

**Serving the Needs of Students on the Autism Spectrum in Higher Education: A
Study of Leadership and Support Services**

A Dissertation

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Dedication

I would like to dedicate this dissertation to my husband, without whose support I would not be where I am today. Thank you for holding the fort down all of those times that I frequented Panera!

I would like to dedicate this dissertation to my children, Stephen, Ashleigh, Zachary and Grace. This dissertation is a testament that you can do anything you set your mind to, no matter what others may say.

I would like to especially dedicate this dissertation to Stephen, who was my inspiration for completing this study. You are a true example that through hard work and perseverance, any goal can be attained. I love you to the moon and back!

I would like to dedicate this dissertation to my parents. Through all the years, they have supported me in every possible way. I am truly grateful for all that they have taught me and allowed me to learn on my own. They were my first teachers and I continue to learn from them every day.

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Abstract

Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services

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The exponential increase in children diagnosed with Autism Spectrum Disorders (ASD) in recent years has caused higher education institutions to prepare for the expansion in enrollment of students with this type of disability. Since there are defined legal mandates ensuring the rights of people with disabilities, higher education leaders must be prepared to respond effectively to this increased demand for support and related services. In addition, with the recent influx in students with learning and other disabilities accepted to college, assistive technology is being used more frequently in post-secondary education. Disability support services offices in universities are being inundated with requests for assistance and adaptations but the support services that are being offered may vary tremendously from one institution to another because of differences in institutional context, leadership, resources and availability of specialized expertise.

The purpose of this study was to identify and analyze how disability support services offices responded to the needs of students with Autism Spectrum Disorders (ASD), with a focus on leadership factors and “in house” expertise (e.g., the use of assistive technologies). The researcher sought to explore how leaders of disability services offices responded to the needs of students with ASD by conducting a survey of

several universities and case studies of two research universities in Pennsylvania. This study began with a survey of 25 universities with the highest enrollment in Pennsylvania, which was followed by site visits and in-depth interviews at the two Pennsylvania universities.

The leaders in each of the disability support services offices were surveyed and interviewed (along with key professional staff and students) on their perception of the needs of students with autism and how they met those needs through services, supports and assistive technology. This study was beneficial because it explored different leadership approaches used by research universities to meet the needs of this growing population of students.

Key Words: Autism, Higher Education, Autism Spectrum Disorder, Disabilities

CHAPTER 1: INTRODUCTION

With the recent influx in students with ASD accepted to college, more support and accommodations are needed to effectively serve this population. In a study published in 2011, the prevalence of disabilities in children increased 17.1 % from 1997 to 2008 (Boyle et al., 2011). Over the 12 years of the study, autism increased 289.5%, Attention Deficit Hyperactive Disorder (ADHD) increased 33.0% and hearing loss increased 30.9%. With such an increase, more students are entering universities with specific needs for support in order to be successful in college and also upon graduation, as they enter the workforce. Disability support services offices in universities are being inundated with requests for assistance and adaptations but many students often have a difficult time securing those services, and especially learning the technology supports which are provided to them. (Todis, 1996).

Students with ASD are entering college with technological knowledge that extends from one extreme to the other. This study intended to explore in depth how the leaders, counselors and support staff in higher education disability services offices met the needs of students with ASD. In addition, the study made observations on the gap that existed between what was offered and what should have been offered to serve this population.

Problem Statement

Information regarding the knowledge and competencies of leaders in higher education disability support services offices is limited, especially regarding how to best serve students with Autism Spectrum Disorders (ASD). This research explored these competencies with specific reference to the leaders' awareness of new and emerging methods to serve and accommodate students with ASD. The researcher sought to identify more clearly how leaders responded to the needs of students with ASD by conducting a survey of 25 Pennsylvania universities and two case studies of research universities: one private and one public in Pennsylvania.

Purpose and Significance of the Problem

The purpose of this study was to identify and analyze how disability support services offices responded to the needs of students with Autism Spectrum Disorders (ASD), with a focus on leadership factors and “in house” expertise (e.g., the use of assistive technologies).

The amount of people with autism is growing at a faster rate than the world has ever seen. According to the Department of Education, “As of 2007, there were 256,863 students ages 6 through 21 years nationwide identified as having autism who received special education services” (as cited in Hart, 2010, p. 136). Autism encompasses a broad spectrum of symptoms. When a person meets different people with autism, they can tell that no two are alike. The autism spectrum ranges from non verbal, non-communicative, to the milder end, such as Asperger’s disorder, which is a social disorder but still falls under the umbrella of autism. Every person on the spectrum deserves the chance to be able to communicate with the outside world.

While most of the technologies available for students with special needs have assisted them with many everyday tasks that most people take for granted, there is still much room for growth within this field. Technology is growing at a rapid pace and with it are the possibilities for assistive technology.

Students entering higher education with learning and other disabilities still require the same or similar assistive technology that was needed when they were in high school. In fact, as stated by Payne and Sachs (1994): The Americans with Disabilities Act passed in 1990 and the Rehabilitation Act of 1973 (amended in 1992) -- especially Section 504 of the Rehabilitation Act -- mandate that qualified individuals with disabilities shall not be discriminated against solely by reason of disability. Students not only desire the assistance but are entitled to it according to the current laws. Armed with this legislation, leaders within the higher education offices for disability services should be empowered to assist these students. While this situation is detrimental to the success of students with learning disabilities, few groups are attempting to remedy the issue. DO-IT (Disabilities, Opportunities, Internetworking and Technology) is a program from the University of Washington that "...serves to increase the success of individuals with disabilities in challenging academic programs and careers. It promotes the use of computer and networking technologies to increase independence, productivity, and participation in education and employment" (n.a., 2010). This program does not specifically address the gap in the amount of students with ASD who are entering college without the knowledge of the assistive technologies available.

With the continued increase in the diagnosis of students with ASD who are entering college, this problem will continue to get worse if an effective solution is not

implemented. Further research needs to be conducted to accurately determine the scope of this issue. The number of students with ASD entering college without the prerequisite knowledge and supports needs to be studied so higher education is prepared to serve this population effectively.

From 1976 to 2011, there was a 42% increase in the amount of students with disabilities, ages 3 to 21, served in federally supported programs (NCES, 2013). In addition to this increase, an increase of a different type had occurred as well. The increase in the use of technology has had a profound impact on education. As stated by Langer and Knefelkamp (2008), “Educational communities around the world have responded, thus far, by creating automated classrooms, providing computer skills training sessions, automating libraries, and installing sophisticated on-campus e-mail and Internet systems.”

This study used an exploratory, descriptive case study design. There were three phases in this study. In the first phase, a pilot study was conducted using three Pennsylvania universities. There were six Disability Office staff members who completed the pilot web-based survey. In phase two, quantitative data was anonymously collected from 25 universities' Disability office staff and faculty using a web based survey (including Drexel University and Penn State University). The object of this step was to determine possible variables in each institution. In phase three, an interview of staff and students was conducted at Drexel University and Penn State University to collect qualitative data and observe each of the offices. This approach allowed the researcher to use a triangulation design.

To follow up the research completed, conclusions and recommendations were compiled. A possible program could be developed in the future, that would include assistive technology to aid these students so that they may be more successful in their college experiences.

Research Questions

Based on the information mentioned above, there were several questions that were worthy of explanation:

1. How are the legal mandates for students with ASD interpreted by leaders and staff in disability support services offices?
2. How do college/university disability support services offices (DSS) provide the services necessary to accommodate the needs of students with ASD?
 - a. What is the DSS level of awareness regarding new and emerging responses to students with ASD?
 - b. How are the DSS using technology to support students with ASD in higher education environments?
 - c. How do DSS rely on “in house” faculty expertise related to special education or assistive technology in serving students with ASD?
3. How can DSS directors exercise leadership and develop appropriate responses to meet the needs of students with ASD?

Streams of Research

1. The first stream of research to be studied was the legal basis for disability services in higher education. This stream studied the legal mandates for students with ASD interpreted by leaders and staff in DSS. Students are entitled to an education with assistance under Section 504 of the Rehabilitation Act (ADA, 2010). How instructions are disseminated on how to use the assistance is not formally presented in the Act.
2. The second stream of research to be studied was the response of DSS to the needs of students with ASD. Within this stream, the level of awareness regarding new and emerging responses to students with ASD and what extent the DSS are using new and emerging technologies to support these students. This would include instructions for assistive devices and the presentation of such instructions. It is most likely that not all students are receiving the exact same technology at each school based on factors such as, but not inclusive of, demographics and school budgets. The methods of instruction given to students on the assistive technology were examined for a clearer picture as to why and how these students may or may not have succeeded.
3. The third stream of research is how DSS directors exercised leadership and developed appropriate responses to meet the needs of students with ASD.

Definition of Terms

Assistive technology- According to the Assistive Technology Act of 1998

(section508.gov), “the term ‘assistive technology’ means technology designed to be utilized in an assistive technology device or assistive technology service.” In addition, an assistive technology device is defined as “any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.”

Assistive Technology for students with autism – According to denBrok and Sterkenburg (2014), “Persons with an autism spectrum disorder and/or intellectual disability have difficulties in processing information, which impedes the learning of daily living skills and cognitive concepts. Technological aids support learning, and if used temporarily and in a self-controlled manner, they may contribute to independent societal participation.”

Autism Spectrum Disorder (ASD) – ASD, as defined in the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-V) is as follows:

Autism Spectrum Disorder 299.00 (F84.0)

Diagnostic Criteria

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive, see text):
1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
 2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal

communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.

3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity:

Severity is based on social communication impairments and restricted repetitive patterns of behavior (see Table 2).

- B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):
 1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypes, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
 2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat food every day).
 3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interest).
 4. Hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table 2).

- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

With or without accompanying intellectual impairment

With or without accompanying language impairment

Associated with a known medical or genetic condition or environmental factor

(**Coding note:** Use additional code to identify the associated medical or genetic condition.)

Associated with another neurodevelopmental, mental, or behavioral disorder

(**Coding note:** Use additional code[s] to identify the associated neurodevelopmental, mental, or behavioral disorder[s].)

With catatonia (refer to the criteria for catatonia associated with another mental disorder, pp. 119-120, for definition) (**Coding note:** Use additional code 293.89 [F06.1] catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)

Table 2 Severity levels for autism spectrum disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.

	interests, and how has markedly odd nonverbal communication.	
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to- and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Learning Disability – As defined in Section 504 of the Rehabilitation Act of 1973, a disability is defined as follows:

“The Section 504 regulatory provision at 34 C.F.R. 104.3(j)(2)(i) defines a physical or mental impairment as any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genito-urinary; hemic and lymphatic; skin; and endocrine; or any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities. The regulatory provision does not set forth an exhaustive list of specific diseases and conditions that may constitute physical or mental impairments because of the difficulty of ensuring the comprehensiveness of such a list” (OCR, retrieved 2010).

In addition, another definition, as defined in the IDEA Act of 2004 (“Individuals with Disabilities Education Improvement Act of 2004,” 2010), the federal definition is defined as follows:

“(i) General. The term means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

(ii) Disorders not included. The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.”

Twice Exceptional (2e) - Also, some students with ASD may have learning disabilities or be gifted. According to the National Association for Gifted Children (NAGC, 2014), twice exceptional students are simply defined as “gifted students with co-existing disabilities.”

Assumptions, Limitations and Delimitations

Assumptions

The following assumptions apply for this study:

1. Students were accepted as freshmen to the respective universities in the study.
2. Students with ASD had a pre-existing diagnosis that was determined in high school or previously.
3. Leaders, counselors and/or support staff had the experience and ability to complete the provided survey to provide acceptable results.
4. Students had some access to assistive technology in their past educational history.
5. The leaders, counselors and/or support staff that participated made a sincere effort to complete the given survey to the best of their ability.
6. Students were eligible pursuant to IDEA.

Limitations

1. This study was limited to 25 Pennsylvania higher education institutions with the highest enrollment and one private and one public university in Pennsylvania.
2. The results were indicative of students with ASD in a given time period for a single year only. If this study was conducted in a different time period, it may have yielded different results.
3. This study was conducted with full time students only. Online students were not considered in this study. Students could have been commuters or living on campus.

Delimitations

1. Only students who entered college as freshmen directly from high school were observed in this study.
2. Students with additional disabilities other than ASD were not observed in this study. ASD students only were observed.
3. Students with multiple disabilities that include physical and learning disabilities were not considered for this study.

Summary

This study focused on the needs of college students with autism spectrum disorder. It specifically concentrated on the support and leadership provided with regard to the technology provided by the higher education institution. The remaining chapters continue this in-depth study of college students with ASD. The research conducted was displayed in the survey results from the counselors and the results displayed conclusions and recommendations where improvement may be needed.

CHAPTER 2: REVIEW OF THE LITERATURE

Introduction to the Problem

Throughout the past several years, there have been many breakthroughs in autism research in education. However, the majority of these breakthroughs have been in K-12 education and not in higher education. Although the existing literature regarding autism spans from medical discoveries to behavioral treatments, this review will focus on three themes within autism in higher education. These themes are: the legal obligations of leaders in higher education, the response of staff and leaders in higher education to students with autism, and the methods leaders are using to prepare for students with autism. Although the existing literature is presented in a variety of scopes, this review will focus on the application of these themes to higher education.

The diagnosis of autism has been steadily increasing over the past few decades. The most recent study in the US from The Centers for Disease Control and Prevention stated that 1 in every 68 children is diagnosed with autism (CDC; 2014). This study indicates that with the diagnosis of ASD increasing, so will the enrollment of students with ASD in higher education. This is problematic because higher education institutions are not as prepared as primary and secondary education institutions to handle the increase in this population.

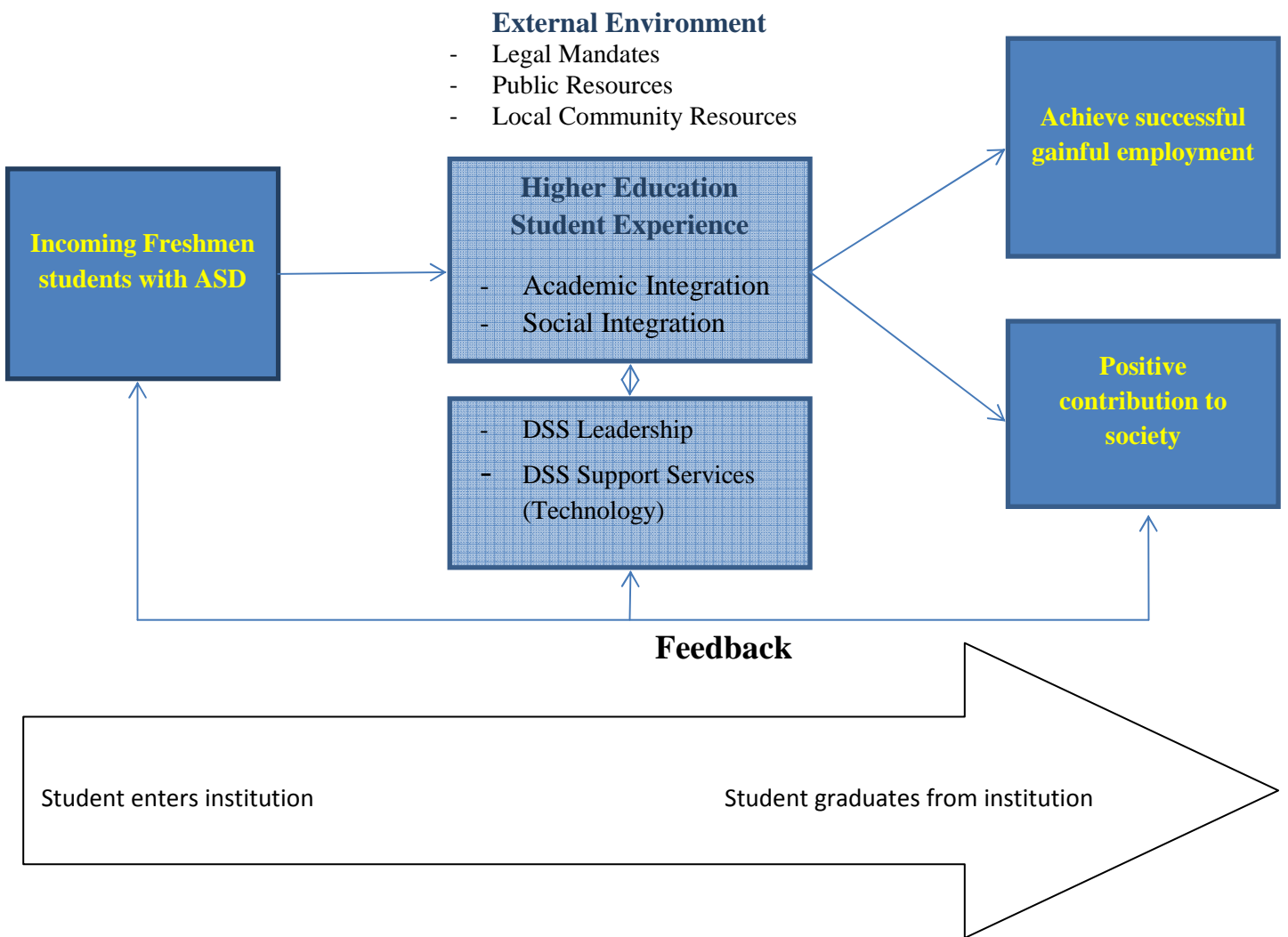
In addition to this increase, there has been a change in the definition of autism in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V). This is relevant because it provides a clearer diagnosis of this disorder that could lead to specific services needed in higher education. The DSM-V Neurodevelopmental Work Group has recommended that a new category be created called Autism Spectrum Disorder (ASD).

This new category would incorporate several previously separate diagnoses, including Autism Disorder, Asperger's Disorder, Childhood Disintegrative Disorder and Pervasive Developmental Disorder - not otherwise specified. The increase in disabled students is a cause for concern for all those associated with education. This increase is now impacting the enrollments of students with disabilities in higher education. In addition, the number of students with Individualized Education Plans (IEP) has increased in recent years in elementary and secondary schools and this increase will affect the amount of students requesting accommodations in higher education.

There may not have been specific leaders, faculty members or counselors in the Disability support services offices (DSS) with the skills to assist students with ASD. In addition, this problem indicated that there was great effort needed for the leaders, counselors and staff members in the various disability offices to be able to properly assist the entering students with ASD that required assistive technology. Therefore, the lack of information regarding what was provided to students with ASD, especially in the way of technology instruction, indicated a need to study the DSS leaders in higher education institutions. This study was intended to survey the counselors, leaders and students in research universities in their disability services offices and their observations on the gap that may have existed between the knowledge of students with ASD and the technology that was available.

Conceptual Framework

Below is the conceptual framework for this study. This framework provides a visual to explain the coherence of the literature within this study and the connections between topics and streams.

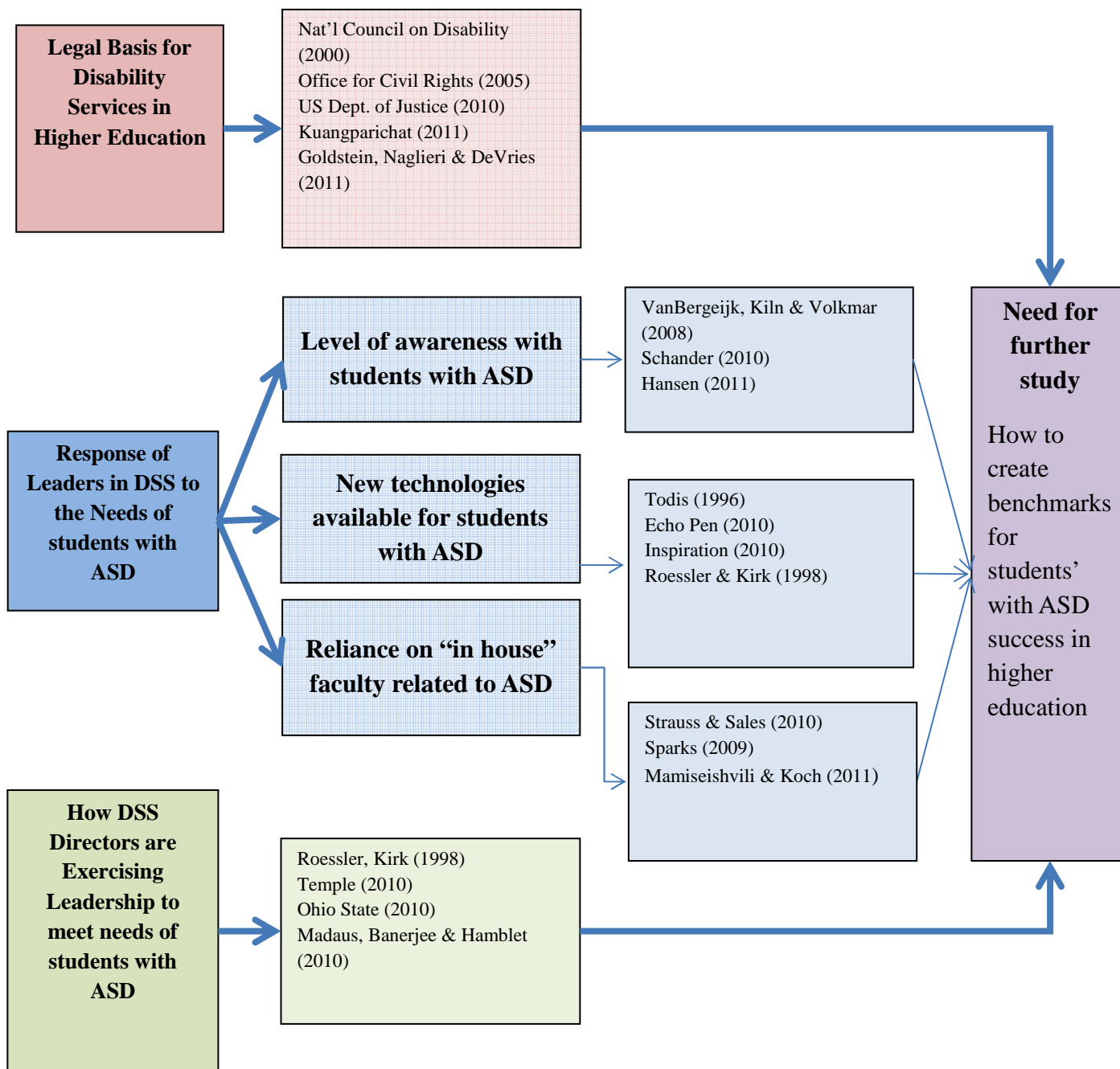


Streams of Research

As seen in the literature map:

1. The first stream of research to be studied was the legal basis for disability services in higher education. This stream studied the legal mandates for students with ASD interpreted by leaders and staff in DSS. Students are entitled to an education with assistance under Section 504 of the Rehabilitation Act (ADA, 2010). How instructions are disseminated on how to use the assistance isn't formally presented in the Act.
2. The second stream of research to be studied was the response of DSS to the needs of students with ASD. Within this stream, the level of awareness regarding new and emerging responses to students with ASD and what extent the DSS were using new and emerging technologies to support these students was to be studied. This included instructions for assistive devices and the presentation of such instructions. It was most likely that not all students were receiving the exact same technology at each school based on factors such as, but not inclusive of, demographics and school budgets. The methods of instruction given to students on the assistive technology needed to be examined for a clearer picture as to why and how these students may or may not have succeeded.
3. The third stream of research was how DSS directors exercised leadership and developed appropriate responses to meet the needs of students with ASD.

Literature Map



Literature Review

While much research and literature exists for students with ASD in the primary and secondary grade levels, there is a scarcity of research for students with ASD in post-secondary education (VanBergeijk et al., 2008; Chiang et al., 2012). Chiang et al. stated,

“Given that limited number of empirical studies reporting effective instructional strategies and appropriate accommodations for college students with autism, we want to call for studies investigating effective strategies to increase their learning outcomes and to identify the difficulties that these students encounter in receiving educational services in higher education institutions, so that their quality of life during receiving postsecondary education can be ensured.”

Even though many students with ASD are graduating from high school, they are at a greater risk of being completely detached from any postsecondary employment or education (Shattuck, Narendorf, Cooper, Sterzing, Wagner & Taylor, 2012). Despite this fact, the passing of the Higher Education Opportunities Act (HEOA) in 2008 has led to the creation of approved transition programs for students with ASD to go to college at only 10 universities as of 2012 (VanBergeijk & Cavanaugh, 2012). The HEOA created a new category for comprehensive transition and postsecondary programs in higher education that would allow students attending these programs to receive financial aid. While this is a step in the right direction, it still does not fill the gap.

Studies suggested that a transition program in the summer would be beneficial to assisting students with ASD entering college (VanBergeijk et al., 2012). Some transition programs exist such as the Spectrum Summer Program in Arizona or the College Internship Program (CIP) which is in specific locations in the US. However, there is a cost, typically \$4,000 or more, for each of these programs which would be a burden to families and would only be available to those who could afford them. It is probable that

the success rate of students with ASD in higher education would increase if there were more approved transition programs through the HEOA.

Legal Mandates for Students with ASD

The first law to affect students with ASD was the Rehabilitation Act of 1973. While this was not directly related to students with ASD, it did begin the long journey toward equal rights for persons with disabilities. This law ensured financial assistance and training support for the work force.

The Americans with Disabilities Act (ADA) of 1990 prohibits public entities such as colleges and government from preventing qualified individuals to be included in any activities or services that are provided (Thomas, 2000). This was designed to ensure that discrimination was no longer accepted or tolerated. According to Thomas and Gostin (2009), “The Americans with Disabilities Act was a landmark civil rights law”. The enactment of this law was vitally significant for individuals with disabilities since it allowed them access to employment and, thus, health care through their employer. For students with ASD, this began the path toward the rights that students have today.

The next major piece of legislation that was passed in 2004 was the Individuals with Disabilities Education Act (IDEA). This revolutionary law required secondary schools to adequately prepare students with disabilities for postsecondary education and transition to the work force. It ensures that public schools are meeting the needs of students in need of special education as required by a student’s Individualized Education Plan (IEP). This law also outlines specific requirements to ensure students are receiving a Free and Appropriate Public Education (FAPE) in the least restrictive environment (LRE). This also forged a path for the recent increased population of students with ASD

who are now graduating from high school. The ADA was amended in 2008 to include reasonable accommodations with equal access to learning and working environments.

This amendment also included specific reference to Section 504 of the Rehabilitation Act of 1973. While the IDEA requires schools to provide supplemental educational support to students with disabilities, Section 504 requires schools to remove any obstructions that would prevent any student from fully taking advantage of any programs offered in the general curriculum. Section 504 does not require a written IEP as the IDEA does, but it does require a written documented plan. Section 504 does not provide any additional funding to schools while the IDEA does. Section 504 of the Rehabilitation Act of 1973 states "... No otherwise qualified individual with handicaps in the United States . . . shall, solely by reason of her or his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance...." (U.S. Department of Justice, 2010). This section of the Act also protects the rights of persons with hidden and non-hidden disabilities. Hidden disabilities are defined as impairments that are not readily visible to others. This includes learning disabilities and ASD.

In addition to Section 504 in the Rehabilitation Act of 1973, Section 508 was added. According to section508.gov, "Section 508 was enacted to eliminate barriers in information technology, open new opportunities for people with disabilities, and encourage development of technologies that will help achieve these goals." Section 508 was added to the Rehabilitation Act of 1973 in 1998 and requires all federal agencies to make their information technology and any electronic device accessible to persons with disabilities.

The most recent legislation related to students with ASD is the HEOA. While this act is fairly new, it defines support for students with intellectual disabilities and autism so that they may continue on to postsecondary education and have better employment outcomes (Stodden & Mruzek, 2010).

Cultural change may soon be needed on campuses to legally support students with ASD. Critical to this study, Huger (2011) insists that campuses need to provide accommodations for all students, not just students with disabilities. This could demand major changes required by all faculty and staff. To assist in this effort, Starr (2011) discusses how “A Guide for College Personnel” (Brown, et al., 2011) addresses the needs of students with Asperger’s Syndrome and how college counselors and administrators can assist these students. She discusses responsibilities of the institution such as education of existing faculty on ASD and what must be provided to these students for accommodations.

There are several differences between secondary and post-secondary education in regards to disabilities. According to the IDEA (ADA, 2010), public schools are required to provide a “free appropriate public education in the least restrictive environment.” Individualized Education Plans need to be designed for each student which includes evaluation and planning. However, the IDEA does not apply to post-secondary students. Cory (2011) explains how current laws apply to college students and what DSS is required to do by law. Specifically, she discusses three legal terms that are pertinent to higher education administrators. They are: Protection from Discrimination, Essential Elements, and Reasonable Accommodations. In her discussion, she presents clear

examples of how essential elements in a classroom (e.g. – standing during art class) may be discriminatory towards students with disabilities.

In post-secondary institutions, students with disabilities must self-admit that they are disabled. A study was conducted by Barnard-Brak, Sulak, and Lechtenberger (2010) across several institutions that noted a direct correlation between students who were less likely to request accommodations and lower academic achievement. Furthermore, White and Ollendick (2011) discuss the predicament of identifying incoming students with high functioning autism spectrum disorder. White and Ollendick noted that students with high functioning autism disorder were observed as having higher anxiety, higher levels of depression and lack of stress management skills. Higher education institutions are not required to determine disabilities; they are only required to provide reasonable accommodations. Students must be their own advocates in seeking out the required accommodations to ensure their success in college. However, there are legal issues related to serving these students in post-secondary education. Simon (2000) presents the institution's legal responsibilities to students with disabilities and the rights of these students. She states the current laws that are applicable to disabled students and also to universities. In addition, she discusses future legal issues that will arise as more and more students enter college with disabilities. Simon's key points are physical access, program access and accommodation provisions. She brings to light that although the legal documentation is required for a student in higher education, the specific documentation required is determined by the individual school. This discrepancy can cause much confusion for any student with a disability.

Autism is often treated as a childhood disability but it is hardly ever mentioned in adulthood. In fact, Kuangparichat (2011) stated that these children grow up either to become part of society or dependent on it. He continues to discuss the state and national legislature as it relates to adults with autism. This is proof that there is a gap in the knowledge of what is needed when an autistic student becomes a young adult and beyond.

Disability Support Services Offices Response to the Needs of Students with ASD

The first step in supporting students with ASD is to understand ASD. Adreon & Durocher (2007) stated that “the term *autism spectrum disorders* refers to a group of neurodevelopmental disorders that affect developmental areas of social interaction, communication, and behavior.” With this explanation, they continue to outline the difficulties faced by a student with ASD such as social supports, academic supports, dorm life and transitioning to college. While Adreon & Durocher (2007) provide a good foundation in the explanation of students with ASD and their needs, Grandin (1996) gives a more in depth explanation of ASD and the complexities involved in the diagnosis. Grandin gives an insider’s look at the world of autism through her own eyes. She is able to give a personal perspective on the inner workings of autism and living with the syndrome. She describes coping strategies and ways that she has managed to “break through” the barrier and live in society. More specifically, she discusses the squeeze technique which she observed was being used for cattle to produce a calming effect. This is important, as DSS staff and faculty need to understand the population that they are servicing. Barnhill (2007) continues this thought with a discussion of the various literature available regarding adults with ASD.

In researching the assistive technology available to learning disabled students, it was discovered that there is an infinite list of possible technologies that exist. These technologies range from mere spell checkers to portable reading devices to special software. As with other technologies in this day and age, assistive technology is rapidly changing. Personal devices are fast becoming the ideal technology for learning disabled students. With all of the apps and developing software available, there are many new ways for learning disabled students to utilize their personal devices for assistance in the classroom. The following section will give a brief overview of the technology currently available to learning disabled students. Please note that this list is not all inclusive and although one technology may work well for one student with a disability, it may not for another.

There are several word processing software packages that are available. Very popular software that is currently in use is Inspiration (retrieved 2010). This software is excellent at assisting students with visual mapping so that they may clearly express their ideas to others. It allows students to structure their thoughts which in turn can help in writing papers and communicating.

Additional software packages that are available are WYNN, Kurzweil 3000, and Read & Write Gold. Each of these software packages provides different assistance in reading, writing and literacy services for students who struggle in reading or who have learning or other disabilities.

Another technology that is in use is the Echo pen from LiveScribe. This pen allows students to take notes while the pen records the lecture. When students later decides to review the notes they wrote, they can touch the pen to anywhere on the page

and the recorded lecture will play from wherever the notes were written in the lecture. (Echo Pen, 2010).

Disability Support Services Offices Development of Appropriate Responses to Meet the Needs of Students with ASD

There are several advocates for the transition from high school to post-secondary institutions for learning disabled students. The George Washington University has a National Clearinghouse on Postsecondary Education for Individuals with Disabilities that has created a toolkit for guidance and career counselors (heath.gwu.edu, 2012). This is a perfect example of the way the gap can be bridged between high school and college. The problem lies in that it is not well publicized, nor do all of the high school counselors have the means to utilize such a toolkit. This toolkit also does not address the matter of technology specifically. Students may be well prepared by their counselors but they still may not have any idea about the technologies available to them.

For a student with a disability, it is not only important to do well academically, but also socially. Sheila Graham-Smith, the Director of the Office of Access and Learning Accommodation at Baylor University and Sereta Layfayette, an advisor in Disability Support Services at Baylor University, completed a study in 2004 on what students with disabilities feel is most valuable to them in a college environment. The method that the researchers used in this study was an electronic survey distributed to 318 students; of which 71 responded. The students that were contacted were students who had self-identified with the office and were receiving accommodations in 2001. The results of the study indicated that soft skills on the part of the advisor or the point of contact are just as important as the accommodations being provided. Students referenced

the words “caring” and “safe environment” in their descriptions. While this study focused on soft skills, the article by Hong, Herbert and Petrin (2011) was more statistical. This work is beneficial to this study because it gives another reference in the scope of disability support services offices but from a different angle. At Marshall University, a college program that is supported by specific agency funds, but mostly by families of students with ASD, supports students in the classroom, social arenas and dorm rooms (Hansen, 2011). This program has proven to help students with ASD during and after college. Strauss and Sales (2010) discuss a model center on disability that connects the discipline of disability studies with the actions of disability services. The outcome of the center is to bring about social change in the area of disability in higher education. The center hopes to increase awareness and access to higher education for students with disabilities.

Hong, Herbert and Petrin (2011) presented the first investigation on retention as it relates to disability support services offices. In this study that was conducted on the University Park campus of Penn State, the research team answered three questions. Topics included: 1. Characteristics of students registered with the office of disability services, 2. Predictors in relation to disability service usage, 3. Variables regarding student performance. This work is extremely important and valuable to this study because it is the only true measurement that directly correlates an office of disability services with retention or success of students with disabilities.

Technology is becoming an important part of higher education for students with disabilities. With this in mind, many students are utilizing technology in the classroom, but may not be using it for its fullest benefit. In a study conducted by Roessler and Kirk

(1998), recent college graduates with disabilities stated that although they were satisfied with the technology they were provided, 37% of this population reported that there was need for more technology that was not provided. In addition, in a survey conducted by Phillips and Zhao (1993), 29.3% of adults abandoned their technology (p. 36). For one reason or another, those who had given up their technology decided that their lives were better without the technology that was provided to help them. In a college setting, this abandonment may be even more prevalent with the inclusion of peer reactions.

The offices that provide the technology to students vary with each institution. In a study conducted by Burgstahler (1992), the offices that managed the technologies were, in order, disability services, central computing services and departmental computing services. While this is not out of the ordinary, there is no consistency to the structure of these offices or to the manner in which the technology within each office is distributed.

To give an example of the variation in disability services offerings, Temple University, in its office of disability resources and services, allows students to borrow various tools that could assist them in the classroom and also with assignments. This allows students to take the technology with them to class, to their room or home, and allows them to become acquainted with the technology on their own time. This does pose a problem if the student does not return the technology since then other students couldn't have the opportunity to use it. The Ohio State University's office of disability services has an Assistive Technology Training Center that is available to students only during regular office hours. The computers in the Center are equipped with several adaptations to help these students such as word prediction software, screen reader, screen enlargement, Braille displays, etc. While this center provides a plethora of choices for

assistance, they are only available during the center's hours. And, in comparison to Temple's Center, these technologies are only available in the Center and not available to take home.

Along a different path, Penn State University's Office of Disability Services offers freshman students a First Year Testing, Counseling and Advising Program (FTCAP). This program tests all incoming freshman for placement. The office also lists several resources for students with disabilities including a checklist for students transitioning from high school to college. This checklist suggests what a student should do each year in high school to prepare for college and, thus, make a smooth transition.

Attrition and retention are one more consideration when discussing students with disabilities in higher education. Mamiseisnivi and Koch (2011) used descriptive statistics to determine that college students with disabilities are facing the same obstacles regarding attrition as non-disabled students are facing. In addition to these obstacles, disabled students have the additional challenge of socialization and academics.

Summary

As mentioned, there is a great discrepancy in the consistency of services provided across most college campuses in America. With the current gap in literature on this topic, there is a need for research in this area of study for students with ASD who are disadvantaged and the leaders in DSS. There are specific gaps in literature from the viewpoint of the disability service providers and also in the success rates of the students who are using assistive technology in higher education. Using a cross-case comparative study approach, this research was conducted to further study the effects of disability service providers' leadership and instruction on the use of assistive technology for

students with ASD in higher education. Students cannot work to their best potential if they are not provided with the instruction necessary to succeed in their studies.

CHAPTER 3: RESEARCH METHODOLOGY

The purpose of this cross-case comparative study was to identify and analyze how disability support services offices respond to Autism Spectrum Disorder (ASD) student needs, with a focus on leadership factors and “in house” expertise (e.g., the use of assistive technologies). The researcher sought to expand understanding about critical leadership competencies of Chief Disability Services Officers and the supports provided to students with ASD entering two research universities in Pennsylvania, one public university and one private university. In addition, a broader survey distributed to the 25 highest enrolled universities in Pennsylvania was administered to further deepen the study and determine perceptions of other DSS offices as well.

The questions that this study sought to answer were:

1. How are the legal mandates for students with ASD interpreted by leaders and staff in disability support services offices?
2. How do college/university disability support services offices (DSS) provide the services necessary to accommodate the needs of students with ASD?
 - a. What is the DSS level of awareness regarding new and emerging responses to students with ASD?
 - b. How are the DSS using technology to support students with ASD in higher education environments?
 - c. How do DSS rely on “in house” faculty expertise related to special education or assistive technology in serving students with ASD?
3. How can DSS directors exercise leadership and develop appropriate responses to meet the needs of students with ASD?

As described in Creswell (2008), the triangulation design was used so that one data collection method supported the strengths or weaknesses of the other (p. 557). In using a cross-case study method, the qualitative method used began with a web-based survey to 25 institutions followed by open-ended questions conducted via process interviews of key campus administrators at two of the institutions to gather information about campus policy on access to, and use of, available support systems designed for students with ASD. Descriptive secondary data was also documented to measure the impact of each campus's program. Therefore, this investigation involved a case study approach to the collection and analysis of data of two research universities. Using the triangulation design to support this method, the research was thoroughly conducted through two instruments, surveys and process interviews. Combined, these methods provided an accurate and reliable accounting of (1) institutional policy on the role of DSS offices in the lives of students with ASD and (2) the perceptions of the leaders and staff in the DSS offices on these policies and their outcomes.

Population and Site

Population Description

Section 504 of the Rehabilitation Act has brought much attention to disabilities across the country and has caused the creation of disability support service programs in almost every university. These programs are a great asset to students with ASD. They help universities make "appropriate academic adjustments and reasonable modifications to policies and practices to allow the full participation of students with disabilities in the same programs and activities available to non-disabled students" (Jarrow, 1991, p. 1).

With the creation of these offices, the DSS leaders, counselors and support staff have become the lifeline to assist students with ASD in higher education. The population for this study was leaders, counselors and support staff in the disability support services offices from Pennsylvania universities who had frontline experience with freshmen students with ASD. It was imperative that these staff members had firsthand encounters with students with ASD in order to receive an accurate assessment of the trials faced. It was also important that these staff members were exposed to the different technologies available to students and were aware of the impact these technologies directly had on students.

The sample for the interview portion of this study was leaders, counselors, support staff and students from one public University, Penn State University, and one private university, Drexel University, in Pennsylvania. In using a purposeful sample, this allowed the researcher to understand the “central phenomenon” of how students were being instructed on the technology given to them (Creswell, 2008). According to Lincoln and Guba (1985);

In purposeful sampling the size of the sample is determined by informational considerations. If the purpose is to maximize information, the sampling is terminated when no new information is forthcoming from new sampled units; thus redundancy is the primary criterion. (p. 202)

Site Description

Each of the above mentioned institutions was chosen in order to provide a comparison case study of research universities in Pennsylvania. The researcher had not previously conducted any research on the disability support services offices within these institutions in order to ensure the original nature of the study.

The specific site at each institution was the respective disability support services offices. At each site for the interview portion, the researcher planned on interviewing and surveying the students, leaders, counselors and support staff in each office. In actuality, two leaders, four counselors and support staff, and only one student were interviewed. At each site for the web based survey portion, the researcher surveyed the leaders, counselors and support staff in each office. The staff members had the option to remain anonymous and all research was conducted in a private setting.

The size of each office varied with the population at each institution. Since the interview portion of this study was conducted at two institutions, each office had differing numbers of staff members. However, only three participants from each office were available to be interviewed on the scheduled day. There were six interviews conducted in total. The intention was to survey and interview at least three staff members from each institution which was met. However, in total, there was estimated to be approximately 150 subjects between the survey and case studies but this number was slightly misleading. Six interviews were conducted and 15 surveys were started with 14 being completed. In actuality, there were potentially 75 participants in the survey with a variation of 1 to 6 participants in each of the 25 universities.

Site Access

In order to access each site, varying degrees of permissions were obtained. According to Drexel University's Office of Research, the definition of human subjects research is "A systematic investigation including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge" (2011). Since

this study was conducted using staff members, the Institutional Review Board at Drexel University needed to approve this study.

In addition, letters requesting permission were sent via email to the director or administrator of each office of disability requesting the permission to conduct the study or to the appropriate responsible party (Appendices D & E). All information about the study was disclosed to each dean and/or administrator upon request. Additional permissions were obtained from Penn State University's Institutional Review Board.

The researcher contacted the department head of the disability support offices (DSS) in each location via email or phone. After that initial contact, the researcher sent an email to the contact who distributed it within their office. Each of the staff members received an email with a link to the survey. This email also included a deadline to complete the survey and contact information of the researcher. In addition, the researcher interviewed staff members and one student in the two DSS offices. An email was sent to the DSS department head to forward to all applicable students who would be interested in partaking in the study. In addition, a flyer was posted in each office and a small \$5 gift card was offered for participation.

Research Design and Rationale

This study used an exploratory, descriptive case study design. According to Yin (2008), case study research covers the logic of design, data collection techniques and specific approaches to data analysis. There were two separate steps in this study. In the first step, quantitative data was collected from all participants using a web-based survey. The object of this step was to determine possible variables in each institution. In the

second step, a visit to two institutions was conducted to collect qualitative data and observe each of the offices.

Through this approach, allowed the researcher to use a triangulation design. According to Jick (1979), “It [triangulation] is largely a vehicle for cross validation when two or more distinct methods are found to be congruent and yield comparable data.”

When exploring a problem, qualitative methods are the most appropriate form of research (Creswell, 2008). However, gathering quantitative data for this study as well produced a much more robust study and has become a good basis for further research on this problem. In using a case design, the researcher was able to collect richer data from the staff members at each institution. It also provided the staff members with two distinct reporting avenues to provide information to the researcher.

Four different areas of support services variables were considered when conducting the research for this study. They are as follows:

1. Leadership attributes

When interviewing the various participants in this study, leadership competencies were observed and recorded including leaders’ knowledge, skills and abilities to be in a leadership position within a DSS office. Advocacy for students and the participant’s knowledge of applicable law were recorded as well.

2. Organizational variables

Within each institution, the particular structure of each DSS office was recorded. Differences in organizational assembly and student communication were noted. Leaders and staff were questioned on their hiring processes, the structure of each office (including reporting structure), whether expert and non-expert faculty were consulted and advised

when dealing with students with ASD, and what communication, such as publications, etc., was shared with students.

3. Technology

Each university provided support services to students with ASD. Questions were asked discussing what, specifically, each university was providing in regard to technology supports, if technology services were contracted out, and, if so, what the contracting relationship was.

4. Counseling

Counseling is the main service of DSS offices. Discussions included the counseling relationships and behavioral and social support services provided.

Discussions also included research, outreach and academic programs that were being conducted at each university with or without the consent/ knowledge of the DSS offices.

Table 1 – Phases of Research

Phase	Task	Institution
Phase 1	Pilot Study	3 Pennsylvania Universities
Phase 2	Survey distribution	25 Pennsylvania Universities
Phase 3	Interviews of two Institutions	Drexel University and Penn State University

Research Methods

Introduction – List of Methods Used

In using a case study approach, data collection for this study was comprised of two instruments:

1. Survey (Appendix A)
2. Interviews (Appendices B & C)

Stages of Data Collection

Stage 1 - Permission to collect data (7 months)

For the first stage of data collection, permission was obtained by the Institutional Review Board (IRB) as well as the disability services support offices. Since human subjects were used in this study, it was imperative that all approvals were obtained before beginning the data collection. Letters of consent (Appendices D & E) were sent to the administrators at each of the offices. The application for the IRB process was sent and final approval was received. Additional approval was sought to amend the original IRB protocol so as to add an incentive to students for participation and approval for this amendment was received. Additional approval was also sought to post flyers at each of the DSS offices for students and was approved.

The survey permission letter (Appendix D) was emailed to 25 universities within Pennsylvania. This letter was required to be sent in order for IRB to approve the protocol.

Stage 2 – Pilot test (1 month)

In this stage, the survey and interview were to be distributed in a pilot test to three different universities to check for any errors or discrepancies that may have needed

correction before the full study was conducted. In actuality, after the committee was consulted, it was decided that only the survey would be piloted. This pilot test was also beneficial in that, according to Prescott and Soeken (1989), "...pilot work can be thought of as work (a) designed to answer a methodological question(s) and (b) conducted prior to or as part of the development of a research plan."

The pilot study was to be conducted with 3 students, 3 staff members and from DSS and 3 faculty members from different universities. However, it was conducted with 6 staff members only. The survey (Appendix A) was sent via email to 3 universities.

Stage 3 – Survey distribution (2 months)

Once all approvals were obtained, email addresses were to be collected from each participating office. However, after the initial phone call was placed and/or the initial email (Appendix D) to request permission was sent on to the DSS offices, an email (Appendix F) was sent to all administrators and then the administrators distributed them to their staff and faculty in their offices. Surveys (Appendix A) were distributed to 25 highest enrolled institutions in Pennsylvania. Each survey was electronically distributed in a link via email to all staff members within each of the disability services support offices. These surveys contained questions regarding methods used at the respective institution for support and technological instruction for freshmen students with ASD. It was a quantitative tool in the sense that it collected perceptive data from the staff members on such items as how many students succeeded with the current instructional method in place. Surveys took the participant approximately 30 minutes to complete.

A reminder email (Appendix H) was sent a month later to all survey invitees to participate in the survey if they had not done so.

Stage 4 – Interviews (3 months)

When all surveys were completed, one-on-one interviews were scheduled with each staff member at two of the institutions as well as one student. Separate approval letters (Appendix E) were sent to each of the universities where the interviews were conducted. An email (Appendix I) was sent to each of the two offices to be forwarded to students who wished to be interviewed.

Interviews at Drexel were conducted with all three staff members in the DSS office which included the Director. Interviews at Penn State were rescheduled twice due to weather conditions. While five interviews were scheduled for that day at Penn State, only three staff members were available to be interviewed. This included the Director of DSS.

These audio-recorded interviews gave the staff members an opportunity to explain any answers they may have provided on the survey and also gave the researcher an opportunity to ask open ended questions from a qualitative standpoint. Discussion included information as mentioned in the above variables. These interviews were conducted in a private setting within an office or a private conference room. Interviews were completed in no more than an hour for each participant.

Only one student agreed to participate in the interviews. After the initial email was sent to students with no response, a small incentive, \$5 bookstore gift card, was added to increase participation. The email was resent and flyers (Appendices J & K) were posted in each of the offices, but neither attracted any more students to the interview.

Stage 5 – Handling the data (3 months)

When all interviews concluded, they were transcribed and coded. The interview data was cross referenced with the electronic surveys and all data was thoroughly categorized and separated to recognize themes and patterns. All quantitative data was entered into a table to compare and contrast findings.

Description of Each Method Used

Instrument Description

Survey. The survey that was electronically distributed for this study contained 24 questions specifically related to disability policies and procedures including technological instruction provided to students with ASD. Among those questions, statistical data was asked of the participants but it was purely from their perspective and not necessarily the exact number within their institution. The researcher was looking for their perspective answers. Some questions also used a Likert scale.

Interview. The interview was comprised of 7 or 8 open ended questions that allowed the staff member or student the freedom to express any viewpoints regarding ASD support. Discussion was intended to progress from these questions. All interviews were audio-recorded.

Participant Selection

The participants for this study were leaders, staff members, faculty and a student from higher education institutions in Pennsylvania. These specific participants were chosen because they were the frontline contacts for students with ASD. Students that participated had self-identified that they have ASD. All staff members who were interviewed had previously completed a survey. However, these two instruments were

vital to each other. If an interview participant did not complete the survey, they were excluded from the study. Students, however, only completed the interview.

Identification and Invitation

Once contact was established in each of the disability support services offices, all staff members from each institution were invited to participate in the study. Letters of consent (Appendix D) were sent to the administrators of each DSS office initially. Once these letters were completed, letters of consent were sent to all participants.

Data Collection

Survey data was collected and sorted electronically since the survey was distributed in that manner. A table with all data was designed and completed with no identifiable information. Process interviews were conducted and audio recorded within the respective offices in each institution with all participants who completed the survey. Once all interviews concluded, the recorded interviews were transcribed.

Data Analysis

Interviews

All interviews were recorded and transcribed so as to ensure all nonverbal data was captured. According to Maxwell (2005), "...reading and thinking about your interview transcripts and observation notes, writing memos, developing coding categories and applying these to your data, and analyzing narrative structure and contextual relationships are *all* important types of data analyses". All data was recorded and analyzed with this mindset.

Analysis was conducted first by open coding and determining common themes among the data in the interview. As each interview was conducted and more codes were

determined, data saturation took place, which was the point where further codes are redundant or no longer useful (Creswell, 1998). Once common themes were determined, memos were written. A code book was created to keep a record of codes for each interview. The code book has proven invaluable so as to add more codes and also for use in comparison.

To analyze the data from each of the institutions, a chronological case study database was used. As stated by Davis (2009), "... a case study database is an increasingly useful analytical tool that strengthens the reliability of case study research."

Surveys

All surveys were collected and data was transferred to Dedoose.com for further processing. Using Chi-square tests of independence, the responses were analyzed comparing the responses from the survey instrument.

When all interviews concluded, the data was cross referenced with the electronic surveys and all data was thoroughly categorized and separated to recognize themes and patterns. All quantitative data was entered into a table to compare and contrast findings.

Ethical Considerations

While conducting this study, careful ethical considerations were taken regarding each participant. Careful precautions were utilized to ensure the privacy and confidentiality of the participants. As per the "Federalwide Assurance (FWA) for the Protection of Human Subjects for Institutions Within the United States for Drexel University", the Belmont Report was adhered to in order to maintain standards for the protection of human subjects.

Informed consent was noted at the beginning of the survey. Although there were limited risks related to this study, several considerations were taken into consideration when interviewing staff members. Any names that were mentioned were replaced with pseudonyms. All interviews, though conducted in a private setting, were recorded and then transcribed. The transcriptions were reviewed and any personal information was replaced with unidentifiable information. Participants received a copy of the transcription and, if upon review, they found any identifiable information, it was changed to ensure anonymity. All identifiable information was kept in a locked drawer within the researcher's office until such time when it was destroyed. Participants were assured that the study would be distributed to the public, but no identifiable information would be included.

CHAPTER 4: FINDINGS AND RESULTS

Review of Purpose and Significance

The purpose of this study was to identify and analyze the accommodations offered by disability support services offices to students with Autism Spectrum Disorder (ASD), with a focus on leadership factors and “in house” expertise (e.g., the use of assistive technologies). The study used Qualtrics for developing and administering the quantitative data collection tool for the survey. Dedoose was used for analyzing the data from the surveys and the interviews.

With the continued increase in the diagnosis of students with ASD who are entering college, this problem will continue to get worse if an effective solution is not implemented. Further research needed to be conducted to accurately determine the scope of this issue. The number of students with ASD entering college without the prerequisite knowledge and supports needed to be studied so higher education could be prepared to serve this population effectively.

The research questions in this study were:

1. How are the legal mandates for students with ASD interpreted by leaders and staff in disability support services offices?
2. How do college/university disability support services offices (DSS) provide the necessary services to accommodate the needs of students with ASD?
 - a. What is the DSS level of awareness regarding new and emerging responses to students with ASD?
 - b. How are the DSS using technology to support students with ASD in the higher education environment?

- c. How do DSS rely on “in house” faculty expertise related to special education or assistive technology in serving students with ASD?
3. How can DSS directors exercise leadership and develop appropriate responses to meet the needs of students with ASD?

Summary of Data Collection

For the first part of the study, the initial intent was to survey 3 people from each of the DSS at the 25 highest enrolled higher education institutions in Pennsylvania. In reality, there are typically less than 3 people in each of these offices. The pilot study request was sent and 3 people responded to that request. Once the data was reviewed from the pilot study, the survey was sent to all institutions. The first request was sent via email to all offices to participate and only 3 people had responded to the survey. The researcher requested a modification of approved research to send another email to request participation. Another request was sent via email to the DSS in each institution and the total amount of respondents was 14 people.

For the student interviews, an email was sent from the DSS at Drexel University and Pennsylvania State University to students with autism who had self-identified and who had registered with the DSS. This email was a request to be interviewed for the study. Only one student responded to this email. The researcher requested a modification of approved research to provide an incentive for students’ participation. Flyers were created to be posted in each of the DSS that announced the study and the small incentive. No other students responded to this incentive.

For the staff interviews at Drexel University and Pennsylvania State University, 3 staff members from each office participated for a total of 6 participants. There are only 3

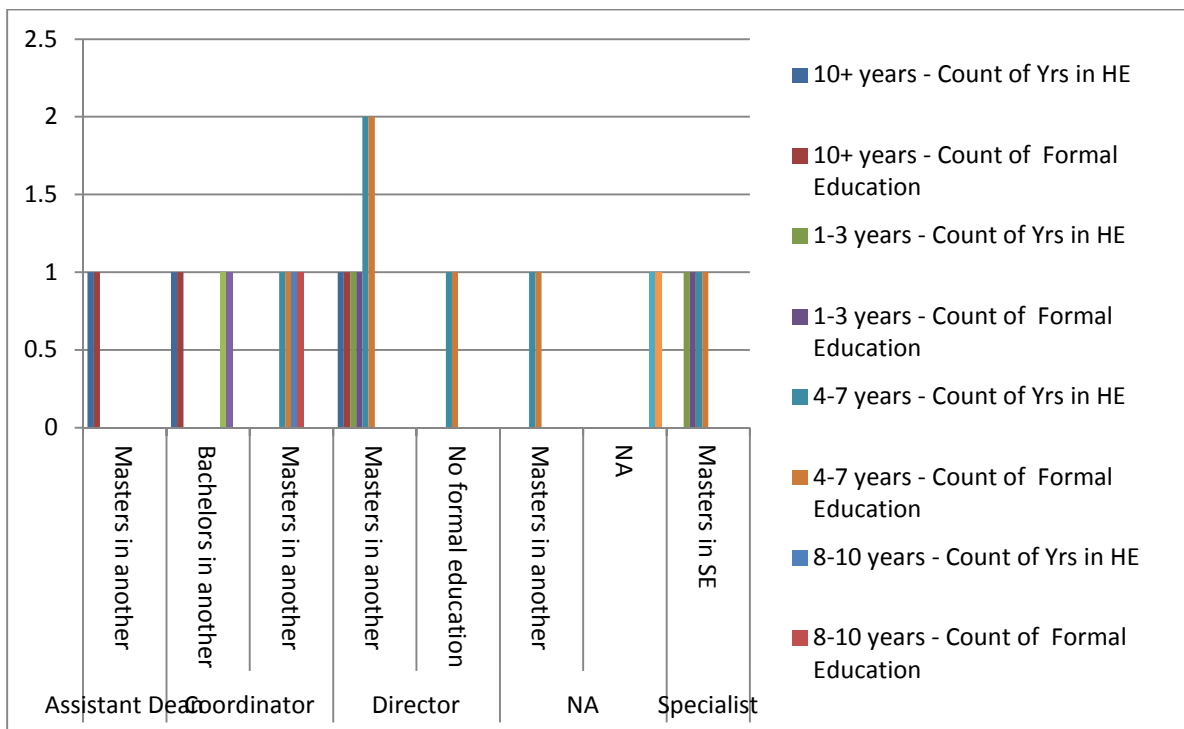
staff members in the Drexel University DSS. At Pennsylvania State University, 2 of the staff members were not available on the day of the interview. There were 3 staff members of the 5 staff members in the office from Pennsylvania State University that participated.

Demographics

Survey Participants

The demographic information shows that the survey participants were a varied combination of staff and leaders in the DSS. The population for the survey consisted of potentially 75 participants with a range of 1 to 6 participants in each office. A total of 14 responded to the survey, producing a rate of 19%. The number of responses to each question, however, varied. Survey questions 1, 2, 3 and 4 determined the demographics of the participants.

Figure 1



1. What is the title of your position at your institution?
 - a. 35.71% were directors ($n=5$), 28.57% were coordinators ($n=4$), 14.29% were specialists ($n=2$), 7.14% were assistant deans ($n=1$) and 14.29% did not respond to the question. This was an open ended question, and while most of the titles listed varied in description, they were general enough to fit into each of the categories above. The titles as listed in the survey were as follows: Coordinator of Services, Accommodation Coordinator, Director of Disability Services, Assistant Dean of Academic Support for Students with Disabilities, Disability Specialist, Director of Office of Disability Resources, Learning Specialist, Director and Director of Counseling in College Health & Disability Services.

2. How many years have you been in your current position?
 - a. Of the 14 responders, the largest population was in the 4-7 year range with 6 responders (43%). There were 3 responders that have been in their position for over 10 years (22%), 2 responders that have been in their position for 1-3 years (14%), and 1 responder in each of the 8-10 years and 0-1 years range (7% each). 1 participant did not respond to this question.

3. How long have you been employed in higher education (including your current position)?
 - a. Of the 14 responders, the largest populations were in the 4-7 year and 10+ year ranges with 6 responders each (43% each). There was 1 responder in the 8-10 year range (7%). 1 participant did not respond to this question.

4. Please choose the statement that most clearly describes your formal education in providing support for students on the autism spectrum.
- a. Of the 14 responders, the largest population was in the Master's in another discipline with 8 responders (57%). There were 2 responders that had a Master's in Special Education (15%), 2 responders with a Bachelor's in another discipline and 1 responder with no formal education. 1 participant did not respond to this question.

Figure 2



Figure 2 represents a cross analysis of the years a respondent was in their current position with the years a respondent has been employed in higher education. This analysis shows the relation between the amount of time a staff member has been in higher education to the amount of time a staff member has been in their present position in DSS. The Chi-square test result of this analysis was 23.72 where the degrees of freedom (df)

were 15. This figure gives a better understanding of the length of time a staff member has been in higher education in relation to their current position in DSS.

Interview Participants

The interview population consisted of 6 staff members in DSS at Drexel University and at Penn State University. The participants were either staff members or directors who all work directly with students with ASD. Each of these in-depth, face-to-face interviews lasted anywhere from 30 minutes to one hour. There were three respondents from each office. Interview participants were instructed that although their answers would be recorded, identifying information would not. Although only one student took part in the interview, the data was compared and contrasted to the staff interviews to determine differences in perceptions.

Research Questions

The researcher categorized the survey and interview questions with reference to the research questions.

Research Question 1, “How are the legal mandates for students with ASD interpreted by leaders and staff in disability support services offices?”

The survey question directed toward research question 1 was:

10. “In your view, what is your interpretation of the legal requirements for your institution in providing support services to students with ASD? (please choose all that apply)”
 - a. Twenty-nine percent of respondents felt that their institution was only legally required to provide academic support ($n=4$) while 22% felt that their institution was legally required to provide academic

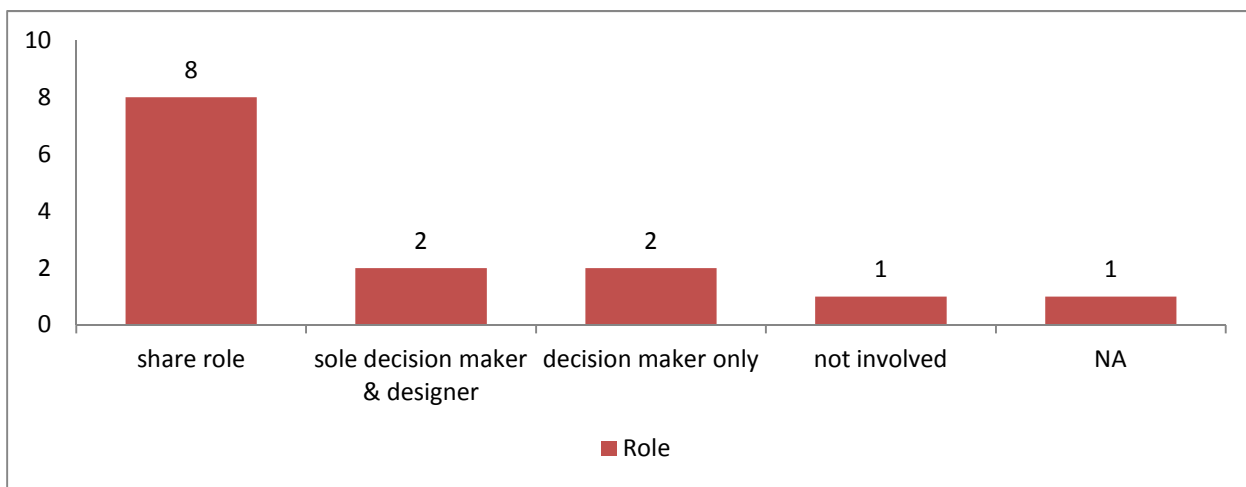
support and residential life support. Fourteen percent ($n=2$) felt academic support, social interaction support and residential life support were legally required while another 14% ($n=2$) felt extra-curricular support as well as those mentioned was required. Twenty-one percent ($n=3$) felt it was not applicable.

Research Question 2, “How do college/university disability support services offices (DSS) respond to the needs of students with ASD?”

The survey questions directed toward research question 2 were:

5. Please choose the statement that most closely describes your training in providing support for students on the autism spectrum.
 - a. Of the 14 respondents, the largest population attended 4 or more training sessions or seminars specifically on autism with 9 responders (64%). Three respondents attended 3 or less training sessions specifically on autism (22%), 1 respondent attended training sessions or seminars on disabilities (7%) and 1 participant didn't answer (7%).
6. Please choose the statement that most closely describes your role in supporting students with disabilities.

Figure 3

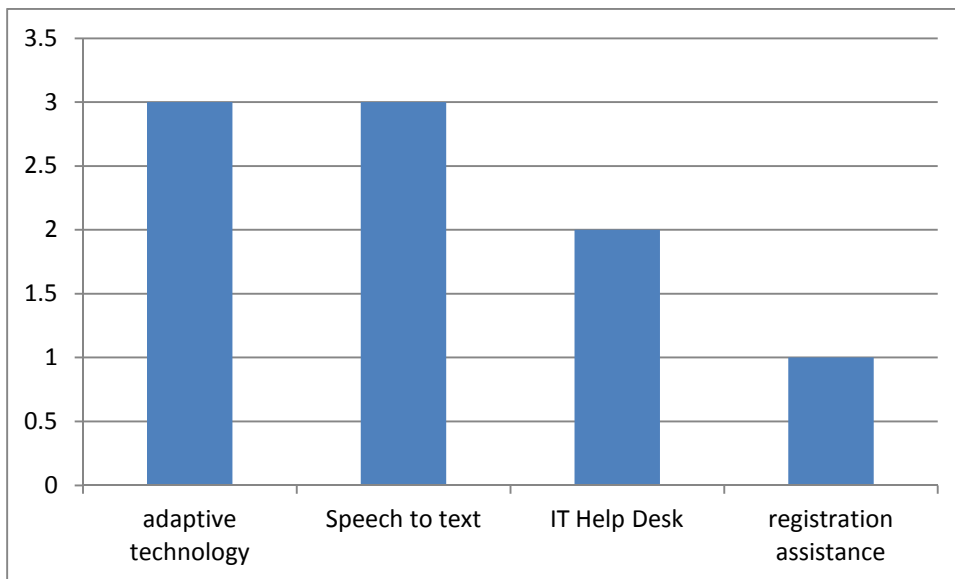


- a. As shown in figure 3, of the 14 respondents, the largest population of 8 respondents (57%) stated that they share the role of decision maker and designer and/or implementer of needed support services. Two designated themselves as the sole decision maker and designer of services (14%). Two respondents stated that they only have the role of decision maker (14%) and one respondent stated that they were not involved as either the decision maker, or designer and/or implementer of needed support services (7%). No respondents stated that they were they designer and/or implementer of needed support services and one participant did not respond to this question.
7. In your view, how well do you believe you understand autism spectrum disorders?
- a. Of the 14 respondents, 9 felt they had a comprehensive understanding of ASD (64%). 3 respondents felt that they understood ASD, but needed further research (21.4%) and no participants responded that they did not

understand the Disorder. 2 participants did not respond to this question (14%).

13. What technological support is provided to students with ASD at your institution?

Figure 4



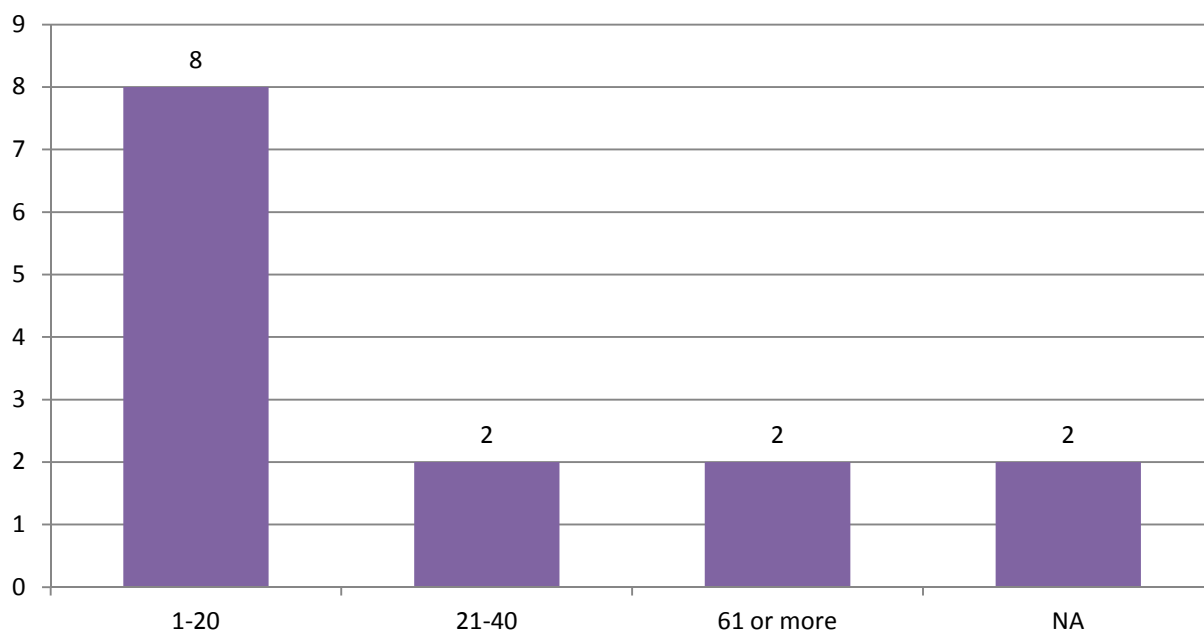
- a. As shown in figure 4, two of the respondents mentioned the words “adaptive technology” and then used the words “text to speech” within their answer as an example. One respondent mentioned students presenting documentation that would qualify for adaptive technology. Each of these answers was only counted once in the above chart. Of the 14 responses, five of them were “n/a” and there were 9 remaining responses.

14. In your view, how many freshman students in the previous year (2012) self-identified that they are on the autism spectrum?

- a. Of the 14, two responded “n/a” (14.29%). There were 8 respondents (57.14%) that answered 1-20 freshmen students, 2 respondents (14.29%) answered 21-40 freshmen students and 2 respondents (14.29%) answered 41-60 freshmen students.

15. In your view, how many additional students on campus may be on the autism spectrum that have not self-identified to the Disability Services Office?

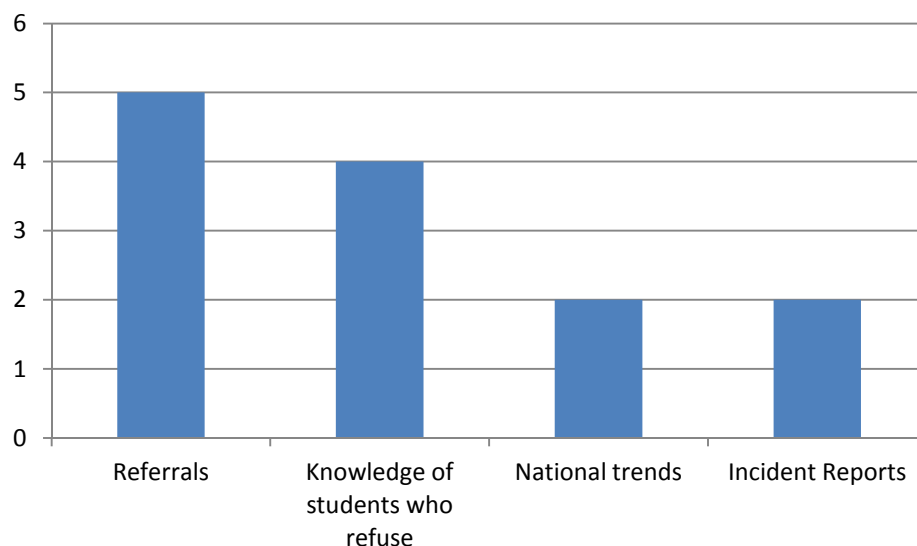
Figure 5



- a. As shown in figure 5, of the 14 respondents, two respondents (14.29%) answered “n/a”. Similar to the previous question, there were eight respondents (57.14%) that answered 1-20 additional students, two respondents (14.29%) answered 21-40 additional students and two respondents (14.29%) answered 41-60 additional students.

16. What has led you to this view?

Figure 6



- a. As shown in figure 6, of the 14 respondents, three responded “n/a” and there were 11 remaining responses. Two of the respondents mentioned “national trends” knowledge of students who refuse” in their answer and they are both counted above. One respondent stated, “Many students on the spectrum do not present in the Office for Disability Services as they only need support with student/resident life issues. We only see students for academic accommodations.”

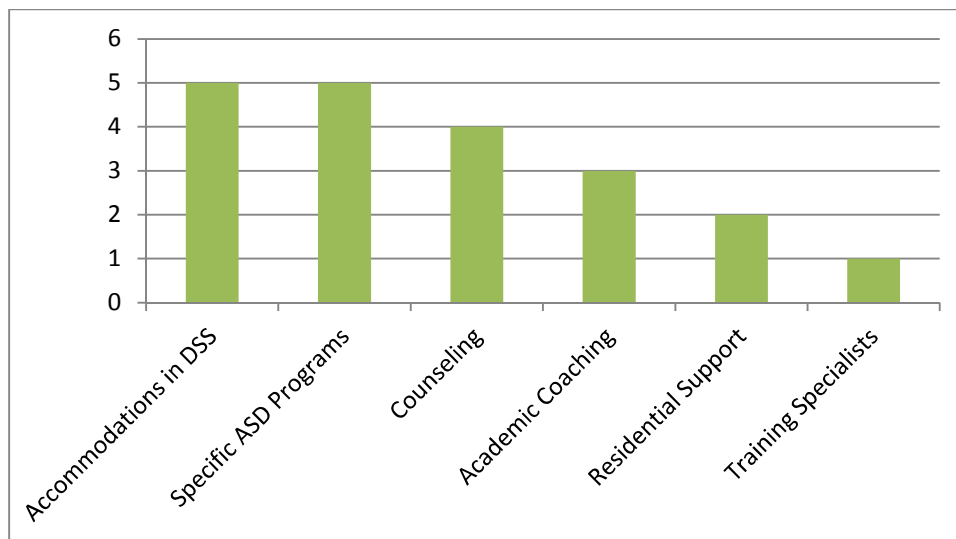
21. For the question, “are any accommodations and/or supports provided to students on the autism spectrum for a fee,” there were 14 responders and they all responded “no”.
22. Question 22 asked, “if yes, what accommodations,” which was not answered by any respondents.

Research Question 3, “How can DSS directors exercise leadership and develop appropriate responses to better meet the needs of students with ASD?”

The survey questions directed toward research question 3 were:

8. Please choose the statement that most closely describes your institution’s support of students on the autism spectrum.
 - a. Of the 14 respondents,
 - i. Eight replied that their institution does not have a separate office or a separate position specifically assigned to students with ASD, but all advisors are adequately prepared to provide for students with ASD.
 - ii. Two replied that their institution does not have a separate office for students with ASD, but does have a specific position assigned to students with ASD.
 - iii. One replied that their institution has a separate office space specifically for students with ASD.
 - iv. One replied that their institution does not have a separate office or a separate position specifically assigned to students with ASD, and no advisors are adequately prepared to provide for students with ASD.
9. In your view, how does your institution adequately provide support services to students with ASD?

Figure 7



- a. As shown in figure 7, of the 14 respondents, two of the responses were “n/a” and there were 12 remaining responses. Several of the respondents mentioned multiple services provided to students with ASD and they are represented above. One respondent stated, “Academically, yes. Socially? Not so much.”

11. How much support is given to students on the autism spectrum by your institution?

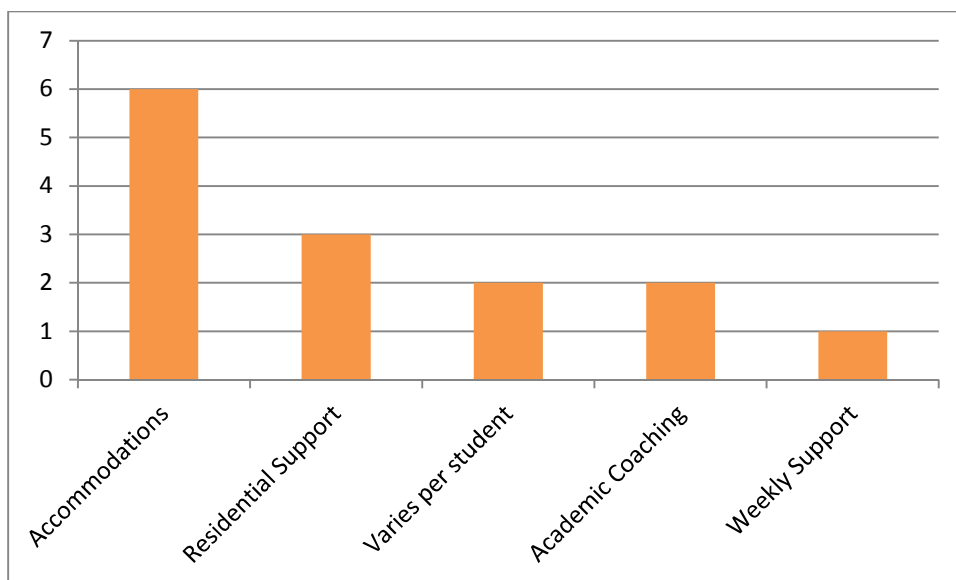
- a. Of the 14 respondents, 2 responded “n/a”.
- i. Five responded that students are given required accommodations and some assistance in organization and other tasks.
 - ii. Four responded that each detail in the students’ entire college experience is handled by several offices.
 - iii. Two responded that each detail in the students’ entire college experience is handled by their office (example – students either

have a one-on-one advisor who assists the student on scheduling, organization, etc. or the student checks in every day for a summary session).

- iv. One responded that students are given required accommodations only.

12. What accommodations or supports are provided to students on the autism spectrum at your institution?

Figure 8



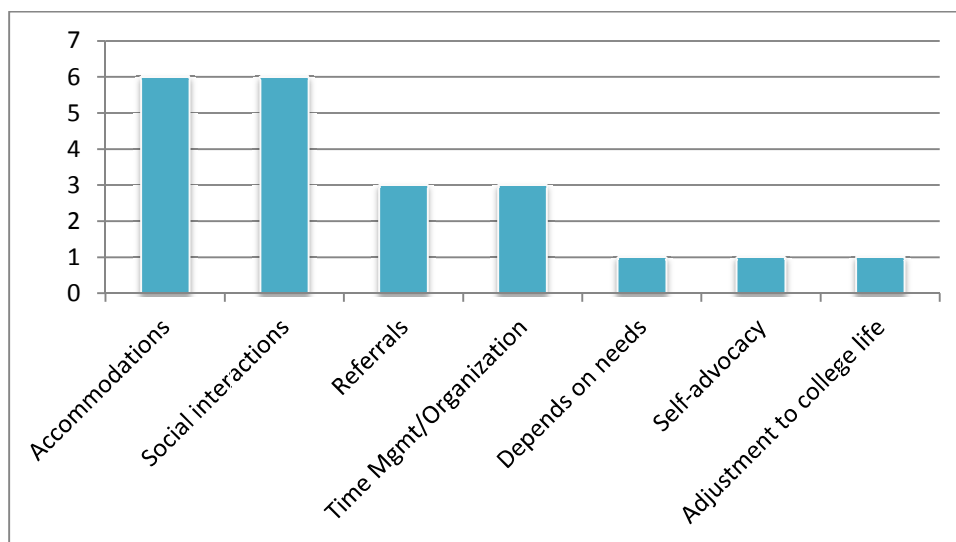
- a. As shown in figure 8, of the 14 respondents, six responded “n/a” and there were 8 remaining responses. Several of the respondents mentioned more than one accommodation or support as noted in the above chart.

17. In your view, how often are students on the autism spectrum seen in your office for support services?

- a. Of the 14 respondents, 2 (14%) responded “n/a”. 7 (50%) responded that students are seen weekly, 1 (7%) responded that students were seen monthly and 4 (29%) responded “other”.

18. What is discussed when meeting with these students?

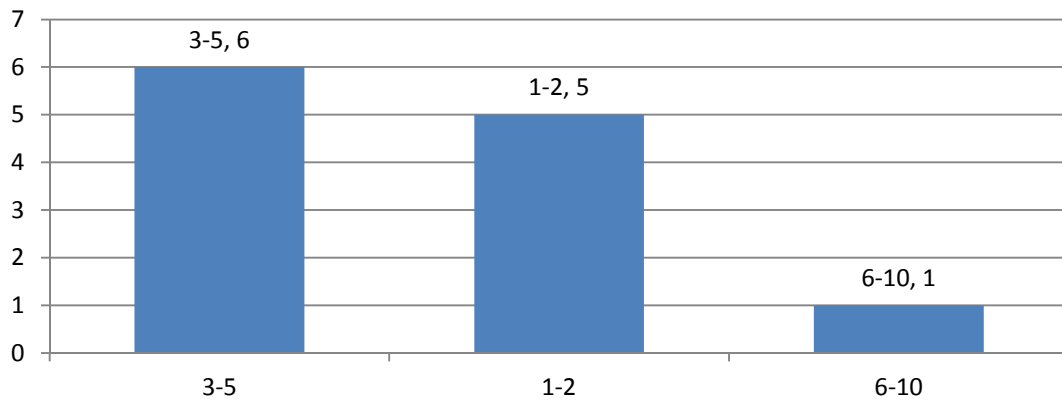
Figure 9



- a. Of the 14 respondents, 3 responded “n/a” and there were 11 responses.

19. What is the FTE (Full Time Equivalent) of staff members within Disability Support Services Office (or other department) specifically working with students on the autism spectrum?

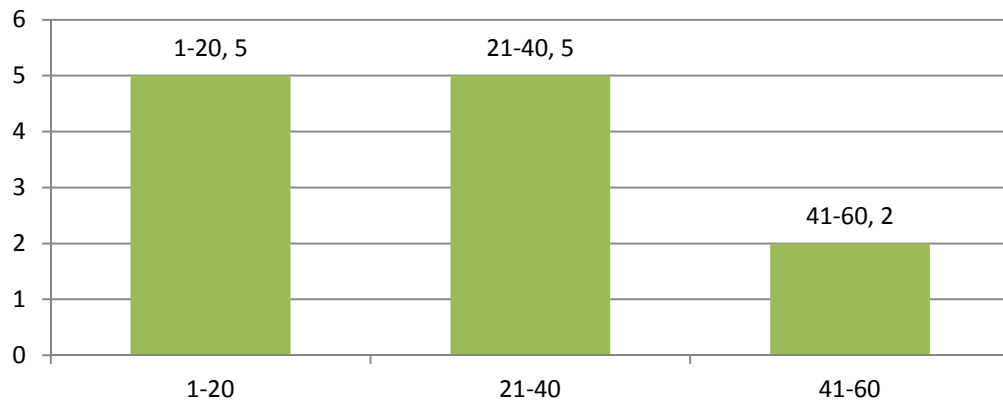
Figure 10



- a. Of the 14 responses, 2 responses were “n/a” and there were 12 remaining responses. No one responded with 5-7 staff members.

20. Currently, how many students does your office support on the autism spectrum?

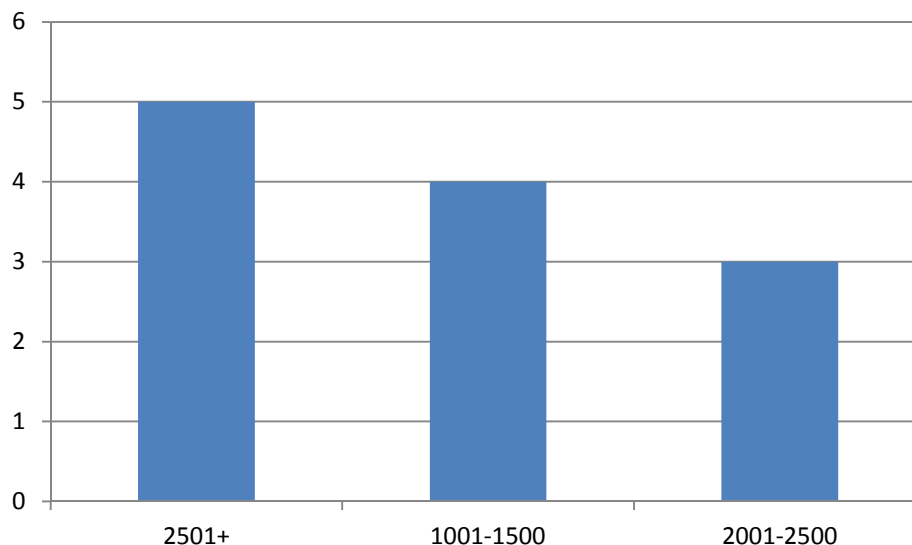
Figure 11



- a. Of the 14 responses, 2 of the responses were “n/a” and there were 12 remaining responses.

23. How many incoming freshman students will be enrolled at your institution in the fall of 2013?

Figure 12



- a. Of the 14 responses, 2 responded “n/a” and there were 12 remaining responses. No one responded that there were 1501 – 2000 students.

24. For the question, “If there are any additional comments you would like to provide, please do so below,” there were no responses.

Interview Data

Using the case study method, leaders’ and staff views were recorded regarding students with autism in higher education and how the DSS offices are accommodating them. In addition, one student was interviewed. The unit of analysis was the small case study group of six individuals. The “case” was how the DSS offices are providing services to these individuals and the DSS office staff perceptions.

Once data was collected, the audio recordings were transcribed. The transcripts were coded and analyzed. Thematic coding was used to connect the data to the purpose of the case study. According to Auerbach & Silverstein (2003), “research participants

often used the same or similar words and phrases to express the same idea.” With this in mind, the researcher sought to determine reappearing themes within the interviews.

There were 8 questions created for the staff interviews. Each open-ended question aligned with the research questions. Question 1, 2 and 4 were included in the staff and student interviews. They were created to determine different perceptions between students and leaders in DSS offices.

1. Where on campus is the DSS office located and is it easy to find?
2. How difficult is it for students to locate the DSS office on campus?
4. What is the title given to the person who manages the DSS office?

Findings

The purpose of the interview data analysis is to understand the participants’ perceptions through their own perspectives (Auerbach & Silverstein, 2003). The outcome of coding and analyzing the interviews resulted in the emergence of nine major themes as displayed in the code book in figure 16. While there were nine major themes, several of them overlapped with others which resulted in the following findings.

Figure 16

	Themes	Explanation
1.	Transition from High School to Higher Education	Transition of students from high school to college; including legal matters
2.	Technology	Technology provided by DSS staff
3.	Lack of Staff	Limited staff who are providing services to students
4.	Accommodations	Accommodations provided to the students
5.	Location	Visibility of DSS on campus
6.	External Collaboration	Collaboration with offices/services outside of DSS
7.	Parental Involvement	Involvement of parents in transition
8.	Independence	Assumption of student independence and self-advocacy
9.	Title	Title of leader of DSS

Transition from high school to higher education. The first theme, transition, appeared most frequently in the data. As expected, within the question regarding transition, high schools were mentioned by 4 of the 6 participants. Three of the participants mentioned that they were on transition councils in the local area to assist students with ASD with the transition to college.

The summation of the interviewees responses was made by interviewee 4 when they stated, “specifically, we try to let parents and students know that there obviously is a big transition from what happens in high school to what happens in college and that environment is very different. So answering their questions early on...trying to be proactive with it, stressing the self advocacy... you are your own advocate when you come to college you know, mom and dad, while they may be incredibly supportive, they’re at home now.”

Several interviewees mentioned that they would go to several high schools to help in the process of transitioning but did not go any further than the immediate areas. One interviewee stated,

- “...we have people that go out there... Go to some of the high schools. They’ll sit in on their transition meetings. Myself, again, I do the same thing. The Dubois, Clearfield, Jefferson, Elk and I’m sure there’s another county up there I go to... and visit and educate, whether it’s just the school teachers, the administrations... usually it’s the parents and the guidance counselors on the differences and of course you meet other agencies out there that you interact with that may not know what you do and how you do it. So that they can start referring for their clients to go to college.”

According to one interviewee, self-advocacy was a concept that was first presented in these meetings or events. One interviewee stated:

- “I also sit on a state transition committee that meets in Harrisburg and we do webinars, so that’s pretty well-covered, but that was my interest initially

because I worked public ed before I came to higher ed. There's a lot of transition and prior to that mental health, physical medicine and in the area of therapeutic recreation so we do.... Can more be done? Yeah, sure."

Viewpoints of other interviewees included the following:

- "I think we do an excellent job and actually the state of Pennsylvania as a whole compared to other states when you don't have transition coordinators in high school in Maryland, Virginia - they don't do any of that. They have a transition plan. But one person is usually dedicated to that too."
- "...we have a day that we call "Transition Academy" that we invite students in from three local high schools to participate in a day of classes and workshops on campus."
- "...we have the perspective student events – those are weekend events that admissions holds – they are usually one-day events on a Saturday and a Sunday. Families are welcome to come. Our office staffs the event – both Saturday and Sunday to be there to talk one-on-one which I think is really important. It's not just like in an open information booth type thing. It's in a conference room with the door closed so they can really ask the questions and be heard which I think is really important."

Legal matters regarding the transition were mentioned as well. Several participants stated that there was a need for an explanation of the differences in laws that applied to a student with a disability in high school and those that applied in college. Participants voiced that they had several transition events. One participant stated, "We will bring in parents to educate them that this is the lone high school versus this is what's going to happen once you graduate high school. The laws change. You may not receive services."

With this difference in law, students need to be self-advocates to receive assistance in higher education. One participant stated, "...they have to be their own advocate. The law is different....We're just reminding you that these are resources that you have at your fingertips and this is how you use them." Self advocacy and student independence were almost assumed in some of the interviews. The assumption was that

students would already know that they need to contact the DSS and seek out the information. It was presumed that students know that they need to be proactive in order to receive accommodations.

Parental involvement. Parental Involvement was another theme included with transition. According to Morrison, Sansosti & Hadley (2009), “Parent expectations are highly influential and an understanding of these expectations is particularly important when fostering support for college students with Asperger’s Syndrome”. While Morrison, et al. were specifically discussing Asperger’s Syndrome, these expectations applied to all parents of students with ASD. All participants referenced speaking with parents and students, not just students.

- “... talking with the student and with the parents trying to give them a clear understanding of the difference between... especially the accommodation piece, it’s much different in K-12 than it is in higher ed.”
- “We do numerous activities with parents in the evenings and again the local school system with students in their classes on several different times during the year.”
- “(We) bring in parents to educate them that this is the lone high school versus this is what’s going to happen once you graduate high school. The laws change.”

When the student was asked to describe the transition from high school to higher education, he responded as follows:

- “I’m not sure about others but mine was actually okay because my parents put me through a lot of transition programs... And like gave me all these tips, how to live by myself, etcetera, etcetera... which I actually said was rather helpful but without all those, I’ll say my transition would have been a complete and utter disaster because I would have no idea of how to live by myself.”

Technology provided by DSS. Technology was the theme most noted in the interviews after transition. Although technology was heavily noted, technology was

mostly mentioned as a component of accommodations. Several of the participants stated that the accommodations provided included alternative texts by Kurzweil or components such as the livescribd pen. One participant mentioned that they now have a dedicated Assistive Technology Specialist that assists students with the technology provided in their accommodations. Another participant, from a different institution, stated that it would be helpful if they had a dedicated Assistive Technology Specialist to help students.

Accommodations. Accommodations was the next theme and was mentioned several times together with documentation. The most frequent accommodations mentioned in all of the interviews were extended test time and distraction reduced test areas. In addition, anxiety was viewed as the largest barrier for students with ASD which was a reason for accommodations. A common statement was that each student is an individual person and the documentation that the students provided helped with the recommendation for accommodations.

The typical response was as follows:

- “They come to our office. They submit documentation and a request form. That request form gives a good idea of what they’re exactly requesting.”

Other similar responses were:

- “As far as supports, we provide classroom supports, academic accommodations.”
- “We review the documentation and most often they’ll have a neuropsychological, psychoeducational stuff or a... depending on where they are in their educational career or an IEP...stuff like that. So, under the laws, as you probably know is, we talk about reasonable accommodations. “

Several of the interviewees mentioned that each student was different and accommodations needed to be determined based on individual needs. There was more

focus on the individual rather than the documentation. Some of the statements made were:

- “Again, that would depend on the student and what they needed. Historically for me, working with students that are on the spectrum, they’ve all been different. It’s more rare that they need actual academic accommodations.”
- “I think really the emphasis in general has been to shift the services away from focusing on student’s documentation to more or less understanding the student’s perspective of their disability and the intake interview and really thinking about direct services that we provide to students and how we can improve those.”
- “We’re more flexible with documentation, giving temporary services even if we don’t have the documentation on hand depending on the student.”

Location. Location was another theme that emerged. All of the interviewees stated that their office was easy to find and that students should not have any problems finding their office. One interviewee stated, “I’ve never had a complaint from someone not being able to find it. Our information and location is printed on almost all the information that incoming freshmen get and it’s in all of our information and it’s on our website and we give directions over the phone.” However, the one student that was interviewed stated how difficult it was to find the office and that there are no signs posted outside of the building.

He stated, “It was actually rather hard because there was no indication whatsoever. The office of disabilities was in set building and me and my parents actually had to look around and that’s ...at the directions the whole time until we found it.”

Limited Staff. When asked the question regarding improvements, most of the interviewees stated that more staff would be an improvement. Several interviewees mentioned that they cannot spend the amount of time with students as they should because there are so many students to see. Some interviewees stated:

- “It would be nice to do more formalized sessions of study groups and study skills.”
- “We tend to get backed up in our appointments. That [having more staff] would make more people available more frequently.”
- “Caseloads have increased dramatically and trying to find time to meet with all the students is very limited.”

External Collaboration. External collaboration with other offices was mentioned often in the interviews. DSS office staff refer students to offices within the university who can assist the students with other matters. Some of the other offices mentioned were the counseling and housing offices. At Drexel, the Drexel Autism Support Program (DASP) was mentioned several times as a resource that is used for students with ASD. One interviewee stated:

- “But to kind of help them learn through that process and students on the Spectrum can work with DASP, if they’re part of DASP, they can work with their mentors in DASP for things like that. They can work with their mentors for social skills aspects. They can do a lot of that like more social piece that is often connected with someone on the spectrum, and especially any executive functioning piece that is often connected the students. The DASP program works with students on those aspects free of charge.”

Demonstrated Leadership. The question about the leader of the DSS office was answered the same by every interviewee. The title given to all managers of the DSS offices was “director”. Leaders in these roles are confined by restraints of budgets and laws. The offices are expected to abide by all legalities related to disabilities within higher education but are still required to remain within the limited budget they are provided. One interviewee who is a leader stated that since she/he has taken over as the director, she/he has instituted new policies to add consistency to the office such as responding to all emails within 24 hours, making sure all students are receiving the same service and sending calendar emails to students. She/he also mentioned that they are

looking at retention data to measure the success of the office's services to determine how they can help students in the future. The only reference from this interviewee about higher leadership was when they mentioned that "they" wanted DSS to be present at all open houses and prospective student events. "They" refers to leaders higher within the university.

Another member from the same university mentioned that students will meet with the director of DSS if they are appealing the interviewee's decisions. When asked if that happens often, the interviewee stated that there are occasionally situations where the student feels they need an accommodation that isn't provided. This same interviewee stated that the director goes out and works with a lot of other offices who can then make referrals. She/he also stated that the director has done a "really great job" reaching out to the campus community.

In the other university, there was no mention of the leadership, even from the director. Staff members seemed well-seasoned and independent in their work. There was no mention of research or future goals for the university.

Summary

According to Barnhill (2014), "With the increasing number of students with Asperger's Syndrome (AS) and High Functioning Autism (HFA) enrolling in college, it has become apparent that support services are greatly needed to assist these students in navigating college life, both academically and socially." During this study, while it was evident that leaders and staff feel that they are doing all that they can to provide services to students with ASD, much more could be done.

Participants noted that although they are providing services to all students with disabilities that arrive in their offices, they are not able to provide the amount of time they would like with each student. Interviewees from both institutions mentioned that in the beginning of each term, they have to allot 30 minute appointments to each student, which is not nearly enough to time to review the documentation and suggest accommodations.

Several times it was mentioned that the laws change from high school to post-secondary education, but many students do not realize that this change exists. These leaders and staff not only have to provide accommodations, but have to educate the incoming students and parents on the legal differences between high school and college. This additional task can be time consuming for an already short staffed DSS office.

Interviewees in each office contradicted themselves when they mentioned that they wanted to streamline services but that each student has their unique needs. Streamlining may help with time management when there are so many students that need services, but more staff would help the issue of individual plans for students. It seems that more staff would be needed to assist with either concept if the population is increasing.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to identify and analyze the accommodations offered by disability support services offices to students with Autism Spectrum Disorder (ASD), with a focus on leadership factors and “in house” expertise (e.g., the use of assistive technologies). Throughout this study, the problem statement was the focus. The problem statement specified that information regarding the knowledge and competencies of leaders in higher education disability support services offices is limited, especially regarding how to best serve students with Autism Spectrum Disorders (ASD). This research explored these competencies with specific reference to the leaders’ awareness of new and emerging methods to serve and accommodate students with ASD. The researcher sought to identify more clearly how leaders responded to the needs of students with ASD by conducting a survey of 25 Pennsylvania universities and two case studies of research universities: one private and one public in Pennsylvania.

The research questions in this study were:

1. How are the legal mandates for students with ASD interpreted by leaders and staff in disability support services offices?
2. How do college/university disability support services offices (DSS) provide the necessary services to accommodate the needs of students with ASD?
 - a. What is the DSS level of awareness regarding new and emerging responses to students with ASD?
 - b. How are the DSS using technology to support students with ASD in the higher education environment?

- c. How do DSS rely on “in house” faculty expertise related to special education or assistive technology in serving students with ASD?
3. How can DSS directors exercise leadership and develop appropriate responses to meet the needs of students with ASD?

The literature review in Chapter Two established that although the existing literature regarding autism spanned from medical discoveries to behavioral treatments, this review focused on three themes within autism in higher education. These themes were: the legal obligations of leaders in higher education, the response of staff and leaders in higher education to students with autism, and the methods leaders are using to prepare for students with autism. Although the existing literature was presented in a variety of scopes, this review focused on the application of these themes to higher education. This study sought to bring light to the current gap in literature on this topic. There was a need for research in this area of study for students with ASD who were disadvantaged and the leaders in DSS. There were specific gaps in literature from the viewpoint of the disability service providers and also in the success rates of the students who were using assistive technology in higher education.

In Chapter Three, the methods used to conduct this study were presented. The researcher sought to expand understanding about critical leadership competencies of Chief Disability Services Officers and the supports provided to students with ASD entering two research universities in Pennsylvania, one public university and one private university. In addition, a broader survey distributed to the 25 highest enrolled universities in Pennsylvania was administered to further deepen the study and determine perceptions of other DSS offices as well. In using a case study method, the qualitative

method used began with a web-based survey to 25 institutions followed by open-ended questions conducted via process interviews of key campus administrators at two of the institutions to gather information about campus policy on access to, and use of, available support systems designed for students with ASD. Descriptive secondary data was also documented to measure the impact of each campus' program. Therefore, this investigation involved a case study approach to the collection and analysis of data of two research universities. Using the triangulation design to support this method, the research was thoroughly conducted through two instruments, surveys and process interviews.

Chapter Four described the findings of the research in detail. This chapter, Chapter Five, continues with the conclusions and a discussion of the evidence and the review of the literature. This chapter also includes the researcher's interpretations and recommendations for further research in this area. Finally, this chapter concludes with the researcher's personal interest in this topic.

Conclusions and Discussion

Conclusion #1: The legal mandates in higher education are followed but are open to interpretation by the individual schools' DSS office staff and leaders.

As noted in the literature review, Simon (2000) stated that although the legal documentation is required for a student in higher education, the individual school determines the specific documentation that is required. The higher education institutions dictate the level of support that is given to the student and can impact the students' success.

If the student is not proactive in their transition from high school to higher education, the student is at a disadvantage. As noted in chapter 4, parental involvement is a big part of the proactive transition. The student interviewed stated, "I'm not sure about

others but mine was actually okay because my parents put me through a lot of transition programs.”

HEOA provided grants to several colleges to expand or create programs to include students with disabilities (VanBergeijk & Cavanaugh, 2012). While this act was developed to determine what works and what doesn't work for these students, it does not address the imminent need for services or the lack thereof. It also does not address the specific needs such as more preemptive measures on the part of the service providers at the DSS offices. As noted in Chapter Four, the typical response from interviewees was, “They come to our office. They submit documentation and a request form. That request form gives a good idea of what they're exactly requesting.” The DSS providers need to take the initiative and reach out to students, not wait for them to approach the DSS office.

Conclusion #2: The DSS staff and leaders make many assumptions about how visible their offices are to new students, where they are located on campus, and what services they offer.

The staff members assumed that if they put the information on the website, then everyone would automatically know where it was. They also assumed that students could easily find the office, but when the one student was interviewed, they had trouble finding it. When the researcher traveled to Penn State, she had trouble finding their office.

Another assumption made by the DSS Office staff and leader was the students' knowledge of assistive technology. As noted in chapter two, personal devices are fast becoming the ideal technology for learning disabled students. The staff members assumed that the students were aware of the technology was available to them and that they knew how to get help with the devices or applications.

As noted in Chapter Four, there were several responses regarding the services provided to students, however, it was all assumed that the students would know that the services even existed. In figure 8, it was pictured that accommodations were the highest provided service while weekly support and academic coaching were at the lower end. This shows that these offices are providing the required services, but any extra services are only offered when there is time or as a bonus offering.

DSS offices are not necessarily using in-house faculty who specialize in special education for assistance. DSS offices are trying to educate faculty about students with ASD and learning disabilities and how better to assist them, but they are not using the experienced faculty to assist the DSS. It was mentioned during the interviews that the staff and leaders tend to get backed up with appointments and that more staff would be make more people available for students more often. However, none of the in-house faculty members were consulted to assist the DSS offices in any way. The external collaboration that was mentioned was with other offices on campus such as counseling or housing, but faculty members were never mentioned.

Conclusion #3: The leaders and staff of DSS offices need to exercise stronger leadership and advocacy skills to meet the growing demand for their services and to bridge the transition for students going from high school to higher education.

Leaders are in a push-pull environment. They are restricted by their budgets and legal requirements but are required to provide the best services and accommodations possible to all students that enter the DSS. As noted in Chapter Two, the transition from high school to college can be difficult and the resources currently available are not well publicized. The leaders in the DSS offices mentioned that they attend events at local high schools to assist with the transition from high school to college. This is a good start, but

it is not enough to just announce the resources of the DSS that are available at a few meetings. As noted in Chapter Two, Graham-Smith and Lafayette's study (2004) indicated that soft skills on the part of the advisor were just as important as the accommodations being provided. Leaders are attempting to provide the services they feel are needed to the students that are asking for services, but the increase in students with disabilities entering higher education is starting to limit the time and effort that can be dedicated to each student. As noted in Chapter Four, interviewees from both institutions mentioned that they have to allot a maximum of 30 minutes to each student in order to accommodate all of them.

The staff in each of the interviews from one school gave the impression that they felt their direct supervisor was doing all that they could for the students with the resources available. One interviewee mentioned what a "great job" their director was doing in outreach to the campus community. The other school's staff made no mention of the impact that their supervisor was making. While the leaders are doing the best they can, more resources are needed in this area to better serve this population of students. As noted in Chapter Four, 57% of respondents to the survey stated that they share the role of decision maker, designer and/or implementer of needed support services. These staff members are spread too thin and, with the increase in this student population, this will only get worse.

Future Research

While research within ASD is exponentially increasing with every passing day, the following future research within the context of this study needs to be completed:

- More research on the transition from high school to college. A more in-depth study of the high school counselors' perceptions, in both private and public schools, about the transition to college for students with ASD and other disabilities needs to be conducted.
- More research on the success of students with ASD in higher education with and without technology. A study of the students' success in relation to the technology that is provided to them through the DSS offices needs to be conducted. It would need to be determined if they are abandoning the technology and what their success is with and without the supports given to them.
- More research on the stigma surrounding the DSS office. Students' perceptions of the DSS office when they enter college are typically not favorable. More research would need to be done to find out what exactly perceptions are and what changes would need to be made to help more students to self-identify for accommodations.

Personal Interest

My personal interest in students with ASD began with my stepson who is now 18 years old. I met Stephen when he was 2 ½ years old and the first thing he did was walk up to me and hit me. He waited for a negative response from me and was surprised when I did not respond that way. His father received primary custody when he was 4 years old and we were married when he was 5 years old. His mother has been mostly absent during all of these years and I have enthusiastically taken on the role of Mom. When he was small, he would say I was his “Amy” as if it was typical to have a mom, a dad and an “Amy”. We have been to countless doctors, therapists and counselors and our home has

been a continuous revolving door of people who could help Stephen. Most of the journey has been blindly navigated. We were young parents and ASD really was not that well-known 15 years ago. Personal research was the only avenue to find resources for Stephen. We have three other children together, but as far as I'm concerned, when anyone asks, I have four kids.

A few years ago, it occurred to my husband and me that we had no idea what would happen when he turned 18. It was, as most parents of children with ASD will say, like falling off a cliff. So much research has been done for young children with ASD, but what happens to them when they grow up? And they are, indeed, growing up. While many resources are available for people with disabilities such as SSI and Medicaid, we wanted Stephen to be a part of society, not dependent on it. This is what led me to conduct research in autism in higher education.

Stephen is 18 now. He recently graduated high school and is attending a vocational program for Heating, Ventilation and Air Conditioning which he thoroughly enjoys. When he completes that, we are hoping he will attend college for business or even engineering. He rides his bike everywhere he goes (he's not driving yet) and, if one met him on the street, they would think he was an average, if not cheerful, teenager. Stephen is well on his way to becoming a successful, independent part of society. It has been a tremendous, tumultuous journey with Stephen, but I wouldn't trade a moment of it. I hope that I can make another parent's journey that much smoother through my research.

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Appendix A: Survey Questions for Staff

Note: Submission of your completed survey constitutes your informed consent to act as a participant in this research.

Thank you for agreeing to participate in this survey. The questions listed below relate to your experience and perception as an employee in the Disability Support Services Office in a Higher Education Institution.

Please answer all of the questions in this survey. Your participation is voluntary. This survey was designed to be completed in no more than 15 minutes. If you have any questions, please contact Constance Lyttle, PhD at constance.f.lyttle@drexel.edu.

1. What is the title of your position at your institution?

2. How many years have you been in your current position?

- a. Less than 1 year
- b. 1-3 years
- c. 4-7 years
- d. 8 – 10 years
- e. 10+ years

3. How long have you been employed in higher education (including your current position)?

- a. Less than 1 year
- b. 1-3 years
- c. 4-7 years
- d. 8 – 10 years
- e. 10+ years

4. Please choose the statement that most closely describes your formal education in providing support for students on the autism spectrum.

- a. Master's degree or higher in Autism or Special Education
- b. Bachelor's degree in Autism or Special Education
- c. Master's degree or higher in another discipline
- d. Bachelor's degree or higher in another discipline
- e. Certification in Autism or Special Education
- f. No formal education

5. Please choose the statement that most closely describes your training in providing support for students on the autism spectrum.

- a. Attended 4 or more training sessions or seminars specifically on Autism
- b. Attended 3 or less training sessions or seminars specifically on Autism
- c. Attended training sessions or seminars on disabilities
- d. Didn't attend any training
- e. Other (Please specify)

6. Please choose the statement that most closely describes your role in supporting students with disabilities.
- a. I am the sole decision maker and designer/implementer of needed support services
 - b. I share the role of decision maker and designer and/or implementer of needed support services
 - c. I only have the role of decision maker of needed support services
 - d. I only have the role of designer and/or implementer of needed support services
 - e. I am not involved as either the decision maker, or designer and/or implementer of needed support services.
7. In your view, how well do you believe you understand autism spectrum disorders?
- a. I have a comprehensive understanding of this disorder
 - b. I understand the disorder, but need to do further research
 - c. I don't understand this disorder
8. Please choose the statement that most closely describes your institution's support of students on the autism spectrum.
- a. My institution has a separate office specifically for students with ASD
 - b. My institution does not have a separate office for students with ASD , but does have a specific position assigned to students with ASD

- c. My institution does not have a separate office or a separate position specifically assigned to students with ASD , but all advisors are adequately prepared to provide for students with ASD
- d. My institution does not have a separate office or a separate position specifically assigned to students with ASD , and no advisors are adequately prepared to provide for students with ASD

9. In your view, how does your institution adequately provide support services to students with ASD?

10. In your view, what is your interpretation of the legal requirements for your institution in providing support services to students with ASD? (please choose all that apply)

- a. My institution is required to provide academic support to students on the autism spectrum
- b. My institution is required to provide social interaction support to students on the autism spectrum
- c. My institution is required to provide extra-curricular activities to students on the autism spectrum
- d. My institution is required to provide residential life support to students on the autism spectrum

11. How much support is given to students on the autism spectrum by your institution?

- a. Each detail in their entire college experience is handled by our office.
(example – students either have a one-on-one advisor who assists the student on scheduling, organization, etc. or the student checks in every day for a summary session)
- b. Each detail in their entire college experience is handled by several offices.
- c. Students are given required accommodations and some assistance in organization and other tasks.
- d. Students are given required accommodations only

12. What accommodations or supports are provided to students on the autism spectrum at your institution?

13. What technological support is provided to students with ASD at your institution?

14. In your view, how many freshman students in the previous year (2012) self-identified that they are on the autism spectrum?

- a. None
- b. 1 - 20
- c. 21 – 40

- d. 41 – 60
- e. 60 or more

15. In your view, how many additional students on campus may be on the autism spectrum that have not self-identified to the Disability Services Office?

- a. None
- b. 1 - 20
- c. 21 – 40
- d. 41 – 60
- e. 60 or more

16. What has led you to this view? (examples – incident reports, referrals, etc.)

17. In your view, how often are students on the autism spectrum seen in your office for support services?

- a. once per day
- b. once per week
- c. once per month
- d. once per month
- e. other

18. What is discussed when meeting with these students?

19. What is the FTE (Full Time Equivalent) of staff members within Disability Support Services Office (or other department) specifically working with students on the autism spectrum?

- a. There isn't a specific office for students with disabilities
- b. 1-2 staff
- c. 3-5 staff
- d. 6-10 staff
- e. 10+ staff

20. Currently, how many students does your office support on the autism spectrum?

- a. None
- b. 1 - 20
- c. 21 – 40
- d. 41 – 60

21. Are any accommodations and/or supports provided to students on the autism spectrum for a fee?

- a. yes
- b. no
- c. not sure

22. If yes, which accommodations?

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23. How many incoming freshman students will be enrolled at your institution in the fall of 2013?

- a. Less than 1000
- b. 1001 – 1500
- c. 1501 – 2000
- d. 2001 – 2500
- e. 2501 +

24. If there are any additional comments you would like to provide, please do so below:

Appendix B: Interview Questions for DSS Office Staff

1. Where on campus is the DSS office located and is it easy to find?
2. How difficult is it for students to locate the DSS office on campus?
3. What common practices are used when supporting a student with ASD? (What are typical supports given, etc.)
4. What is the title given to the person who manages the DSS office?
5. Describe the ways the DSS office provides access to your services.
6. How would you improve your services and what improvements did you make in the past year?
7. In what ways has your office supported students successfully? What has worked well and how could you improve?
8. How does the DSS office support the transition from high school to higher education?

Appendix C: Interview Questions for Students

1. Where on campus is the DSS office located?
2. How difficult is it for students to locate the DSS office on campus?
3. What is a service you have used from the DSS office? Please describe an example and your experience.
4. Were any assistive technologies offered to you? If so, please describe. Have you continued to use these technologies?
5. What would you change in the way the service was provided by the DSS office?
6. What experiences from the DSS office were most helpful to you?
7. How would you describe your transition from high school to higher education?

Appendix D: Survey Permission Letter

To Whom It May Concern:

I am writing to request permission to collect information for a research study at your institution. I am a faculty member in School of Education at Drexel University in Philadelphia, PA. The information will be collected by doctoral candidate, Amy Edwards. The study is entitled “Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services.”

I am requesting your assistance in finding participants for this study at your institution. I hope that you will allow the surveying and interviewing of leaders, staff, faculty and students in the Disability Support Services Office. Interested participants, who volunteer to participate, will be given a consent form and will return it at the beginning of the survey process.

If approval is granted, participants will complete a web-based survey. The survey process should take no longer than 20 minutes. The survey results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No costs will be incurred by either your institution or the individual participants.

Your approval to conduct this study will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please contact me by phone or email. Or, if you would rather, please submit a signed letter of permission on your institution's letterhead acknowledging your consent and permission for this study to be conducted at your institution.

Sincerely,

Constance Lyttle, PhD

Principal Investigator

215-895-3795

Constance.f.lyttle@drexel.edu

Appendix E: Survey and Interview Permission Letter

To Whom It May Concern:

I am writing to request permission to collect information for a research study at your institution. I am a faculty member in School of Education at Drexel University in Philadelphia, PA. The information will be collected by doctoral candidate, Amy Edwards. The study is entitled “Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services.”

I am requesting your assistance in finding participants for this study at your institution. I hope that you will allow the surveying and interviewing of leaders, staff, faculty and students in the Disability Support Services Office. Interested participants, who volunteer to participate, will be given a consent form and will return it at the beginning of the survey process.

If approval is granted, participants will complete a web-based survey. The survey process should take no longer than 20 minutes. Once the surveys are completed, face-to-face interviews will be conducted on campus and will take no longer than one hour. The survey and interview results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No costs will be incurred by either your institution or the individual participants.

Your approval to conduct this study will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please contact me by phone or email. Or, if you would rather, please submit a signed letter of permission on your institution's letterhead acknowledging your consent and permission for this study to be conducted at your institution.

Sincerely,

Constance Lyttle, PhD

Principal Investigator

215-895-3795

Constance.f.lyttle@drexel.edu

Appendix F: Email to Participants

Dear Potential Survey Participant:

I am a doctoral candidate in the School of Education at Drexel University in Philadelphia, PA and my research study is “Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services.” I am writing to request your volunteer participation in my study by completing a short survey.

The survey is web based and the process should take no longer than 20 minutes. The survey results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No financial costs will be incurred by you or your institution.

Your agreement to complete the survey will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please simply click on the link below and complete the survey at your earliest convenience, preferably on or before September 30th, 2013.

(Insert Link)

Sincerely,

Amy D. Edwards, M.S.

Doctoral Candidate

215-895-0946

amy.d.edwards@drexel.edu

Appendix G: Email to Interview Participants

Dear Potential Participant:

I am a doctoral candidate in the School of Education at Drexel University in Philadelphia, PA and my research study is “Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services.” I am writing to request your volunteer participation in my study by taking part in a personal interview.

The interview process should take no longer than one hour. The interview results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No financial costs will be incurred by you or your institution.

Your agreement to take part in the interview will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please simply respond to this email, preferably on or before September 30th, 2013, that you would be willing to participate.

Sincerely,

Amy D. Edwards, M.S.

Doctoral Candidate

215-895-0946

amy.d.edwards@drexel.edu

Appendix H: Second Email to Survey Participants

Hello,

Thank you to those who have replied to my previous request and thank you to those who are in consideration of my request to be a part of this important research study. Please forward the email below to all faculty and staff in your office to complete the survey which is available via the link at the bottom of this email.

I sincerely appreciate you and your staff's participation.

Kindest Regards,

Amy

Dear Potential Survey Participant:

I am a doctoral candidate in the School of Education at Drexel University in Philadelphia, PA and I am conducting a research study entitled "Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services." I am writing to request your volunteer participation in my study by completing a short survey.

The survey is web based and the process should take no longer than 20 minutes. The survey results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No financial costs will be incurred by you or your institution.

Your agreement to complete the survey will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please simply click on the link below and complete the survey at your earliest convenience, preferably on or before January 15th, 2014.

Link to survey:

Sincerely,

Amy D. Edwards, M.S.

Doctoral Candidate

215-895-0946

amy.d.edwards@drexel.edu

Appendix I: Email to Student Interview Participants

Dear Potential Participant:

I am a doctoral candidate in the School of Education at Drexel University in Philadelphia, PA and my research study is “Serving the Needs of Students on the Autism Spectrum in Higher Education: A Study of Leadership and Support Services.” I am writing to request your volunteer participation in my study by taking part in a personal interview.

The interview process should take no longer than one hour. You will be offered a \$5 gift card to a bookstore in appreciation of your participation. The interview results will be collected for the project and individual results of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No financial costs will be incurred by you or your institution.

Your agreement to take part in the interview will be greatly appreciated. I would be happy to answer any questions or concerns that you may have.

If you agree, please simply respond to this email, preferably on or before January 15th, 2014, that you would be willing to participate.

Sincerely,

Amy D. Edwards, M.S.

Doctoral Candidate

215-895-0946

amy.d.edwards@drexel.edu

