. Suggestions are provided below for activities faculty can implement to support students with ADHD.

### **Faculty**

The NCES (2009) gathered information on the application of universal design as a tool to improve delivery of information in the classroom and accessibility of services for students with disabilities. They discovered that most large colleges found a lack of staffing to do workshops with faculty, a lack of incentives to faculty to change their instructional methods, and limited interest from faculty to learn about opportunities relating to accessibility to be common challenges. Nonetheless, they found that the majority of institutions actively reach out and provide services as requested by faculty. This was also true for respondents in this study that made note of their work informing faculty via workshops and personal meetings. Wessel, Jones, Markle & Westfall, (2009) asserted that their study results, indicating a strong graduation rate for students with

disabilities, can be partially contributed to the yearly training all faculty receive and thus receptiveness to support for these students by these faculty.

To improve collaboration between faculty and disability resource centers, the Geometric Model of Student Persistence and Achievement that Swail (2004) presents can be applied to implement change. This model addresses complexity in organizations and demonstrates how the interconnectedness of the larger campus body can be used to create change that lasts. It views educational organizations as complex adaptive systems where leaders are required to recognize and act on internal and external influences that necessitate the urgency and plan for change.

To prevent students from dropping out, improve grades and attention in class, faculty can implement several activities to better support students with disabilities, particularly those with ADHD. Respondents in this study provided examples of their work with faculty and the study questionnaire also hints at popular task that faculty can use to create a more engaging learning environment.

### **Faculty Suggestions for Working with Students with ADHD**

The most commonly used and highly correlated to graduation are activities that reduce distraction (NCES, 2009). These include;

- **Providing extended time in the class** (come in early, stay late or finish at another pre-arranged time and location). This is particularly useful for assignments with lengthy writing requirements that require sustained attention or when math with recall of formulas is needed.
- **Allow students to take essays assignments/tests in a computer lab or on their**



- personal laptops** so they can organize their ideas without repeatedly erasing or scratching out hand-written work.
- **Allow the use of electronics in the classrooms** such as tablets, laptops, phones for note-taking and research. Keeping their fingers busy may help some students focus their minds. Additionally, selecting a textbook that has an audible version is advisable since reading requires sustained focus. Students should also be encouraged to use audible apps that read text.
  - **Discuss and apply effective learning approaches to content for kinesthetic and visual learners.** For example, if course content requires extensive memorization of terms/concepts, present material in various ways to increase learning. Students with ADHD are more focused when they are physically engaged in their learning. Group learning games using markers/whiteboard and flash cards are examples. Lessons that can be taken outside, while moving around or that can be demonstrated/role-played is also ideal for sustained attention.
  - If a student seems disinterested in the class, **ask in which parts of class they are struggling and make adjustments.** In reality, students may have a strong interest in the class but are simply not able to focus. Listening to an hour of lecture may be difficult for many students, but particularly difficult for a student with ADHD.
  - **Partner with the disability services or the counseling center for a training or material on executive function skills and processing disorders and gain knowledge of learning techniques you can apply to help students focus in class.** For example, a student with an auditory processing disorder (common with students with ADHD)

- will struggle to hear the professor if there is another prominent noise in the same space. Allowing the student to wear headphones or earbuds when not lecturing or having them unplug the earbud during lectures may help with focus.
- **Don't hesitate to refer students to other campus resources** including the disability services center if you notice they are struggling to keep up, stay awake, restless, miss a lot of class, or any other attention-related issues.
  - **Share careers relating to class content with students** that would also be a good fit for students with ADHD. Refer them to the career center to learn more about their options. If they can identify a related option that excites them, class may become more interesting and exciting to them as well.
  - **Assess for learning** by summarizing and outlining key points before changing topics since students may still be processing conversation. Instructors should provide adequate wait and think time during class.

### **Implications for Practice**

The results of this study provide a distinct view of services available to students with ADHD on campuses. Due to the low respondent rate, it is not clear how these available resources impact the graduation rate of this specific student group. More telling implications of the results however, provides disability center directors with an awareness of how their own personal theory of disability may impact the delivery of disability student services on their campus. It also appears to impact their beliefs in the need to gather data on the effectiveness of their services, particularly with students with ADHD. Study findings bring attention for the need to apply best practices that provide clarity to

challenges and specific needs of students with ADHD in higher education and an understanding of how these services impact graduation. Colleges and universities in Florida offer many programs and services to students with disabilities, but it is essential to determine their effectiveness to offer approaches that support and address challenges faced by individuals they serve and to advocate for funding for expanding programs and services.

### **Recommendations for Further Research**

More attention is needed on factors that influence the graduation rates of students with ADHD. Related literature indicates that there are multiple factors that play a role in a student's decision to quit school. Additionally, students with ADHD sometimes have other mental health challenges such as anxiety, autism spectrum disorders and learning disabilities. It would be important to know how these other variables account for a student's decision to leave college.

This study brought to light the need for disability service centers to focus on the specific needs of students with ADHD. Data gathered from this population can be used to advocate for funding for programs and services. It can also help to develop policies and practices aimed to increase the likeliness that these students will graduate. This could provide information about the level of effectiveness of programs and services so adjustments can be made that improve graduation outcomes for students with ADHD.

## References

- Advokat, C., Lane, S. M., & Luo, C. (2011). College students with and without ADHD: Comparison of self-report of medication usage, study habits, and academic achievement. *Journal of Attention Disorders, 15*(8), 656-666.
- Alao, A. (2015). Educational accommodations for college students with ADHD. *The Brown University Child and Adolescent Behavior Letter, 31*(3), 1-7.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Anastasiou, D., & Kauffman, J. M. (2013, August). The social model of disability: Dichotomy between impairment and disability. *The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine 38*(4), 441-459. Oxford University Press.
- Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). ADHD in Adults: What the Science Says. New York: Guilford. *Journal of Attention Disorders, Journal of Attention Disorders, 13*, 97-98. 10.1177/1087054709333321.
- Baverstock, A. C., & Finlay, F. (2003). Who manages the care of students with attention deficit hyperactivity disorder (ADHD) in higher education? *Child: Care, Health and Development, 29*(3), 163-166.
- Belson, S. I., Hartmann, D., & Sherman, J. (2013). Digital note taking: The use of electronic pens with students with specific learning disabilities. *Journal of Special Education Technology, 28*(2), 13-24.
- Berger, J. B., & Lyon, S. C. (2005). Past to present: A historical look at retention. In A.

- Seidman (Ed.), *College student retention: Formula for student success* (1-30). Westport, CT: Praeger Publishers. Bong, M. (2001).
- Blase, S. L., Gilbert, A. N., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., Swartzwelder, H. S., & Rabiner, D. L. (2009). Self-reported ADHD and adjustment in college: Cross-sectional and longitudinal findings. *Journal of Attention Disorders, 13*, 297-309. doi:10.1177/1087054709334446
- Burchardt, T. (2004). Capabilities and disability: the capabilities framework and the social model of disability. *Disability & society, 19*(7), 735-751.
- Burns, J.M, (1978). *Leadership*. N.Y, Harper and Row.
- CHAAD. (2017). *Children and adults with Attention-Deficit/Hyperactivity Disorder public policy agenda for adults*. Retrieved from CHAAD: <https://chadd.org/wp-content/uploads/2018/06/Public-Policy-Agenda-for-Adults.pdf>
- Cordeiro, M. L., Farias, A. C., Cunha, A., Benko, C. R., Farias, L. G., Costa, M. T., . . . Mccracken, J. T. (2010). Co-Occurrence of ADHD and high IQ. *Journal of Attention Disorders, 15*(6), 485-490. doi:10.1177/1087054710370569
- Dipeolu, A. O. (2011). College students with ADHD: Prescriptive concepts for best practices in career development. *Journal of Career Development, 38*(5), 408-427.
- DuPaul, G. J., Weyandt, L. L., O'Dell, S. M., & Varejao, M. (2009). College students with ADHD: Current status and future directions. *Journal of Attention Disorders, 13*(3), 234-250.
- Erickson, W., Lee, C., & Von Schrader, S. (2014). *2012 Disability Status Report: United States*. Ithaca, NY: Cornell University Yang Tan Institute (YTI).

- Fichten, C. S., Asuncion, J. V., Wolforth, J., Barile, M., Budd, J., Martiniello, N., & Amsel, R. (2012). Information and communication technology related needs of college and university students with disabilities. *Research in Learning Technology, 20*(4).
- Field, S., Parker, D. R., Sawilowsky, S., & Rolands, L. (2013). Assessing the impact of ADHD coaching services on university students' learning skills, self-regulation, and well-being. *Journal of Postsecondary Education & Disability, 26*(1), 67-81.
- Fleming, A. P., & McMahon, R. J. (2012). Developmental context and treatment principles for ADHD among college students. *Clinical child and family psychology review, 15*(4), 303-329.
- Florida Board of Governors. (2014). *2012-2013 Annual accountability report*. Retrieved from [http://www.flbog.edu/resources/publications/2012-13\\_accountability.php](http://www.flbog.edu/resources/publications/2012-13_accountability.php).
- Florida Board of Governors. (2017). *2015-2016 Annual accountability report*. Retrieved from [http://www.flbog.edu/resources/publications/2012-13\\_accountability.php](http://www.flbog.edu/resources/publications/2012-13_accountability.php).
- Fouad, N., Cotter, E. W., & Kantamneni, N. (2009). The effectiveness of a career decision-making course. *Journal of Career Assessment, 17*(3), 338-347.
- Frazier, T. W., Youngstrom, E. A., Glutting, J. J., & Watkins, M. W. (2007). ADHD and achievement: Meta-analysis of the child, adolescent, and adult literatures and a concomitant study with college students. *Journal of learning disabilities, 40*(1), 49-65.

- Fugate, C. M., Zentall, S. S., & Gentry, M. (2013). Creativity and working memory in gifted students with and without characteristics of attention deficit hyperactive disorder: Lifting the mask. *Gifted Child Quarterly*, 57(4), 234-246.
- Garrison-Wade, D. F. (2012). Listening to their voices: factors that inhibit or enhance postsecondary outcomes for students with disabilities. *International Journal of Special Education*, 27(2), 113-125.
- Green, A. L., & Rabiner, D. L. (2012). What do we really know about ADHD in college students? *Neurotherapeutics*, 9(3), 559-568.
- Grier-Reed, T. L., & Skaar, N. R. (2010). An outcome study of career decision self-efficacy and indecision in an undergraduate constructivist career course. *The Career Development Quarterly*, 59(1), 42-53.
- Habley, W. R. (Ed.). (2004). *The status of academic advising: Findings from the ACT sixth national survey (Monograph No. 10)*. Manhattan, KS: National Academic Advising Association.
- Hartley, M. (2010). Increasing resilience: Strategies for reducing dropout rates for college students with psychiatric disabilities. *American Journal of Psychiatric Rehabilitation*, 13(4), 295-315. doi:10.1080/15487768.2010.523372
- Heiligenstein, E., Guenther, G., Levy, A., Savino, F., & Fulwiler, J. (1999). Psychological and academic functioning in college students with attention deficit hyperactivity disorder. *Journal of American College Health*, 47(4), 181-185.
- Helgesen, S. (1995). *The female advantage: Women's ways of leadership*. New York, NY: DoubleDay.

- Herbert, J., Welsh, W., Hong, B. S., Soo-Yong, B., Atkinson, H. A., & Anne Kurz, C. (2014). Persistence and graduation of college students seeking disability support services. *Journal of Rehabilitation, 80*(1), 22-32.
- Hong, B. S. (2015). Qualitative Analysis of the Barriers College Students with Disabilities Experience in Higher Education. *Journal of College Student Development, 56*(3), 209.
- Hughes, B. & Paterson, K. (1997). The social model of disability and the disappearing body: Towards a sociology of impairment, *Disability & Society, 12*(3), 325-340, DOI: 10.1080/09687599727209
- Jung, C. (2016). *Psychological types*. Martino Fine Books; Routledge.
- Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O., ... & Spencer, T. (2006). The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *American Journal of psychiatry, 163*(4), 716-723.
- Kessler, R.C., Berglund P.A., Demler, O., Jin, R., Walters, E.E. (2005), Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry. 62*(6), 593–602.
- Lau, L. K. (2003). Institutional factors affecting student retention. *Education, 124*(1), 126-137.
- Lichtenstein, B. B., Uhl-Bien, M., Marion, R., Seers, A., Orton, J. D., & Schreiber, C. (2006). Complexity leadership theory: An interactive perspective on leading in



- complex adaptive systems. *Emergence: Complexity and Organization*, 8(4). pp. 2-12.
- Madaus, J. W., & Shaw, S. F. (2004). Section 504: Differences in the regulations for secondary and postsecondary education. *Intervention in School and Clinic*, 40(2), 81-87.
- Maher, M., & Macallister, H. (2013). Retention and attrition of students in higher education: Challenges in modern times to what works. *Higher Education Studies*, 3(2), 62-73. doi:10.5539/hes.v3n2p62
- Margaretha, V. I. (2012). Universal design for learning: Enhancing achievement of students with disabilities. *Procedia Computer Science*, 14, 343-350. doi:10.1016/j.procs.2012.10.039
- Murphy, K., Ratey, N., Maynard, S., Sussman, S., & Wright, S. D. (2010). Coaching for ADHD. *Journal of Attention Disorders*, 13(5), 546.
- Nadeau, K. G. (2005). Career choices and workplace challenges for individuals with ADHD. *Journal of Clinical Psychology*, 61(5), 549-563. doi:10.1002/jclp.20119
- National Conference of State Legislatures. (2017). *Performance-based funding for higher education*. Denver: NCSL.
- Newman, L., Wagner, M., Cameto, R., & Knokey, A. M. (2009). The post-high school outcomes of youth with disabilities up to 4 years after high school: A report from the national longitudinal transition study-2 (NLTS2). NCSER 2009-3017. *National Center for Special Education Research*.
- O'Neill, L, Markward, M & French, J, (2012). Predictors of graduation among college

- students with disabilities, *Journal of Postsecondary Education and Disability*, 25(1), 21–36.
- Ofiesh, N. S., Rice, C. J., Long, E. M., Merchant, D. C., & Gajar, A. H. (2002). Service delivery for postsecondary students with disabilities: A survey of assistive technology use across disabilities. *College Student Journal*, 36(1), 94-109.
- Orr, A. C., & Goodman, N. (2010). People like me don't go to college: The legacy of learning disability. *Journal of Ethnographic & Qualitative Research*, 4(4).
- Parker, D. R., Hoffman, S. F., Sawilowsky, S., & Rolands, L. (2013). Self-control in postsecondary settings: Students' perceptions of ADHD college coaching. *Journal of Attention Disorders*, 17(3), 215.
- Parker, D., Hoffman, S.F., Sawilowsky, S., & Rolands, L. (2011). An examination of the effects of ADHD coaching on university students' executive functioning. *Journal of Postsecondary Education and Disability*, 24(2), 115-132.
- Parker, D.R. and Boutelle, K. (2009). Executive function coaching for college students with learning disabilities and ADHD: A new approach for fostering self-determination. *Learning Disabilities Research & Practice*, 24(4), 204–215.
- Pascarella, E. T., Wang, J. S., Trolan, T. L., & Blaich, C. (2013). How the instructional and learning environments of liberal arts colleges enhance cognitive development. *Higher Education*, 66(5), 569-583.
- Pazol, R. B., & Griggins, C. (2012). Making the case for a comprehensive ADHD assessment model on a college campus. *Journal of College Student Psychotherapy*, 26(1), 5-21.

- Prevatt, F., Reaser, A., Proctor, B., & Petscher, Y. (2007). The learning/study strategies of college students with ADHD. *The ADHD Report, 15*(6), 6-9.
- Pryor, J. H., Hurtado, S., DeAngelo, L., Blake, L. P., & Tran, S. (2010). *The American freshman: National norms fall 2010*. Los Angeles, CA: Higher Education Research Institute, University of California, Los Angeles.
- Rabiner, D. L., Anastopoulos, A. D., Costello, J., Hoyle, R. H., & Swartzwelder, H. S. (2008). Adjustment to college in students with ADHD. *Journal of Attention Disorders, 11*, 689–699
- Raue, K., and Lewis, L. (2011). *Students with disabilities at degree-granting postsecondary institutions*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Snyder, T.D., and Dillow, S.A. (2010). *Digest of Education Statistics 2009 (NCES 2010-013), (Table 231)*. National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Stamp, L., Banerjee, M., & Brown, F. C. (2014). Self-Advocacy and Perceptions of College Readiness Among Students with ADHD. *Journal of Postsecondary Education & Disability, 27*(2), 139-160.
- Stein, K. K. (2014). Experiences of College Students with Psychological Disabilities: The Impact of Perceptions of Faculty Characteristics on Academic Achievement. *International Journal of Teaching & Learning in Higher Education, 26*(1), 55-65.

- Strauss, A. L., & Sales, A. (2010). Bridging the Gap between Disability Studies and Disability Services in Higher Education: A Model Center on Disability. *Journal of Postsecondary Education and Disability*, 23(1), 79–84.
- Super, D. E., Starishevsky, R., Matlin, N., & Jordaan, J. P. (1963). Career development; Self-concept theory.
- Swail, W. S. (2004). *The art of student retention: A handbook for practitioners and administrators*. Austin, TX: Educational Policy Institute.
- Swartz, S. L., Prevatt, F., & Proctor, B. E. (2005). A coaching intervention for college students with attention Deficit/Hyperactivity disorder. *Psychology in the Schools*, 42(6), 647-656. doi:10.1002/pits.20101.
- Taylor, L., & McAleese, V. (2012). Beyond retention: Supporting student Success, Persistence and Completion Rates through a Technology-based, Campus-wide, Comprehensive Student Support Program.
- The Education Advisory Board (2014). *A case study: How VCU increased graduation candidates by 19%—in just one year, Virginia Commonwealth University*. Retrieved from <http://www.eab.org>
- The Education Advisory Board (2015). *Student success collaborative: Improving student outcomes with data-driven advising and intervention*. Retrieved from <http://www.eab.org>
- The Florida College System (2013). *Transparency, Accountability, Progress and Performance*. Retrieved March 30, 2016, <http://www.fldoe.org/cc/educators/disability/pdf/dspr.pdf>.

- Wolanin, T. R., & Steele, P. E. (2004). Higher education opportunities for students with disabilities: A primer for policymakers. *The Institute for Higher Education Policy*. Retrieved from: <https://files.eric.ed.gov/fulltext/ED485430.pdf>
- The National Collaborative on Workforce & Disability for Youth and Workforce Strategy Center. (2016). *Personal Competencies for College & Career Success: What Colleges Can Do*. Retrieved from: <http://www.ncwd-youth.info>
- Thompson-Ebanks, V. (2014). Personal Factors that Influence the Voluntary Withdrawal of Undergraduates with Disabilities. *Journal of Postsecondary Education & Disability*, 27(2), 195-207.
- Tinto, V. (1975). *Dropouts from higher education: A theoretical synthesis of recent literature*. *A Review of Educational Research*, 45, 89-125.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. (2nd ed.). Chicago: University of Chicago Press.
- Tinto, V. (1999). Taking retention seriously: Rethinking the first year of college. *NACADA Journal*, 19(2), 5-9.
- Tinto, V. (2000). *Linking learning and leaving: Exploring the role of the college classroom in student departure*. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 81-94). Nashville, TN: Vanderbilt University Press.
- Tinto, V. (2004). *Student retention and graduation: Facing the truth, living with the consequences*. Washington, D.C.: The Pell Institute.
- Tinto, V. (2007). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice*, 8(1), 1-19.

- Tomevi, C. (2013). Career-decision self-efficacy among college students with symptoms of Attention Deficit Disorder. *McNair Scholars Research Journal*, 9(1), 13.
- Trautwein, U., Lüdtke, O., Köller, O., & Baumert, J. (2006), *Journal of Personality and Social Psychology*, 90(2), 334-349.
- Turnock, P., Rosen, L. A., & Kaminski, P. L. (1998). Differences in academic coping strategies of college students who self-report high and low symptoms of attention deficit hyperactivity disorder. *Journal of College Student Development*, 39(5), 484-93.
- U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS). (2009). *Students with Disabilities at Postsecondary Education Institutions*.
- U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics (NCES). 2018. *College Navigator*, Retrieved November 11, 2018, <https://nces.ed.gov/collegenavigator/>.
- Upadhyaya, H. P., Rose, K., Wang, W., O'Rourke, K., Sullivan, B., Deas, D., & Brady, K. T. (2005). Attention-deficit/hyperactivity disorder, medication treatment, and substance use patterns among adolescents and young adults. *Journal of Child & Adolescent Psychopharmacology*, 15(5), 799-809.
- Verheul, I., Block, J., Burmeister-Lamp, K., Thurik, R., Tiemeier, H., Turturea, A. (2015). *Small Business Economics*. 45: 85. [https://doi.org/10.1007/s11187-015-9642-](https://doi.org/10.1007/s11187-015-9642-4)

- Verheul, I., Rietdijk, W., Block, J., Franken, I., Larsson, H., & Thurik, R. (2016). The association between attention-deficit/hyperactivity (ADHD) symptoms and self-employment. *European Journal of Epidemiology*, *31*(8), 793-801.
- Wang, Y. S., & Huang, T. C. (2009). The relationship of transformational leadership with group cohesiveness and emotional intelligence. *Social Behavior and Personality: an international journal*, *37*(3), 379-392.
- Webber, D. A., & Ehrenberg, R. G. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in American higher education? *Economics of Education Review*, *29*(6), 947-958.
- Wessel, R., D., Jones, J. A., Markle, L., Westfall, C. (2009). Retention and graduation of students with disabilities: Facilitating student success. *Journal of Postsecondary Education and Disability*, *21*(3), 116-124.
- Weyandt, L. L., & DuPaul, G. J. (2008). ADHD in college students: Developmental findings. *Developmental Disabilities Research Reviews*, *14*(4), 311-319.
- White, H. A., & Shah, P. (2011). Creative style and achievement in adults with attention-deficit/hyperactivity disorder. *Personality and Individual Differences*, *50*(5), 673-677.
- Wilmshurst, L., Peele, M., & Wilmshurst, L. (2011). Resilience and well-being in college students with and without a diagnosis of ADHD. *Journal of Attention Disorders*, *15*(1), 11. <https://doi.org/10.1177/1087054709347261>.
- Wolf, L. E. (2001). College students with ADHD and other hidden disabilities: Outcomes and interventions. *Annals of the New York Academy of Sciences*, *931*(1), 385-395.

## Appendix A: Study Questionnaire

### Attention to Retention

Q1 Please mark the accommodations and/or services offered in your center to support students with ADHD. If you would like to provide a comment about accommodations or services, you will have the opportunity after each item.

- Extended time on tests/exams/quizzes. Comments:
- Testing in a quiet and separate space in the disability office or testing center.  
Comment:
- Testing in a quiet and separate space arranged by the course professor, but not in the disability office or testing center. Comments:
- Testing over multiple sessions with breaks between sessions. Comments:
- Permission to record class sessions. Comments:
- Audio version of textbooks. Comments:
- Reading assistance services. Comments:
- Access to assistive technology needs assessments (either in the disability office or in the community). Comments:
- Access to assistive technology or software. Comments:
- Note takers. Comments:
- Scribes. Comments:
- Assistants. Comments:
- Audio instructions. Comments:
- Other classroom accommodations. Comments:
- Alternate assignments. Comments:
- Written or printed assignment instructions. Comments:
- Priority registrations. Comments:
- Course substitutions. Comments:



- Reduced course load. Comments:
  - Other academic accommodations, services or supports for students with ADHD.  
Comments:
  - Support groups for students with ADHD. Comments:
  - Describe collaborative efforts or partnerships you have with Academic Advising.  
Comments:
  - Describe collaborative efforts or partnerships you have with faculty. Comments:
  - Describe collaborative efforts or partnerships you have with Career Services.  
Comments:
  - Describe collaborative efforts or partnerships you have with other units or departments on your campus. Comments:
  - Training workshops for students with ADHD: Please describe any training your disability office provides for students with ADHD to promote academic success (e.g., organization, study skills). Comments:
  - Training workshops for faculty & staff: Please describe any training your disability office provides for faculty and staff to help them understand the nature and needs of students with ADHD: Comments:
- 

Q2: How many students with ADHD were registered with your office in 2015?

Comments:

- How many students with ADHD graduated in 2015? Comments:
  - What percentage of students registered in your office, used your services in 2015?  
If this data is unknown, please provide an estimate percentage of their usage.  
Comments:
-

Q3 How many students with ADHD were registered with your office in 2016?

Comments:

- How many students with ADHD graduated in 2016? Comments:
- What percentage of students registered in your office, used your services in 2016?  
If this data is unknown, please provide an estimate percentage of their usage.

Comments:

Q4 How many students with ADHD were registered with your office in 2017?

Comments:

- How many students with ADHD graduated in 2017? Comments:
- What percentage of students registered in your office, used your services in 2017?  
If this data is unknown, please provide an estimate percentage of their usage.

Comments:

Q5 What percentage of students with ADHD, registered in your office, were transfer students (information may be obtained from registrar's office)? Comment:

Q6: Other thoughts about students with ADHD at your college or university. Comment:

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## Appendix B: Comments

### Collaborations, Support Groups and Training

<b>School</b>	<b>Collaborations with other departments and faculty</b>	<b>Support Groups</b>	<b>Training Workshops - Students</b>
<i>School #1</i>	We offer a general disability and accessibility overview workshop from a social model perspective, but do not do anything specific for ADHD.	Our counseling center offers one a semester.	When a student comes to our office to sign up to receive accommodations, I meet with each new student one on one to have, what I call, an initial intake appointment. I go over their documentation and history, if they have either, and explain how their diagnosis will affect them. I explain their strengths and limitations as they are unique for each student depending on the information gleaned. I even offer assistance to those who need help organizing their schedules or their assignments. Help in other areas as needed is always offered.
<i>School #4</i>	The DRC provides disability accommodations in face-to-face format and on our web site and learning modules.		We provide the ACCESS Academy workshops multiple times per semester to train these students on study strategies, test-taking strategies, time-management strategies, and self-advocacy.
<i>School #3</i>		Peer mentoring program for all students, not just students with a disability.	

### Comments-Campus Collaborations

School	Collaboration & Training- Career Services	Collaboration & Training Advising	Collaboration & Training- Faculty
<p><i>School #1</i></p> <p>I am a part of every other department in some way. Whether I just sit on the board, am part of the membership, or invite myself to do a presentation, I participate in some way in every department. I am on the board of our IT department to give my input when it comes to accessibility and computers. I participate in planning and development meetings to make sure new buildings are ADA compliant. I conduct faculty colloquium to ensure faculty are up to speed regarding new ADA approved accommodations or changes to old ones. Our department works very closely with the testing</p>	<p>Our department believes the foundation of student success begins with the student staying on a career path that will hone in on their strengths while strengthening their limitations. We conduct assessments and career counseling to this population of students to help direct the student down a successful career path. We also are connected to our local workforce agencies: those that specialize in those with disabilities and those that do not.</p>	<p>Our department works closely with Academic Advising as far as helping the student choose a degree program that is most beneficial for the student, helping students choose classes that complement each other so the student isn't taking too many rigorous classes at once, keeping a reduced course load for the student or at least checking the student's progress if the student so chooses to take a full load, granting a course substitution where appropriate as long as the student can meet degree and state requirements, and allowing the student to register for classes early.</p>	<p>Our department educates faculty on the symptoms and needs of this population. I conduct faculty colloquium every year, I conduct new hire orientation monthly, I conduct presentations quarterly and all focus on ADA, student rights, student's needs, and particular populations that may prove difficult to an untrained or inexperienced faculty member. Our department also created a manual for faculty and staff to refer to which covers a multitude of disabilities; ADHD included. It discusses the history of the ADA, state legislation that explains how those of us who are governed by the ADA must act and follow state legislation, the manual lists symptoms of particular disabilities, accommodations used by college institution's nations wide, and state and local resources for the student.</p>

department to ensure our students are given their appropriate accommodations when testing. The list could go on.			
<b>School #4</b>  <i>We collaborate with all academic and student services departments on campus, and periodically provides disability and accommodation awareness training.</i>	The DRC provides disability and accommodation training to Career Services staff.	The DRC provides disability and accommodation training to advisors, as well as orientation for all new advisors.	The DRC provides disability and accommodation training to faculty, as well as orientation for all new faculty.
<b>School #6</b>  <i>We work closely with our student affairs division on enhancing access for all students.</i>	Nothing out of the ordinary. Information exchange about accommodations.”	Training to first year advising staff; consultation as needed.	For faculty, consultation as needed.  We offer a general disability and accessibility overview workshop from a social model perspective but do not do anything specific for ADHD
<b>School #2</b>		partnership with Tutoring & Learning Resources to provide academic coaching	consultation as needed