

SUPPORTING STUDENTS WITH AUTISM SPECTRUM DISORDER IN POST-
SECONDARY EDUCATION SETTINGS: COMMON BARRIERS
AND NEEDED ACCOMMODATIONS AND SUPPORTS

by

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ABSTRACT

Supporting Students with Autism Spectrum Disorder in Post-Secondary Education

Settings: Common Barriers and Needed Accommodations and Supports

by

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Utah State University, 2018

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One in 68 people are diagnosed with autism spectrum disorder (ASD). With this increased population of people with ASD, there is also increased attendance of students on the spectrum who are enrolling and attending post-secondary education (PSE). Although there is greater attendance in PSE settings, the graduation rate of this population is below the standard average. In an effort to take a step toward addressing this concern, the current study began the exploratory process of identifying whether services provided by campus disability resources centers (DRC) align with the best practices that enhance the success of students with ASD.

The current study began with the development of a survey instrument using a three-round Delphi survey with expert panels consisting of disability service professionals. The final instrument identified 34 barriers to providing academic accommodation, 47 systemic barriers, and 37 individual barriers students with ASD

experience in PSE settings. Additionally, DRC counselors identified 45 supports and services that would help address the identified barriers. Of the items identified, the expert panel was provided opportunity to compare their scores with the group mean score with the opportunity to change their score to match the group mean. From these results the interquartile range was calculated to identify items that achieve consensus. The items which demonstrated a strong consensus ($IQR < 1.5$) were identified as significant. Results of the study were discussed in the context of the literature related to identifiable barriers that prevent success in PSE settings as well as supports and services that can best benefit student with ASD. Additionally, implications, limitations, and recommendations for future research were discussed.

(124 pages)

ABSTRACT

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Students with Autism Spectrum Disorder (ASD) are enrolling in colleges and universities at an increasing rate. Although there is greater attendance in PSE settings, the graduation rate of this population is below the standard average. Improved services to help these students achieve their college and university goals are needed. Disability service professionals provide services to these students, yet oftentimes are not prepared to do so. In an effort to take a step toward addressing this concern, the current study began the exploratory process of identifying whether services provided by campus disability resources centers (DRC) align with the best practices that enhance the success of students with ASD.

The current study began by asking an expert panel consisting of disability service professionals to develop and agreed upon a list of (a) barriers in providing academic accommodation (b) individual and systemic barriers faced by the student, and (c) supports that can help reduce these barriers. The final instrument identified 34 barriers to providing academic accommodation, 47 systemic barriers, and 37 individual barriers students with ASD experience in PSE settings. Additionally, DRC counselors identified

45 supports and services that would help address the identified barriers. Results of the study were discussed in the context of the literature related to identifiable barriers that prevent success in PSE settings as well as supports and services that can best benefit student with ASD. Additionally, implications, limitations, and recommendations for future research were discussed.

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CHAPTER I

INTRODUCTION

Importance of the Problem

The most recent estimates from the Centers for Disease Control and Prevention (CDC, 2013) are that 1 in 68 children in the U.S. is diagnosed with an Autism Spectrum Disorder (ASD). Currently, children and young adults with ASD are the sixth largest disability group in k-12 education (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012). The literature, however, continues to largely focus on children with ASD, with minimal attention focused on adults with ASD and their unique needs as they explore furthering an education. For example, only one third of the ASD population are diagnosed with an intellectual disability, leaving approximately 66% of the population who may be intellectually capable of enrolling in higher educational settings to obtain advanced degrees (CDC, 2014; “What is Autism,” 2017). Despite having the intellectual capacity, young adults with ASD are less likely to enroll in postsecondary education (2-year or 4-year) than are peers with other types of disabilities, such as speech/language impairments or other specific learning disabilities (Wei, Yu, Shattuck, McCracken, & Blackorby, 2013). It is estimated that 43% of young adults with ASD do enroll in colleges or universities post high school graduation. However, due to a lack of guidance through research-based best practice, institutions of post-secondary education (PSE) are unprepared to accommodate and/or support the rising number and unique needs of students with ASD, resulting in poor quality of life, low graduation rates, and diminished employment outcomes (Camarena & Sarigiani, 2009; Chiang et al., 2012; Glennon, 2001;

VanBergeijk, Klin, & Volkmar, 2008). Finally, approximately 59% of students without disabilities who enroll in 4-year colleges ultimately graduate with a Bachelor's degree (National Center for Education Statistics, 2014), where only about 39% of individuals with ASD graduate from a Bachelor's granting institution (Newman et al., 2011).

Ultimately, in spite of efforts to provide current accommodations and additional services, there continues to be a large number of people with ASD who are unsuccessful in postsecondary education.

The characteristics of post-secondary students with ASD can be diverse and paradoxical. They may possess significant strengths such as a strong memory, original and creative thought patterns with good attention to detail, and a single minded and determined nature, coupled with intense narrow interests (Drake, 2014; Gobbo & Shmulsky, 2012). However, co-occurring atypical communication and social behaviors, and aversion to change and restricted interests (American Psychiatric Association [APA], 2013) may negatively offset these strengths in higher ed settings. Compounding the challenges facing unprepared colleges and universities are that students with ASD are at an increased risk of co-morbid conditions such as anxiety, and depression, and due to poor insight and awareness, often refuse or do not seek help and assistance (Adreon & Durocher, 2007; Glennon, 2001; Hughes, 2009; VanBergeijk et al. 2008). Cage, Di Monaco, and Newell (2017) found that mental health issues such as anxiety and depression are more common among people with autism than the general public and is on the rise and impacting 40-45% of children and adolescents with ASD. Core ASD symptoms (e.g., social and communication impairment) and daily living skills tend to

plateau, or sometimes worsen, after adolescence (Smith, Maenner, & Seltzer, 2012; Taylor & Seltzer, 2012). Thus, intervening during this period may be especially beneficial with respect to longer term outcomes. Traditional talk therapy approaches are often ineffective or insufficient due to the inherent social deficits present in individuals with ASD (Ramsay et al., 2005). In response to these challenges, college and universities must be proactive in identifying new and innovative solutions for students with ASD that are affordable, sustainable, and effective.

Disability professionals working in college and university Disability Resource Centers (DRC) are the frontline service providers for students with ASD, and as a result may have a unique insight into the needs of this population. Students with ASD are eligible to receive accommodations and services at all public postsecondary institutions. Sections 504 and 508 of the Rehabilitation Act of 1973 mandate that students with disabilities have equal access to education in postsecondary schools and access to electronic and information technology respectively. Further, the U.S. Department of Health and Human services reports that the purpose of Section 504 is to “require agencies to provide individuals with disabilities an equal opportunity to participate in their programs and benefit from their services...” (U.S. Department of Health and Human Services, 2018). However, these mandates do not define or delineate “equal opportunity.” Thus, the type and extent of services offered to provide students with disabilities an “equal opportunity” vary dramatically across institutions. Variation of breadth and depth of accommodations and supports vary to the extent that institutions of higher learning expand their services from the accommodations dictated by federal law.

To be in compliance with federal laws basic accommodations must be provided to allow the student with a disability to access the opportunity to learn. Accommodation in PSE settings, under federal law, need to prevent discrimination of a student from accessing opportunities to participate. However, laws such as the ADA, the Rehabilitation Act of 1973, Sections 504 and 508, focus on providing the opportunity to access the service, there is no law that focuses on providing necessary accommodation to increase outcomes such as completion of PSE. As previously identified, the current academic accommodations being provided in PSE settings are not producing this outcome. It is this gap of accommodations and supports that need to be identified and addressed to explore best practices beyond the laws that will help students with ASD achieve the goals of PSE completion. A more in-depth description of current accommodations will be discussed in Chapter II.

This study investigates the most current accommodations provided by DRC's, identifies barriers students with ASD experience while navigating their post-secondary education, and identifies additional services that may help mitigate these barriers. A Delphi study will be implemented to access the expertise and insight of university disability specialists. The Delphi method is designed to systematically gather informed opinions and perceptions from a panel of experts on a particular topic (Fleming, Boeltzig-Brown, & Foley, 2015, Vázquez-Ramos, Leahy, & Hernández, 2007). In the current study, DRC counselors are the frontline service providers for PSE students with PAS, and are considered experts on this topic of focus. During the first round of a Delphi survey, participants are asked to respond to a few open-ended questions, producing qualitative

data. The researcher then takes this qualitative data and develops items for participants to rank on a Likert-type rating scale in rounds two and three to establish a quantitative basis for meeting a predetermined level of consensus among the participants (Vázquez-Ramos et al., 2007). The use of the Delphi survey method is intentional, and designed to add to the methodological diversity of the literature in this area. None of the research discussed by Gelbar, Smith, and Reichow (2014), referenced the use of the Delphi survey method to gather information from primary stakeholders like DRC counselors. A detailed description of the Delphi method, including the benefits and limitations of using such a method in the context of the current study is provided in Chapter III.

Purpose Statement and Research Questions

The purpose of this study was to begin the exploratory process of identifying, from a DRC staff's perspective, the academic accommodations and additional supports students with ASD require to be successful in postsecondary education settings. This included exploring observed and reported barriers that prevent students with ASD from fully engaging in their postsecondary education experience. This purpose will be achieved by using a three-round Delphi survey, administered to a sample of disability service professionals in DRC settings who work with students with ASD, to answer the following research questions.

RQ1: From a disability service professional perspective, what are the most common barriers that prevent students with autism spectrum disorder from completing post-secondary education?

RQ2: From a disability service professional perspective, what are the most beneficial supports to help students with autism spectrum disorder complete post-

secondary education?

Definition of Key Terms

Accommodations: Adjustments to classroom, curriculum, or institution policies and procedures to address inaccessibility posed by disability limitations (Shaw & Dukes, 2005).

Association on Higher Education and Disability (AHEAD): The premier organization of disability service professionals who advocate for full participation of students with disabilities enrolled in colleges and universities (AHEAD, 2013).

Autism Spectrum Disorder (ASD): Autism, or autism spectrum disorder, refers to a range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication, as well as by unique strengths and differences. There is not one autism but many types, caused by different combinations of genetic and environmental influences. The term “spectrum” reflects the wide variation in challenges and strengths possessed by each person with autism. (Autism Speaks, 2013).

Delphi survey: A systematic consensus-gaining process used to survey and collect the opinions of experts on a particular subject (Yousuf, 2007). For purposes of this study, a three-round Delphi survey will be used to determine needed accommodations and supports DRC counselors believe that students with ASD need to develop to be better prepared for the transition to PSE as well as current barriers prevention continued learning in a higher education setting.

Disability Resource Center: The Disability Resource Center (DRC) works in

partnership with students, faculty, staff, and guests of a University to eliminate or minimize barriers and facilitate inclusion on campus. The DRC collaborates with all members of the University community to improve access for people with disabilities in these ways:

1. determining and implementing reasonable academic, workplace, and guest accommodations;
2. providing education on access and inclusion;
3. partnering with University offices to ensure meaningful physical and technological access (diversity.umn.edu)

Disability service professional: The term disability service professional refers to the people who work in disability service offices at postsecondary education institutions. This broad term refers to advisors, counselors, and administrators of disability service offices (AHEAD, 2010).

Environmental barriers: Environmental barriers are barriers within the individual's environment, both social and physical, that can cause, or exaggerate disability (Smart, 2016).

Executive functioning barriers: Executive functioning barriers occur when a set of processes that all have to do with managing oneself and one's resources, in order to achieve a goal, are disrupted. It is an umbrella term for the neurologically-based skills involving mental control and self-regulation. (Toor et al., 2016).

Mental health barriers: A disorder or syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant

distress in social, occupational, or other important activities. (APA, 2013)

Postsecondary education: Postsecondary education (PSE) is a formal educational experience after high school that is often in the form of a two-year college, four-year university, or vocational/technical education (Shaw, 2009).

Sociopolitical barriers: Sociopolitical barriers are societal concepts, norms, attitudes, and schemas that limit a person's ability. Within the sociopolitical model, it is the societal approach that causes the functional limitation, rather than the individual (Smart, 2016).

Support: Support systems include family and community supports to mainstream services, resulting in enhanced functionality, independence, and the overall quality of life of the person with a disability (InclusionBC, (2018).

Summary

This chapter provided a brief statement of the problem on which this study is focused describing efforts of providing current accommodation and additional services to students with ASD, and how there continues to be a large number of people being unsuccessful in postsecondary education. The chapter also provides context for the problem, the purpose and research questions, and definitions of important terms. Chapter II provides a review of relevant literature, including an overview of ASD, considerations related to students with ASD in postsecondary education, and factors related to disability service professionals. Chapter III describes the methodology used in this study, including a three-round Delphi survey.

CHAPTER II

LITERATURE REVIEW

Identified Barriers in Postsecondary Education

The extant literature has revealed that for some students with ASD, post-secondary education was a positive experience that provided an opportunity to study in an area of intense interest and to meet likeminded colleagues; and that also led to employment (Drake, 2014). It also revealed that many students with ASD struggle with asking questions, participating in group work, performing presentations, and understanding abstract or ambiguous concepts (e.g., Gobbo & Shmulsky, 2012; Knott & Taylor, 2014). In addition, some have been bullied (e.g., Connor, 2012), experienced difficulty with daily living skills (e.g., Simmeborn Fleischer, 2012), or suffered severe mental health issues that caused them to withdraw or to reduce their enrolment (e.g., Knott & Taylor, 2014). Thus, a diverse range of issues face students with ASD in post-secondary settings. More exploration and research is needed to better understand the breadth of these key issues and their impact on the student educational experience.

Post-secondary education graduates with ASD have substantially better long-term income and employment prospects, compared to non-graduates with ASD (Hendrickson, Carson, Woods-Groves, Mendenhall, & Scheidecker, 2013), and many countries have legal obligations to assist post-secondary students with ASD (e.g., s 22 of the Disability Discrimination Act, 1992 [Cth; Australia]; s. 42 U.S.C. 12101 et seq of the *Americans with Disabilities Act* [ADA; 2008]). The graduation rate from any post-secondary

institution in the U.S. (including 2-year community college, vocational, business or technical school, or 4-year college) was found by the National Longitudinal Transition Study-2 to be only 39% for students with ASD, compared with 52% for the general population and 41% for all students with disabilities (Newman et al., 2011). While graduation rates for students with ASD remain low, providing support has been found to significantly improve graduation rates (White et al., 2011).

The possibility of creating inclusive environments in secondary education has been demonstrated in research (Blamires & Gee, 2002), but there is limited research into the post-secondary educational experiences and needs of students with ASD. Indeed, only 6% of the extant literature on ASD examined participants older than 19 years (Jang et al., 2014), and research from the post-secondary student perspective is particularly scant (Gelbar, Shefcyk, & Reichow, 2015; Hastwell, Martin, Baron-Cohen, & Harding, 2012). Thus, there is limited research guidance for academics and disability support personnel in post-secondary settings to inform best practice when providing support for students with ASD. Anderson, Stephenson and Carter (2017) completed an extensive systematic review which explored the literature to identify common barriers for students with ASD in PSE settings. Every study reviewed was qualitative in nature and data was collected from the students, professors, and/or parents. There were no studies that collected data from disability service professionals or from DRC facilities.

Upon reviewing the literature, there was a reoccurrence of common barriers. For the purpose of this study, these barriers were categorized into four common themes in relation to obstacles and needs for students with ASD in PSE. The qualitative and

quantitative literature described sociopolitical barriers, executive functioning barriers, mental health barriers and environmental barriers affecting the success of students in PSE settings. The findings highlighted the diversity inherent in the way that students with ASD transition to, and access PSE and how this diversity reflects the heterogeneous nature of ASD. Further, there was evidence that the characteristics of ASD cannot be generalized, supporting the arguments that accommodations and supports need to be individualized with collaborations of other support systems.

Theme 1: Sociopolitical Barriers

A key area highlighted in this theme was the importance of working responsively and sensitively with diverse populations (Madriaga & Goodley, 2010). With this focus on students with ASD, there is a recognition of the divergent ways in which their different impairments are constructed, and how they respond to educational environments. In this sense, then, it must be recognized that specific impairments have particular sociopolitical and epistemological foundations (Goodley, 2001). Currently, these sociopolitical foundations lack the knowledge, awareness, and tools to meet the needs of PSE students with ASD. Highly critical barriers described in the literature for students with ASD in PSE included accessibility to support systems within the socio-political foundation, lack of one-to-one involvement, characteristics, knowledge and skills of PSE professionals, and the lack of a collaborative approaches.

Examples of facilitative one-to-one support services found in this review included mentoring (Gobbo & Shmulsky, 2014; Madriaga, 2010), psychological support (Simmerborn-Fleischer, 2012; Van Hees, Moyson, & Roeyers, 2015), and counseling and

coaching (Gobbo et al., 2014; Van Hess et al., 2015). Accessibility to such supports echoes the common priorities of young people more broadly (Gibson, Cartwright, Kerrisk, Campbell, & Seymour, 2015). Such services have the potential to empower students to make choices about the way they experience PSE, and to have more control over their future. By accessing one-to-one supports a student is able to develop skills and be referred for additional supports which are needed and are catered to the specific need. It is these types of supports that are lacking to help students with ASD in PSE. It is not uncommon for students with ASD to have a mentor, or counselor to provide supports in high school or other secondary education programs (Van Hees et al., 2015; Madriaga, 2010), but these same one-to-one services are not readily available as the student enters PSE. This loss of an effective and long term educational support can make it more difficult to navigate the academic and social nuances as the student enters PSE settings.

Students with ASD have also identified qualities of professionals that they perceived to facilitate their educational experience. Relational qualities such as adopting a non-judgmental approach (Knott & Taylor, 2014), alongside having experience, knowledge and understanding of ASD (Knott & Taylor, 2014; Mitchell & Beresford, 2014; Simmerborn-Fleischer, 2012; Van Hees et al., 2015), and being reliable during the transition period (Mitchell & Beresford, 2014) were perceived as beneficial when offered, and detrimental when not in place. Additional traits that were identified as hindering included a lack of insight about ASD among lecturers (Van Hess et al., 2015), and a lack of interest in what the students need (Madriaga et al., 2010). As noted above, taking into account the student's perceptions are of great importance and a critical

component that is rarely being provided as students enter PSE. Placing the voice of the student with ASD at the heart of the educational process is lacking. The students do not have a forum or voice to help ensure that they are able to actively offer their individual opinions and suggestions, thereby positively shaping their educational experience (Barnhill, 2014).

In elementary and secondary education settings, professionals are commonly provided to serve as advocates and mentors for students, but these supports were identified as lacking for the students in PSE (Morrison, Sansosti, & Hadley, 2009). Factors relating to faculty/staff awareness of autism, its definition and treatment options are lacking (Gobbo & Shmulsky, 2014; Simmeborn Fleischer, 2011) which may be a potential issue to the limited advocacy and mentorship being provided. Due to the lack of education of faculty/staff, educator acknowledgement of the diversity of ASD (Ashby & Causton-Theoharis, 2012; Madriaga, 2010; Taylor, 2005) prevents them from making accommodations that are student specific. Students report a lack of inclusion in how a class can be adapted (Macleod, Lewis, & Robertson, 2013), and that faculty/staff listening to student's experiences about what is useful for them (Van Hess et al., 2015) is rarely occurring.

Another sociopolitical barrier identified in the literature includes challenges with social connectedness, social isolation, and social skills. Some students reported having social interactions (Madriaga, 2010; Madriaga & Goodley, 2010; Simmeborn-Fleischer, 2011; Van Hess et al., 2015) and engaging in their social environments (Gobbo et al., 2014; Madriaga, 2010;), and perceived this to facilitate their sense of social

connectedness. In contrast, other students reported difficulties gaining these connections, and experiencing loneliness (Ashby & Causton-Theoharis, 2012; Gobbo et al., 2014; Madriaga, 2010, Madriaga & Goodley, 2010; Van Hess et al., 2015). Due to difficulties with expressive and receptive language as well as social skills, working in groups was challenging for some students with ASD (Madriaga & Goodley 2010; Morrison, Sansosti, & Hadley, 2009). One study (Madriaga, 2010) highlighted a need for more inclusive and accessible spaces to increase student's opportunities to engage socially in university life. Despite the difficulties students with ASD experienced establishing social connection, the researcher identified the need among the students with ASD to have a sense of belonging (Ashby & Causton-Theoharis, 2012; Simmeborn Fleischer, 2011), social interaction (Ashby & Causton-Theoharis, 2012; Gobbo et al., 2014; Madriaga, 2010; Madriaga & Goodley., 2010; Simmeborn-Fleischer, 2011; Van Hess et al., 2015), and support with managing social skills (Ashby et al., 2012). These findings highlight the need for interventions to promote social opportunities (Orsmond, Shattuck, Cooper, Sterzing, & Anderson, 2013), whereby students with ASD can develop their social skills and establish friendships.

One approach that has been identified as a possible strategy to address the social connectedness of students with ASD has been peer education. As students with ASD are often subjected to bullying (Simmeborn Fleischer, 2011, 2012), a common assumption is that there is a lack of educating peers about ASD and to promote awareness, acceptance, understanding, and empathy (Gardiner & Iarocci, 2013). This in turn might facilitate the social integration of students with ASD. Although providing basic facts that increase

knowledge about ASD may convey a basic understanding to the student's peer group, it may not be enough (Gardiner & Iarocci, 2013). Research suggests that knowledge gained by peers through experiential learning (i.e. direct contact) has better potential for increasing their acceptance of students with ASD (Mahoney, 2008). This is challenging as these preliminary social opportunities are lacking. Accessing the unique and important role of social contact in PSE (Gardiner & Iarocci, 2013) remains an ongoing and complicated struggle. Not only is there little education of ASD to peer groups, but the nature of autism limits many students with ASD from seeking out and engaging in activities with their peers.

Further findings related to this theme highlight mixed experiences related to the disclosure of ASD diagnosis to peers and professionals. While disclosure contributed to gaining support for some students (Gobbo & Shmulsky, 2014; Macleod, Lewis, & Robertson, 2013; Van Hess et al., 2015), others reported that it led to stigma (Van Hess et al., 2015; Macleod et al., 2013; Simmeborn Fleischer, 2011). Many students decided to not disclose as they regarded their diagnosis as stigmatizing (Simmeborn Fleischer, 2011), while others were concerned about maintaining their privacy (Van Hees et al., 2015). Some students reported that disclosing their diagnosis did not have a positive impact on their ability to complete their university studies (Simmeborn Fleischer, 2011) because the accommodations provided were ineffective, did not include individualized supports that would be specialized for the student's specific needs, or that the student was stigmatized and discriminated against by peers and/or faculty. The uncertain outcomes of disclosure may increase the social isolation of students with ASD.

Although helping students develop social connectedness in the PSE setting is a common theme, there is a dearth of supports being provided that help develop this skill. Preliminary research shows that interventions such as role play (Wehman et al, 2014), behavior supports training, and video modeling help with developing the social skills of individuals with ASD, but these interventions are generally not available in PSE settings to students. There is minimal research showing the effectiveness of interventions to improve social interactions for adults with ASD, and the literature on these interventions being provided in PSE is almost nonexistent. Although current research recommends a need to provide assistance with social skill development (MacLeod & Green, 2009; Madriaga, 2010; Morrison et al. 2009), the literature does not report that these supports are currently available.

Theme 2: Executive Functioning Barriers

Executive functioning challenges, such as difficulties with time management (Gobbo & Shmulsky., 2014; Simmeborn Fleischer, 2011; Taylor, 2005; Van Hess et al., 2015), planning and developing structure (Gobbo et al., 2014; Simmeborn Fleischer, 2011, 2012; Taylor, 2005; Van Hess et al., 2015) were commonly identified in the literature as barriers to the success of students with ASD. The students reported experiencing difficulties in everyday student life which included not remembering to eat, lacking initiative to wash clothes (despite having the physical ability to do so), not cleaning, and remembering to attend appointments (Gobbo et al., 2014; Simmerborn Fleischer, 2012; Van Hees et al., 2015). Receiving support from family members, however, facilitated daily living for the students. Attending to preparation was also

perceived to be of importance. Not obtaining as much information as possible in advance for both general and specific events (Ashby et al., 2012; Mitchell & Beresford, 2014; Simmeborn Fleischer, 2011) restricted opportunities for students to experience academic and social life on campus. These findings highlight the value of supports to assist students with ASD to overcome the challenges that may well affect their success in further and PSE settings (Barnhill, 2014; Brown & Wolf, 2014).

Additional executive functioning barriers individuals with ASD face are self-advocacy and self-awareness. The findings further identified limited self-advocacy skills (Macleod et al., 2013; Morrison et al., 2009; Simmeborn Fleischer, 2011, 2012; Van Hess et al., 2015) as a barrier in PSE settings. This includes self-advocating with PSE faculty and staff as well as among their peers. Closely related to the concept of self-advocacy, student self-awareness was also identified as a barrier (Macleod et al., 2013). Frequently, students with ASD are entering PSE with a limited ability to engage in self-awareness in relation to their self-advocacy rights (Test, Fowler, Wood, Brewer, & Eddy, 2005), as well as in relation to ASD in general. Research indicates that many students with ASD are unaware of elements of their disability that are causing difficulties and are unsure of accommodations needed to facilitate their success (Brinckerhoff, 1994; Cavanaugh & VanBergeijk, 2012). The lack of self-awareness related to self-advocacy, combined with the trend that students with ASD are less likely to disclose their disabilities (Cavanagh & VanBergeijk, 2012), results in a lower probability they will obtain any accommodations they need. These findings highlight the continued need for independent functioning and self-awareness supports on the part of the student in PSE settings. This however is not

occurring independently, and there appears to be a need for both families and professionals to support student independence in these settings.

Theme 3: Mental Health Barriers

Mental health barriers refer to the well-being of students with ASD in relation to the quality of their mental health, and coping strategies. As identified in other research (e.g. VanBergeijk et al., 2008), more than half of the studies highlighted the mental health challenges that this group of students face. This includes high rates of anxiety, and/or stress (Ashby & Causton-Theoharis, 2012; Gobbo & Shmulsky, 2012 ; Knott & Taylor, 2014; Madriaga, 2010; Madriaga & Goodley, 2010; Mitchell et al., 2014; Simmerborn Fleischer, 2011; Van Hees et al., 2015), and depression (Madriaga, 2010; Gobbo & Shmulsky, 2014). A need to employ strategies such as minimizing anxiety-provoking situations, and offering intervention at the onset of agitation was identified as being beneficial (Knott et al., 2014). Aspects of parental support which the students valued were that their parents were readily available to offer emotional support, and understood their individual needs. This enabled the students to discuss and address their anxieties and concerns at their own pace (Mitchell et al., 2014). Some of the students indicated that they were better able to manage everyday student-life by developing self-help strategies (Gobbo et al., 2014; Macleod et al., 2013; Simmeborn Fleischer, 2013; Van Hees et al., 2015). Examples of these strategies are include making time for leisure activities (Van Hees et al., 2015), finding alternative solutions for problems via social imitation (i.e. observing how others act in situations (Simmeborn Fleischer 2011), exchanging experiences with other students with ASD in a support group, gaining insight

into how ASD impacted their information processing, and training themselves to reduce a need for structure in order to cope better with unexpected occurrences (Van Hees et al., 2015).

These findings suggest that increasing DRC staff awareness in relation to the day-to-day stressors that contribute to the student's anxiety is vital. By recognizing the early signs of student stress and anxiety, staff can intervene to prevent more serious issues such as disengagement and depression (Knott & Taylor, 2014). Furthermore, these findings indicate a need for a designated person on campus to whom students can turn for confidential advice and support (Adreon & Durocher, 2007). This would help reduce reliance upon parental support, and consequently promote the student's transition to independence.

Given the complexity of the difficulties that students with ASD face, pluralistic approaches of support (Hanley, Williams, & Sefi, 2013), which include both community and individually focused interventions, are likely to be most helpful. Approaches such as these could potentially facilitate students with ASD in reducing the practical, emotional and mental health issues frequently associated with PSE, thereby enhancing student's well-being and increasing the odds of success. Findings also indicated that having access to psychological support (Van Hees et al., 2015) was of importance to individuals with ASD. Psychological support for many students however, was not readily available (Simmeborn Fleischer, 2011, 2012; Van Hees et al., 2015) at a time when a range of accessible mental health support services may be essential.

Theme 4: Environmental Barriers

Environmental barriers have been described by students as being related to the educational, living, and social environments that comprise PSE settings. Environmental challenges include; excessive noise (Gobbo & Schmulsky, 2014; Madriaga, 2010), large crowds (Gobbo & Schmulsky, 2014), and feeling frightened about facing new surroundings and structures (Van Hees et al., 2015). A need was highlighted for parental support and providing students with ASD with the option to live at home or in sole occupancy accommodations (Morrison et al., 2009).

Some of the facilitative aspects of this theme related to the students feeling safe and supported in their environment. These findings give some insights into the kind of supports that students value and are lacking in their educational, living, and social environments. For example, sensory over-stimulation can cause fear and/or agitation which increased the risk of physical and social isolation (Muller, Schuler, & Yates, 2008). While living at home or in sole occupancy accommodation may well suit some students with ASD, disability service providers need to be aware of the potential exclusionary and isolating aspects of these options. Students with ASD struggle with effective transition to university residence halls, where they no longer have a parent/care giver to whom the student can go if they have questions or concerns (Jekel & Loo, 2002). In contrast, each student with ASD has unique needs, and not all students with ASD have difficulties with sensory processing. These finding add to the construct that barriers students with ASD face are unique and individual to each student. Therefore, there is an increased barrier for disability resource providers to address the student's specific needs.

Review of Current Evidence-Based Supports/Interventions

The incidence of school-age children diagnosed with ASD has increased significantly over the last 10 years resulting in approximately 300,000 students with ASD being served in primary and secondary education under the Individuals with Disabilities Education Act (IDEA; U.S. Department of Education, Office of Special Education Program, 2009). There is also evidence that the number of young people with ASD transitioning into post-secondary education is also increasing. Data published from the National Longitudinal Transition Study-2 (NLTS2) identified 46% of the participating students with ASD enrolled in some type of post-secondary education (Wagner, Newman, Cameto, Garza, & Levine, 2005). Post-secondary education is a priority for many students with ASD, particularly if students have experienced academic success in high school, are enrolled in high schools targeting post-secondary enrollment, and have parents supportive of college enrollment (Chiang et al., 2012).

Higher enrollment has regarded the development of research designed to explore the efficacy of educational supports offered to college students with ASD. In particular, there is increasing recognition that supports and accommodations need to be provided to improve and enhance the college experience for this population (Dillon, 2007; Gilson & Carter, 2016; McKeon, Alpern, & Zager 2013). As described earlier, common barriers include loosely structured classes (Gobbo & Shmulsky, 2012), poor socialization and independent living skills (Adreon, & Durocher, 2007; Pillay & Bhat 2012), and depression and/or anxiety (Gelbar et al., 2014). A consistent theme in this emerging literature is the need to address the academic implications of social, cognitive, emotional,

and functional deficits that the adults with ASD face. With the emerging need for supports for students with ASD in college settings, there is growing effort to develop evidence-based interventions. Because exploration of effective supports and services for adult students with ASD are in their infancy, there is limited literature addressing successful interventions. Due to the fact that this study will be exploring needed services in PSE settings, a review of the literature that uses experimental design to identify successful interventions in college settings only was explored.

To fully adopt an evidence-based approach, it is suggested that the practitioner embrace a comprehensive theory-driven agenda (Dunn & Elliott, 2008). The practitioner must then validate the effectiveness of the interventions, and finally facilitate the provision of empirically supported intervention based on the research evidence (Dunn & Elliott, 2008). These steps will be examined in articles reviewed to explore if they meet the hierarchical levels of evidence identified by Chan et al. (2010) as seen in Table 1.

Table 1

Hierarchical Levels of Evidence

Level	Description
1	Strong evidence from at least one systematic review of multiple well-designed randomized controlled trials.
2	Strong evidence from at least one properly designed randomized controlled trials of appropriate size.
3	Evidence from well-designed trials without randomization, single group pre-post, cohort, time series, or matched case-controlled studies.
4	Evidence from well-designed non-experimental studies from more than one center or research group.
5	Evidence from opinions of respected authorities, based on clinical evidence, descriptive studies, or reports of expert committees.

Peer Mentoring/Social Supports

Koegel, Ashbaugh, Koegal, and Detar (2013) explored using structured social planning and peer mentoring to improve socialization skills. This study followed a single subject design approach. The researchers used weekly structured social planning to help three male students identify social areas of interests. A minimum of three social activities were presented for each area of interest. The students selected one from each area and a plan was established on how they would engage in that specific activity. A peer mentor was provided to attend the activity if requested by the student. The results show an increase in social involvement in all three cases, with maintenance as services were faded out.

Ness (2013) researched effects of peer mentor support to improve academic achievement. This study is defined as a case study, using three students diagnosed with Asperger's. Peer mentors were provided to assist the students in achieving their academic goals. GPA and grades were used to measure effectiveness. One of three showed an improvement in overall grades and GPA. The remaining two did not show an increase in grades, however, all three reported the intervention helpful.

Longtin and College (2014) implemented a quasi-experimental approach in implementing a peer mentor program to explore effects on social functioning, executive functioning, relationships, job search, and self-advocacy. Five participants engaged in an "interdisciplinary collaborative support service program" with the goal to improve social functioning, executive functioning, relationships, job search skills, and self-advocacy. No measures were provided in the study other than a satisfaction survey. In this study, four

of the five students reported a desire to remain in the program with one reporting indifference.

Video Modeling

Mason, Rispoli, Gantz, Boles, and Orr (2012) evaluated video modeling to improve social communication skills. Single subject design was used with two students with ASD. Video modeling was implemented to focus on development/improvement of eye contact, facial expression, and conversational turn taking. The students met two times per week for 50 minute sessions for a total of 31 sessions. The results show statistical significance with a strong effect size for one student, and moderate significance with the second student.

Mental Health Supports

Pugliese et al. (2014) used a single subject design to search the effects of CBT in a group setting to improve problem solving skills. In this study five participants engaged in one-hour weekly group therapy sessions for nine weeks with the focus on developing problem-solving skills. The researchers used Social Problem Solving Inventory-Revised: Long Form (SPSI-R L) to measure: problem solving and general distress measures, Outcome Questionnaire 452 (OQ 452) to measure relationship and social skills and a satisfaction survey. The results from the SPSI-RL and the OW 452 were reported to be inconclusive with a positive response on the survey from all the students reporting the class was helpful.

Westlake (2013) implemented exploratory data analysis to evaluate the effect of

using biofeedback to reduce symptoms of anxiety. The study had 47 participants. Ten were diagnosed with ASD and the remaining 37 were typical students recruited from a psychology 101 class. The students were trained on using biofeedback software that would calculate their Heart Rate Variability (HRV). The students would engage in weekly 10 minute sessions for 10 weeks. Biofeedback scores are used to determine physiological responses to anxiety. Biofeedback scores were collected to determine changes in HRV. The results determined no significant change within the treatment group, or compared to the control group. However, the author identifies the findings are inconclusive due to multiple external factors such as external stressors (difficulty of classes) and external supports (receiving therapy or medication for anxiety).

Overall, the major finding of this review is the scarcity of empirical research concerning interventions/supports for college students with ASD. Only six articles met the inclusion criteria for this review, which were purposefully broad in order to capture as many studies as possible. It is important to note however, that these the search did not include students in other languages, and there may be other international studies that were not identified. However, these findings support the conclusion reached by other reviews that evidence-based supporting practices for adolescents and adults with ASD is scarce (Volkmer et al., 2014). Further, the current literature contains fragmented descriptions of programs and theoretical suggestions, with limited literature on application.

Of the six studies identified, three implemented peer mentor supports. However, their results varied making the effectiveness of this type of intervention inconclusive. Three of the six studies also had a component of improving social skills, which is a

common barrier for individuals with ASD. One of the three studies identified success in their model, while the other two had inconclusive results. Other comparisons are unable to be made due to the diversity of each study.

The reported effectiveness of the identified studies does not provide any clear indication of what effective post-secondary education supports should entail. There is a strong need for continued research to strengthen the validity of interventions due to the small sample sizes and the variability of effectiveness of the studies. There is also a considerable need for new research exploring additional supports and interventions that have not been currently addressed. However, based on these studies alone, only one provides enough information to be replicated (Westlake, 2013).

Although the six studies reviewed met the inclusion criteria, they remain very diverse in their methods and their dependent variables. Among the studies there were eight different dependent variables, five different independent variables, and nine different measures that were used, as shown in Table 2. Due to the immense variability between studies, and small sample sizes, it is difficult to identify effectiveness of the interventions presented, as well as determine their generalizability. Without more research addressing each of these areas it is impossible to determine a strong effect of any of the models provided.

Based on the findings of current literature it is evident that there is limited evidence-based research in this area. The use of scientific evidence derived from theory-driven research to inform universities of effective interventions could improve educational outcomes and general quality of life for people with ASD. Based on Chan

Table 2

Study and Design

Study and design	<i>n</i>	Gender	Age	Diagnosis	Dependent variable	Intervention	Measure	Main results	Methodological issues
Westlake, 2013 (quasi-experimental)	47	M = 38 F = 9	18-29	Asperger's (10) No diagnosis (37)	Heart rate variability (symptom of anxiety)	Biofeedback	Exploratory data analysis of biofeedback software (EmWave Desktop)	Results showed "minimal changes in ASD group using biofeedback"	Small sample size. Generalizability between groups not established. Convenience sample, increasing variability. Inability to account for external factors i.e. finals, relationships, etc. Does not meet WWC standards.
Koegel et al., 2013 (SSD)	3	M = 3 F = 0	21-23	Asperger's	Socialization	Structured social planning, peer mentor (when requested)	Number of social activities, Quality of Life assessment, Satisfaction survey	All participants increased socialization and reported improved satisfaction of college experience	Small sample size. IOA is not identified. Does not meet WWC
Mason et al., 2012 (SSD)	2	M = 2 F = 0	19-26	ASD, Asperger's	Social communication skills	Video modeling	Observer rated eye contact and facial expression on Likert scale. Turn taking and emotion sharing were also observed and documented	Client 1 = significant effect and strong effect size in all areas. Client 2 = moderate effect in eye contact and turn taking, with no effect in facial expression	Study meets WWC standards with reservation. Small sample size with only male population reducing generalizability.

(table continues)

Study and design	n	Gender	Age	Diagnosis	Dependent variable	Intervention	Measure	Main results	Methodological issues
Ness, 2013 (Case Study)	3	M = 2 F = 1	19-25	Asperger's PDD	Academic achievement/ Self-regulated learning	Peer mentor support	Grades and Cumulative GPA, satisfaction survey	Client 1= improved grades, GPA, and high satisfaction. Client 2= no significant change in grades, high satisfaction of supports. Client 3= no significant change in grades, reports improvement in organizational skills	Small sample size. IOA is reported, but % of IOA is not provided. Explanation of training of peer mentors is not provided. Does not meet WWC standards
Longtin & College, 2014 (quasi- experimental)	5	M = 4 F = 1	21-27	ASD	Social functioning, executive functioning, relationships, job search, self- advocacy	Peer mentor support	Satisfaction survey (5 point Likert scale)	4 reported program "very beneficial" with a strong desire to stay in program, 1 reported indifference	Small sample size. No measurement tool used for improved skill development. Does not meet WWC standards.
Pugliese & White, 2013 (SSD)	5	M = 5 F = 0	18-23	ASD Asperger's	Problem solving skills	CBT/PST	SPSI-R L (problem solving and general distress measures) OQ 452 (relationships) Satisfaction survey	Inconclusive measures of the SPSI- R L, No significant difference of OQ 452, Students reported class as "helpful."	Small sample size. Measures show low effect. Does not meet WWC standards.

et al. (2010) the current studies demonstrate level three, four and level five in the hierarchical levels of evidence. Of the studies identified, experimental design is followed with no randomization of subjects, or comparison to control groups (see Table 2). There is a clear need to increase the number and rigor of studies to identify appropriate evidence-based practices that can have an impact on students with ASD in college settings.

Given the increased prevalence rates of people diagnosed with ASD, including those on the *high-functioning* end of the spectrum, it is likely more individuals with ASD will be entering PSE settings. This trend is supported by the data from studies focused on this topic. However, due to the dearth of studies found and the inconclusiveness of current studies, there is limited evidence to indicate that universities are prepared for the influx of students with ASD that will be entering their campuses. The results of this review have found that the evidence relating to interventions offered to college students with ASD is sparse. Only six current studies were found, with the oldest being published in 2012, and the most recent in 2014. While the focus in this area is new, it is evident that there is much to be done to expand the knowledge base and services to better accommodate this population in college settings. With the multiple factors affecting adults with autism in college settings, there remains a need for continued research exploring ways to address the multiple potential barriers they may face. Overall the current literature-base describing evidence-based interventions is fragmented and highlights the need for continued research to increase understanding on how to better serve this population to become more successful in post-secondary settings.

Disability Services in Post-Secondary Education

The provision of services to students with disabilities in PSE is a mandate that can be rooted in the 14th Amendment. This amendment stated that no state “shall make or enforce any law which shall abridge the privileges or immunities of the citizens of the United States; deprive any person of life, liberty, or property without due process of law; or deny to any person within its jurisdiction the equal protection of the laws” (U.S. Const. amend. XIV, § 1). To enforce these rights, the Fourteenth Amendment gave Congress the authority to pass laws such as the Civil Rights Act of 1964 (Jarrow & Lissner, 2008). The Civil Rights Act of 1964 prohibited discrimination based on race, color, religion, or national origin in employment and places of public accommodation. It also established a clear federal policy against discrimination in federally funded postsecondary education institutions.

For students of all ages with disabilities, two monumental civil rights laws related to postsecondary education were the Rehabilitation Act of 1973 (specifically Section 504) and the Americans Disabilities Act of 1990. Prior to the passage of this legislation, it was common practice to refuse admittance to students with disabilities to postsecondary education institutions solely on the basis of disability (Weiner & Wiener, 1996). The Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 ensured equal access to postsecondary education. These two pieces of legislation also mandate the provision of disability services in postsecondary education, and guide the work of disability service professionals (Jarrow & Lissner, 2008).

Sections 504 and 508 of the Rehabilitation Act of 1973

Charles Vanik and Senator Hubert Humphrey proposed an antidiscrimination passage (Section 504) within the Rehabilitation Act of 1973 (P.L. 93-112) after unsuccessful attempts to get disability recognized in the Civil Rights Act of 1964. The primary mandate of Section 504 was to provide equal access to postsecondary education (Jarrow & Lissner, 2008). As Jarrow and Lissner noted, although Section 504 has been reinforced and expanded by the Americans with Disabilities Act of 1990, it still provides the most direct statement and the clearest guidance for disability service professionals in postsecondary education. The specific wording of Section 504 is:

No otherwise qualified handicapped individual in the United States shall, solely by reason of 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 or under any program or activity conducted by any Executive agency or by the United States Postal Service (Rehabilitation Act of 1973, Public Law 93-112 § 504).

The wording of Section 504 makes it clear that it is a civil rights statute designed to ensure equal opportunities for people with disabilities. Similarly, Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies, which include most PSE settings, when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. § 794d), agencies must give employees with disabilities and members of the public access to information that is comparable to the access available to others. In contrast to earlier civil rights legislation,

Sections 508 and 504 required the removal of information technology barriers, physical and procedural barriers as well as attitudinal barriers (Jarrow & Lissner, 2008). In addition to its equal access wording, Section 504 contained three core principles that Jarrow and Lissner suggested disability services professionals should follow when providing services to students with disabilities: (a) equality of opportunity - nondiscrimination through decisions based on facts, not assumption or stereotype; (b) equitable versus identical treatment—providing accommodations, modifications, and auxiliary aids identified through an interactive process; and (c) balance competing equities—determining reasonable accommodations through individualized decision-making in context. The influence of these three core principles is seen throughout the U.S. Department of Education’s Section 504 regulations that apply to postsecondary education, which includes the general treatment of students, admissions and recruitment, academics, housing, research, financial aid, counseling, physical education, and transportation (AHEAD, 2010).

Americans with Disabilities Act of 1990

In addition to the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990 (ADA; P.L. 101-3361) extended civil rights for people with disabilities beyond federally funded activities and programs to broader venues in society. Much of the ADA does not directly relate to students with disabilities in postsecondary education. Yet, it has impacted their lives. For example, Title I requirements guide student employment policies in postsecondary education, and improves the career prospects for graduating students with disabilities (Kupferman, 2014). A second example is Title III, which

extends equal access to proprietary and private postsecondary education institutions (Jarrow & Lissner, 2008). The ADA has also impacted disability service professionals. For example, in order for students to receive disability services, disability service professionals must ensure that students have a documented disability (Jarrow & Lissner, 2008; Shaw, 2009). According to the ADA, a person with a disability (1) has a physical or mental impairment that substantially limits one or more major life activities; OR (2) has a record of such an impairment; OR (3) is regarded as having such an impairment (P.L. 101-3361). In 2009, the ADA Amendment Act (ADAAA) was passed with the intention of expanding the definition of disability to the original intent of Congress (Shackelford, 2009). In relation to PSE, the ADAAA encouraged disability service professionals to move from focusing on the definition of disability to how a student's disability-related functional limitations impact his or her educational experience (Shaw, Keenan, Madaus, & Banerjee, 2010). This shift toward functional limitations placed increased emphasis on disability service professionals' knowledge, skills, and attitudes, particularly in regard to the determination of reasonable accommodations and services. Through the intent of the ADAAA there is no definitive description of specific accommodations to be made for students with disabilities in PSE settings, thus accommodations and services may have some variance from institution to institution.

Accommodations and Services

“An accommodation is a modification to academic requirements as necessary to ensure that such requirements do not discriminate against students with disabilities, or has the effect of excluding students solely on the basis of disability” (AHEAD, 2012b).

This definition includes modifications as needed in policies, practices, and procedures for ensuring the accessibility of all aspects of academic and nonacademic activities (i.e., admissions and recruitment, admission to programs, academic adjustments, housing, financial assistance, physical education, counseling, etc.). Auxiliary aids and services or academic adjustments (U.S. Department of Education) are the legal terms used to describe types of accommodation in education settings, the term “accommodation” is used interchangeably in the literature and will be used to maintain consistency. The provision of accommodations is the most common service that disability service professionals provide to students with disabilities in postsecondary education (AHEAD, 2012a). In order for a student to receive an accommodation, he or she must make the request. Not all students know what accommodations and services are available or how to gain access to them. In order to facilitate this process, disability service professionals have an obligation to make their services known. Students may need help in determining the functional limitations they will experience in postsecondary education, and the effect these limitations will have on their academic success. Table 3 provides a sample of common types of accommodations available to students with disabilities (Northern Arizona University, 2018, Boston University, 2017, Utah State University 2018).

In addition to accommodations, some postsecondary educational institutions also offer support services, which are not required by law but help students enroll and persist to degree completion. Unger (2007) found that support services include registration assistance, academic counseling, vocational counseling, study and test-taking assistance, liaison with campus and community agencies, individualized orientations to the campus,

Table 3

A Summary of Common Types of Accommodations for Students with Disabilities (Northern Arizona University, 2018; Boston University, 2017; Utah State University, 2018)

General accommodation	Specific supports
Classroom accommodations	<ul style="list-style-type: none"> • Preferential seating. • Coach/Mentor • Assigned classmate as volunteer assistant • Beverages permitted in class
Lecture accommodations	<ul style="list-style-type: none"> • Pre-arranged breaks • Tape Recorder • Note taker • Photocopy or Email attachment of another's notes
Examination accommodations	<ul style="list-style-type: none"> • Change in test format • Permit use of computer software programs or other technological assistance • Extended time • Segmented • Permit exams to be individually proctored, including in hospital • Increase frequency of tests or examinations • Permit exams to be read orally, dictated, scribed or typed
Assignment accommodations	<ul style="list-style-type: none"> • Substitute assignments • Advance notice of assignments • Delay in assignment due dates • Handwritten rather than typed papers • Assignment assistance during hospitalization • Use alternative forms for students to demonstrate course mastery • Textbooks on tape.
Administrative accommodations	<ul style="list-style-type: none"> • Providing modifications, substitutions, or waivers of courses, major fields of study, or degree requirements on a case-by-case basis • Provide orientation to campus and administrative procedures • Provide assistance with registration/financial aid • Flexibility in determining "Full Time" status (for purposes of financial aid and health insurance) • Assistance with selecting classes and course load • Parking passes, elevator key, access to lounge • Incompletes rather than failures or withdrawals if relapse occurs

career counseling, and job placement. Additional nonacademic supports being used by PSE students with ASD also include mentoring, clubs, mental health, and peer supports (Anderson et al., 2017). These nonacademic supports have proven to be beneficial in assisting many students with ASD in being successful in PSE settings. For example, Gelbar et al. (2014) reported that 80% of respondents attained a grade point average above 3.0, and the authors attributed that academic success to the diverse range of academic and non-academic supports provided and the supportive attitude of faculty. Mentoring is also highly rated by many students (and staff) due to its ability to support a pervasive range of difficulties (Blamires & Gee, 2002; Knott & Taylor, 2014). Clubs also have been identified as a place for students with ASD to feel supported and accepted as well as a place to increase social interactions (Knott et al., 2014). Thus, the available evidence suggests that for the majority non-academic supports are also effective interventions when combined with more traditional accommodations.

Role of Disability Service Professionals

Postsecondary education institutions may not discriminate against students with disabilities, exclude them from participation, or deny them benefits of its services, programs, and activities (AHEAD, 2012b; Shaw & Dukes, 2005). Meeting this mandate is often up to disability service professionals. Since 1977, disability services in postsecondary education has emerged as a profession with its own professional organization, the AHEAD, that establishes professional and programmatic standards and offers professional development opportunities. Despite the profession's growth, there are no credentials, licensure, or minimum

competencies required for practice. AHEAD (2005) does however have a set of program standards and performance indicators that provide a framework for understanding the role of disability service professionals (see Table 4).

Although disability service professionals share a common mission of ensuring access to postsecondary education for students with disabilities, they are as diverse as the institutions they serve. These professionals may be found in almost any institutional unit, including student affairs, academic affairs, health services, counseling, human resources, or legal affairs (AHEAD, 2013). Their educational and professional backgrounds vary as well, ranging from PSE administration and risk management to rehabilitation counseling and special education (AHEAD, 2013).

Summary

The literature reviewed in this chapter described current identified barriers students with ASD face when entering PSE settings. The vast array of barriers makes it difficult for disability service professionals to provide an accommodation fitting to their specific needs. Although the enrollment rates of these students are high, few persist to degree completion. Services in the form of accommodations are available, but may not meet the specific need of the student. Services that have proven effective to help students with ASD be successful in PSE settings were also identified. Disability service professionals are the designated professionals on campus who provide these accommodation and services. However, they often are not prepared to support students with ASD because the specific services needed are not within the accommodations that disability service professionals can offer.

Table 4

Program Standards and Performance Indicators Designated by the Association on Higher Education and Disability (AHEAD, 2018)

Program standard	Performance indicators
1. Consultation and collaboration	1.1. Serve as an advocate for issues regarding students with disabilities to ensure equal access. 1.2. Provide disability representation on relevant campus committees.
2. Information dissemination	2.1. Disseminate information through institutional electronic and printed publications regarding disability services and how to access them. 2.2. Provide services that promote access to the campus community. 2.3. Disseminate information to students with disabilities regarding available campus and community disability resources.
3. Faculty and staff awareness	3.1. Inform faculty regarding academic accommodations, compliance with legal responsibilities, as well as instructional, programmatic, and curriculum modifications. 3.2. Provide consultation with administrators regarding academic accommodations, compliance with legal responsibilities, as well as instructional, programmatic, physical, and curriculum modifications. 3.3. Provide disability awareness training for campus constituencies such as faculty, staff, and administrators. 3.4. Provide information to faculty about services available to students with disabilities.
4. Academic adjustments	4.1. Maintain records that document the student's plan for the provision of selected accommodations. 4.2. Determine with students, appropriate academic accommodations and services. 4.3. Collaborate with faculty to ensure that reasonable academic accommodations do not fundamentally alter the program of study.
5. Counseling and self-determination	5.1. Use a service delivery model that encourages students with disabilities to develop independence.
6. Policies and procedures	6.1. Develop, review and revise written policies and guidelines regarding procedures for determining and accessing "reasonable accommodations." 6.2. Assist with the development, review, and revision of written policies and guidelines for institutional rights and responsibilities with respect to service provision. 6.3. Develop, review and revise written policies and guidelines for student rights and responsibilities with respect to receiving services. 6.4. Develop, review and revise written policies and guidelines regarding confidentiality of disability information. 6.5. Assist with the development, review, and revision of policies and guidelines for settling a formal complaint regarding the determination of a "reasonable accommodation."

(table continues)

Program standard	Performance indicators
7. Program administration and evaluation	7.1. Provide services that are aligned with the institution's mission or services philosophy. 7.2. Coordinate services for students with disabilities through a full-time professional. 7.3. Collect student feedback to measure satisfaction with disability services. 7.4. Collect data to monitor use of disability services. 7.5. Report program evaluation data to administrators. 7.6. Provide fiscal management of the office that serves students with disabilities. 7.7. Collaborate in establishing procedures for purchasing the adaptive equipment needed to assure equal access.
8. Training and professional development	8.1. Provide disability services staff with on-going opportunities for professional development. 8.2. Provide services by personnel with training and experience working with college students with disabilities (i.e. student development, degree programs, etc.). 8.3. Assure that personnel adhere to relevant Codes of Ethics (i.e. AHEAD).

CHAPTER III

METHODOLOGY

A review of the research has shown that there is an increasing population of children receiving a diagnosis of ASD. As they age, it is estimated that two thirds will have the cognitive capacity to graduate from secondary education settings and enroll in PSE settings. Although these students may enter post-secondary education settings with academic ability to excel, they are struggling to complete their declared focus of study. While there is considerable research identifying supports and services that help children and adolescents with ASD develop both functional and academic skills, there is a dearth of research exploring the types of supports and services needed to help students in PSE maintain or expand their skill set. No research could be located that explores the disability service professional perspective related to the barriers students with ASD face, or the types of accommodations and services they need to excel in higher ed settings. Therefore, this study explores disability service professional perspectives on interventions to better support students with ASD in PSE settings.

Research Questions and Design

The purpose of this study was to begin the exploratory process of identifying, from a DRC staff's perspective, the academic accommodations and additional supports students with ASD require to be successful in postsecondary education settings. This included exploring observed and reported barriers that prevent students with ASD from fully engaging in their postsecondary education experience. In doing so, it was hoped to

better understand how PSE institutions can better support students with ASD. To address this purpose, the following questions were asked of the expert panel to address the research questions.

PQ1: List as many barriers you can think of that disrupt successful implementation of academic accommodations for students with autism spectrum disorder (e.g. individual, institutional, financial, attitudinal etc.)?

PQ2: What additional supports regardless, of whether they are available through the Disability Resource Center, would benefit students with autism spectrum disorder?

PQ3: What individual and systemic barriers, in addition to those mentioned in question 1 that focused academic accommodations, do students with autism spectrum disorder experience that increase their risk of not completing their post-secondary education?

Participants

Proper selection of an expert panel is critical to the quality of any Delphi study (Clayton, 1997; Hsu & Sandford, 2007a; Jenkins & Smith, 1994; Skulmoski, Hartman, & Krahn, 2007; Yousuf, 2007), and provides support for the validity of a Delphi study's results. To be considered an appropriate participant for an expert panel, an individual should (a) have expert knowledge on the subject matter (b) be willing to commit to the process over a substantial period of time (c) be able to give thoughtful feedback, and (d) have a stake in the outcome of the study (Clayton, 1997; Hsu & Sandford, 2007a; Jenkins & Smith, 1994; Skulmoski et al., 2007). Based upon their job duties, work requirements, training, and the nature of their work with students with ASD, disability service professionals working on college/university campuses are assumed to meet the above criteria.

Disability service professionals have expert knowledge of the focus for the current study. This assumption of disability service professional's expertise is based on literature acknowledging the important role disability service professionals play in supporting students with disabilities toward reaching their postsecondary education goals (Collins & Mowbray, 2008; Hartley, 2010; McEwan & Downie, 2013; Salzer, Wick, & Rogers, 2008). Specifically, it is assumed that they have a stake in the outcome of the study, and thus would be able to give thoughtful feedback and commit to completing all three rounds of the study.

As recommended for most Delphi studies (Jenkins & Smith, 1994), this study used a nonrandom, purposive sample selected using targeted recruiting from the network of DRC programs. Participants were recruited using a snowball method, receiving referrals from local DRC disability service professionals, as well as random cold contacts of DRC's across the US. Using a Google search of universities and colleges across the 50 states, PSE institutions were randomly selected and DRC staff were provided an invitation to participate in the study via email. This Delphi survey used an expert panel which consisted of full-time disability service professionals who are considered to have expertise in providing services to students with disabilities including ASD. The following inclusion criteria were required for each participant: (a) member of AHEAD, (b) experience providing academic accommodation to students with ASD, and (c) and current employment in a 2-year college or 4-year university disability service office in the U.S. A total of 250 individual emails were sent to disability service professionals who met the above including criteria. From those emails 25 respondents met the inclusion

criteria and agreed to participate, and 5 of the participants met the inclusion criteria and were referred by other disability service professionals.

According to Hsu and Sandford (2007a), the size for a Delphi sample, while always dependent on the purpose of the study and level of expertise needed to contribute to the study (Clayton, 1997; Skulmoski et al., 2007), is typically less than 50 with a majority of studies having a sample size between 15 and 20 respondents. Other researchers suggest that for an expert panel drawn from a homogeneous population, a sample size of 10 to 15 participants is adequate, while a panel size of 5 to 10 participants is acceptable when drawn from a heterogeneous population (Clayton, 1997; Skulmoski et al., 2007). The current study established an expert panel of 30 homogeneous participants for the first round of the survey. Attrition between rounds of a Delphi is not uncommon (Clayton, 1997; Hsu & Sandford, 2007a). Given the maximum amount of attrition expected of 50% there were 21 respondents to complete the study which is still in the range to show adequate results. Thus, the panel size for the current study remained above the adequate threshold established in the literature. (Clayton, 1997; Hsu & Sandford, 2007b Skulmoski et al., 2007).

Instrumentation

Delphi Survey

The Delphi method was developed at the RAND Corporation in the early 1950s (Dalkey & Helmer, 1963) as a way to deal with complex problems using a process of structured communication. This method has been employed in various studies both in the military and in the public sector. The original development of the Delphi method,

sponsored by the United States Air Force, was for the purpose of gathering a consensus of experts' opinions related to military planning (Dalkey & Helmer, 1963). Since its early development, the Delphi method has been used in economic, social and technological forecasting, communication, public budgeting, and societal goal setting (Preble, 1983). It also has been applied to studies in PSE. Judd (1972) identified three areas in which the Delphi method is commonly used in higher education: (a) determining goals and objectives (b) identifying curriculum and campus planning, and (c) developing evaluation criteria. The focus of the current study was to determine goals and objectives necessary to help students with ASD in PSE succeed.

The Delphi method has been used widely in educational settings over the last several decades, and has become increasingly common in rehabilitation counseling research during the past decade (Fleming et al., 2015; Vázquez-Ramos et al., 2007; Yousuf, 2007). This increased use of the Delphi method to explore complex issues related to disabilities may be due to obtaining and relying on the perspective of the stakeholders most directly impacted by the issues being examined (Clayton, 1997). Developing a better and direct understanding of the lived experience of individuals with disabilities and other key stakeholders, such as disability service professionals, is a fundamental component of effective research and interventions in the rehabilitation counseling field.

A Delphi study is a systematic consensus-building method for gathering and organizing expert opinions about a complex topic (Vazquez-Ramos et al., 2007). It is considered an appropriate research methodology when one or more of the following conditions exist: (a) subjective opinions on a collective basis are more appropriate for the

exploration of the problem than precise analytical techniques; (b) the individuals needed to contribute to a collective opinion are geographically dispersed and have diverse backgrounds with respect to experience or expertise; (c) individuals cannot meet face-to-face efficiently due to time and expense of travel; and (d) anonymity and assurance that no individual opinion is allowed to dominate due to the strength of an individual or personality is desired and to ensure the input and consideration of the opinions of all contributors' ideas (Linstone & Turoff, 1975). Because all of these conditions exist in the current study, a Delphi method was considered to be an appropriate step in the research process.

Typical to the Delphi method, randomization was not used because the purposeful selection of participants is an important element of the Delphi methodology. In other words, the validity of the survey is directly related to the process of selecting participants (Clayton, 1997). Further, no exact criteria exist for Delphi survey sample selection (Vazquez-Ramos et al., 2007). In general, participants should have related experience on the topic, specific knowledge on the topic, the ability to contribute meaningfully, and be willing to revise initial statements to reach consensus (Hsu & Sandford, 2007). Potential participants were contacted via email and asked for their willingness and agreement to participate. No compensation or incentives were offered for participation. A total of 32 professionals participated in Round 1. With a sample size of 32, there can be up to 50% attrition before the risk of obtaining invalid findings. An attrition rate of up to 40% was to be expected because Delphi methods use multiple iterations (Hsu & Sandford, 2007), though actual attrition rates vary. A Delphi method can incorporate as many rounds as needed to achieve consensus among participants,

though three rounds is considered adequate for most studies (Fleming et al., 2015; Hartman, 1981; Hsu & Sandford, 2007a; Yousuf, 2007). Table 5 provides a succinct summary of a typical three-round Delphi survey process, which the current study followed closely.

Table 5

Summary Table of the Steps, Phases, and Activities Involved in the Execution of a Three Round Delphi Survey

Steps phases	Activities
1 Selection	<ul style="list-style-type: none"> a. Identification of potential experts b. Invitation to participate c. Recruitment of panelists d. Constitution of the panel of experts
2 Exploration (Round 1)	<ul style="list-style-type: none"> a. Demographic Survey b. Distribution of Delphi Round 1 (survey with open-ended questions/prompts) c. Follow-up of Delphi Round 1 d. Collect Delphi Round 1 e. Collation and categorization of results (content analysis) f. Construction of Delphi Round 2 (first generation of potential items)
3 Evaluation (Round 2)	<ul style="list-style-type: none"> a. Distribution of Delphi Round 2 b. Follow-up of Delphi Round 2 c. Collect Delphi Round 2 d. Collation and categorization of results (provided in terms of central tendency and measures of dispersion of participants' responses). e. Construction of Delphi Round 3
4 Reevaluation (Round 3)	<ul style="list-style-type: none"> a. Distribution of Delphi Round 3 (participants are provided with summary statistics from the previous round and are encouraged to reevaluate their answers based on their individual and group responses). b. Follow-up of Delphi Round 3 c. Collect Delphi Round 3 d. Re-collation and categorization of results (provided in terms of central tendency and measures of dispersion of participants' responses). e. Calculation of summary statistics
5 Final Consensus	<ul style="list-style-type: none"> a. Identification of items of which consensus was obtained.

Note. Adapted from Vázquez-Ramos et al. (2007).

Advantages of the Delphi Technique

The Delphi method has several advantages when compared to other methodologies. First, this method is an efficient way to gather experts' opinions without the concern of contamination from social desirability, or the possibility of being swayed by another individual; participants retain anonymity from each other and are not able to connect responses to specific individuals (Dalkey & Helmer, 1963; Jenkins & Smith, 1994). Dalkey and Helmer found this method to be more accurate than face-to-face discussions because the Delphi method is "more conducive to independent thought" (p. 459). Also, this method allows participants to use sufficient time when considering their responses (Jenkins & Smith, 1994). Another advantage is participants are not limited by geography. It is convenient for gathering data from a large number of experts and it provides a structured format in which clear communication and systematic procedures are employed (Preble, 1983).

Disadvantages of the Delphi Technique

The Delphi method is not lacking criticism. To begin with, this method is complex, and at times may take months to complete (Preble, 1983). Furthermore, identifying the panel of experts can be difficult. However, having a small group of experts who are in the same profession is valuable because obtaining a generalizable sample is not the goal of this approach (Fish & Busby, 1996). In addition, this method can require a great deal of the respondents' time, and may lead to misunderstandings if a highly structured questionnaire is not used (Fish & Busby, 1996; Preble, 1983). In spite of these limitations, a Delphi method is appropriate for this exploratory study due to the

need for information on accommodations and supports for people with ASD in PSE settings. This method provides the best way to gain consensus of expert opinions regarding such information from the individuals who are working directly with students with ASD in PSE settings.

Procedures

Participants responded to a series of three sequential electronic surveys (also called rounds). They had approximately 10 days to complete each round using the survey software Qualtrics Suite (Qualtrics, 2013). Qualtrics was selected based on its combination of user friendly front-end interface for survey participants, and robust backend functionality with built in real-time data analysis tools for researchers. The researcher maintained a list of participant emails gathered from the informed consent form that each participant completed prior to beginning the first round of the study. Contact information was kept in a Word file independent of participant survey responses in Qualtrics. Collecting participant contact information is a critical component of the Delphi survey process as the researcher needs to have regular communication with the expert panel to provide participants with information collected at each round, and encourage the completion of each subsequent round of the survey. Maintaining participant contact information separate from individual survey responses is designed to protect the confidentiality of participant responses. In doing so, the participant received information they submitted and compared it to the responses of the group required to achieve consensus without accessing any identifying information of other participants.

Round One

The first round contained a letter of information that described the purpose, procedures, instructions, risks, benefits, confidentiality, and an Institutional Review Board approval statement. Although 30 disability service professionals agreed to participate in the study only 27 participated once the survey was administered. Each participant was encouraged to review the letter of information prior to taking the survey. When participants clicked a “Start” link to begin the survey, consent to participate was implied. Next, participants completed a series of demographic and professional experience questions related to the panel’s inclusion criteria (i.e., years of professional experience, highest obtained professional degree, field of professional degree, employment setting, etc.). The remainder of the first round contained three open-ended questions that asked participants to identify accommodations being provided, additional supports that would benefit students with ASD, as well as barriers students with ASD face in PSE settings. These questions are listed below.

RQ1: From the perspective of a disability service professional, what academic accommodations are most effective for to a student with ASD?

RQ2: From the perspective of a disability service professional, what additional supports regardless of whether they are available through the DRC, would benefit students with ASD?

RQ3: From the perspective of a disability service professional, what individual and systemic barriers do students with ASD experience that increase their risk of not completing their PSE?

Following the process for systematic content analysis outlined in Milsom and Dietz (2009), all Round One responses were reviewed and condensed to eliminate duplication and redundancy, or expanded to clarify key concepts based on the unique

responses provided by participants. This summary of Round One responses was independently reviewed by an additional reviewer to refine the list by eliminating any additional duplication/redundancy of concepts or to pull out concepts that the reviewer feel should be separated out during the initial review. The reviewer has a PhD in a disability related field and has a basic understanding of the Delphi method. Reviewers discussed the final list of Round One responses until consensus was reached. These responses served as the foundation for the items that were rated by the expert panel in Round Two.

Round Two

An email link to the second round survey was sent to all round one participants who provided consent and responded to round one. Participants were asked to rate the frequency of each item generated by question one in Round One, related to accommodation provided by DRC's on a scale of 1 (not at all frequent) to 7 (very frequent). The respondents were then asked to rate the benefit of each item generated by question two in Round One, related to needed supports identified by disability service professionals on a scale of 1 (not at all beneficial) to 7 (very beneficial). Finally, the respondents were asked to rate the frequency of the barriers identified by question three in Round One, on a scale of 1 (not very frequent) to 7 (very frequent). The responses from Round One were separated into two different themes, individual barriers, and systemic barriers. A reminder email was sent five days after the initial Round Two link was distributed to participants and a final reminder email was sent two days prior to closing the round. At the conclusion of Round Two, measures of central tendency and

dispersion were calculated for each item, including the mean, standard deviation, frequency distribution, median, and interquartile range. Of the 27 original participants, 23 (85%) completed Round Two of the survey.

Round Three

Following the data analysis for Round Two, the participants who participated Round Two were sent an email link to the Round Three survey. The same list of items provided in Round Two were provided to participants along with the median and interquartile range, as well as the participant's individual ranking of the items from round two. Participants were provided an explanation of how to interpret these measures, and asked to compare their ranking of each item from Round Two with the responses of the group. They then were asked to re-rate each item based on this additional information. Participants were explicitly told that it was their choice to rate each item the same way they did in Round Two, or to change their rating based on the additional information provided. As in Rounds One and Two, a reminder email to complete the third and final round of the survey was sent to all participants five days after the initial link to Round Three was distributed and a final reminder, two days prior to closing the link. Of the original 27 participants, 21 (78%) completed Round Three, demonstrating an attrition rate of 22% from Round One to Round Three.

Data Analysis

Measures of central tendency and dispersion are the typical statistics reported for a Delphi study (Hsu & Sandford, 2007a) and the median and interquartile range (IQR) are the most common of these measures that are reported, particularly for final results

that are based on scales that do not have equal intervals, such as the one used in this study (Hsu & Sandford, 2007a; Jenkins & Smith, 1994). At the end of Round Three, a final median and IQR was calculated for each item to identify those that are considered to have reached consensus. For the purposes of this study, consensus will be defined as an item having a median of 4.0 or higher, and an IQR of 1.50 or lower. These cutoff scores are based on guidance from the literature (Hsu & Sandford, 2007a; Jenkins & Smith, 1994; Milsom & Dietz, 2009).

Summary

This chapter discussed the three-round Delphi method used to address the research questions identified in this study. Disability service professionals were identified as the participants in this study and an explanation of how participants will be identified and invited to participate in the study was reviewed. It provides an overview of the Delphi process and methodology that will be used to collect and code data to work toward a consensus. A detailed explanation of the type of data that will be collected and how it will be analyzed during each of the three rounds is identified.

CHAPTER IV

RESULTS

The purpose of this study was to explore the most common barriers that prevent students with autism spectrum disorder from completing post-secondary education as well as the most beneficial supports to help students with autism spectrum disorder complete post-secondary education. To achieve this purpose a Delphi survey that spanned three rounds with an expert panel on disabilities in PSE was utilized. A total of 118 different barriers as well as 54 specific beneficial supports emerged from the Delphi survey. The results from this survey are presented in this chapter.

Characteristics of the Sample

The sample characteristics summarized in this section are presented in detail in Table 6. The participants in this study had a mean of 7.38 years of experience in working with students with disabilities in PSE settings. The majority of the sample were female (70.37%), with 25.9% reporting to be male, and 3.7% reporting “other.” In regards to participants’ level of education, the sample consisted of 6 participants with a PhD (23.08%), 10 participants with a master’s degree (69.23%), 2 with a bachelor’s degree (7.69), and 6 who did not report level of education. All participants reported working in a 4-year college or university. Among the participants, the professional credentials identified were Certified Rehabilitation Counselor (30%), Licensed Professional Counselor (15%), Licensed Clinical Social Worker (10%), Certified Teacher (10%), National Certified Counselor (5%), Licensed School Psychologist (5%),

Table 2

Demographic and Professional Characteristics of the Sample

Variable	<i>n</i>	%
Level of education		
Master's Degree	18	66.67
PhD	6	22.22
Bachelor's Degree	2	7.40
No response	1	3.70
Work setting		
4-year College/University	27	100.00
2-year Community College	-	-
Trade School	-	-
Other	-	-
Gender		
Female	19	70.37
Male	7	25.92
Other	1	3.70
Professional certifications/credentials		
Certified Rehabilitation Counselor (CRC)	6	22.22
Licensed Professional Counselor (LPC)	3	11.11
Licensed Clinical Social Worker (LCSW)	2	7.40
Certified Licensed Teacher	2	7.40
National Certified Counselor (NCC)	1	3.70
Licensed School Psychologist	1	3.70
Licensed Psychologist	1	3.70
No Response	11	40.74
Specialized training in ASD		
Professional Workshops	24	88.89
In-service Training (at job site)	17	62.96
Applied Behavioral Analysis	2	7.40
Graduate Coursework	2	7.40
Previous Employment Trainings	2	7.40
Webinars	1	3.70
Parent Training (in home)	1	3.70
None	1	3.70
Geographic region		
Mountain Region	7	22.58
South Atlantic Region	6	19.35
West South Central Region	4	12.90
Pacific Region	4	12.90
Mid-Atlantic Region	3	9.68
West North Central Region	3	9.68
New England Region	2	6.45
East North Central Region	2	6.45
East South Central Region	-	-

and Licensed Psychologist (5%). In regards to receiving specialized training in ASD, 24 participants attended professional workshops (88.89%), 17 participants have received in-service training at the workplace (62.96%), 9 participants indicated that additional specialized training fell into the “other” category (33.33%). Examples of “other” category responses varied from applied behavioral analysis training to parent training. One participant reported having no specialized training on ASD (3.7%).

In regards to the participants’ geographic region, seven participants (22.58%) reside in the Mountain Region, which includes Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. South Atlantic Region, which includes Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, District of Columbia and West Virginia had six participants (19.35%). West South Central Region, which includes Arkansas, Louisiana, Oklahoma, and Texas had four participants (12.9%). Pacific Region, which includes Alaska, California, Hawaii, Oregon, and Washington also had four participants (12.9%). Mid-Atlantic Region, which consists of New Jersey, New York, and Pennsylvania had three participants (9.68%). West North Central Region, which consists of Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota also had three participants (9.68%). New England Region, which consists of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, had two participants (6.45%). East North Central Region, which consist of Illinois, Indiana, Michigan, Ohio, and Wisconsin had two participants (6.45%). East South Central Region, which consists of Alabama, Kentucky, Mississippi, and Tennessee was the only region that had no participants.

The Delphi Survey

Round One

As stated in Chapter III, 27 participants completed Round One of the Delphi Survey. The 27 participants generated 140 words and/or phrases in response to the prompt “List as many barriers you can think of that disrupt successful implementation of academic accommodations for students with autism spectrum disorder (e.g. individual, institutional, financial, attitudinal etc.)” The 140 words and/or phrases were reviewed and condensed to eliminate duplication and redundancy, or expanded to clarify key concepts as described in Chapter III, resulting in 34 items related to barriers to providing academic accommodation in DRC settings. For example, 14 variations of faculty not understanding how to provide academic accommodation were identified and condensed into one item. The same participants generated 117 words and/or phrases in response to the prompt “What additional supports, regardless of whether they are available through the Disability Resource Center, would benefit students with autism spectrum disorder”? The 117 words and/or phrases were reviewed and condensed to 45 items after combining duplications and redundancies. For example, there were 18 participants who described a need for improved social skills training, these suggestions were condensed in to one item labeled “social skills training.” The 27 participants also generated 113 words and/or phrases in response to the prompt “What individual and systemic barriers, in addition to those mentioned in question 1 that focused academic accommodations, do students with autism spectrum disorder experience that increase their risk of not completing their post-secondary education”? The 113 words and/or phrases were reviewed and condensed to

eliminate duplication and redundancy resulting in 84 items. These items were then categorized into two separate categories of “individual barriers” and “systemic barriers.” The individual barriers category consisted of 47 items and the systemic barriers consisted of 37 items. A list of all 163 items included in Round Two and Round Three is in can be found in Appendix B.

Rounds Two and Three

The purpose of a Delphi survey is to measure consensus among a panel of experts. Following the guidelines recommended in the literature (Hsu & Sandford, 2007; Jenkins & Smith, 1994) an IQR score of 1.5 or less is considered to have reached a strong consensus when using a one to seven Likert scale. In rounds two and three of this study, three questions asked for the panel of experts to rate the frequency of identified barriers, and a fourth question asked to rate the benefit of identified supports. In Rounds Two and Three, all barriers items were rated on a frequency scale of 1 = never, 2 = almost never, 3 = rarely, 4 = sometimes, 5 = frequent, 6 = very frequent, and 7 = always. All support items were rated on a level of benefit scale of 1 = no benefit, 2 = almost no benefit, 3 = little benefit, 4 = some benefit, 5 = beneficial, 6 = very beneficial, and 7 = always beneficial. For this study, a median rating of 4 or above and an IQR of 1.5 or lower demonstrated that the identified barriers were occurring more frequently than not. Similarly, supports that had a median rating of 4 or above and an IQR of 1.5 or lower demonstrated a strong consensus that the supports were considered to have a high benefit. For the purpose of this study, the items that met these criteria were considered to be the priority of focus. This does not mean that the barriers identified with a lower median

rating or a higher IQR were considered less severe or important. However, based on a frequency rating, the items with a frequency median of 4 or higher will be considered to have a higher priority in this study. The number of items that met these criteria can be seen in Table 7.

In Round Two, 23 (85%) of the original participants completed the survey. Of the items rated, 56 of the 163 items (34%) met the cutoff criteria for reaching consensus (see Table 7). In Round Three, 21 of the original participants completed the survey. After compiling the revised responses, 106 of the 163 items (65%) met the cutoff criteria for reaching a high frequency/benefit rating and strong consensus. These items were thus retained as the final list of high priority items related to identifying best practices to supports students with ASD in PSE settings. Between Round Two and Three there were 38 items that moved into consensus range and six items that dropped out of the consensus range, leading to the net gain of 50 items that shifted the number of total items reaching consensus from 56 in Round Two to 106 in Round Three. Of the 50 items that gained consensus in Round Three, 49 did so due to the IQR moving down from greater than 1.5

Table 3

Round 2 and 3 Results Demonstrating Number of Items That Demonstrate Level of Priority

	Round two		Round three	
	High priority	Low priority	High priority	Low priority
Academic accommodation barriers	13	21	18	16
Individual barriers	26	22	37	10
Systemic barrier	9	28	16	21
Identified supports	8	37	35	10

to 1.5 or lower. One item gained consensus in Round Three because the median increased from 3.00 to 4.00 and the IQR moved to 1.5 or lower. All seven of the items that dropped out of the inclusion criteria maintained a median score of 4 or higher, but the IQR moved above 1.5. Full detail of items and scores from Round Two and Round Three can be seen in Appendix B.

The three questions that rated barriers in PSE settings for students with ASD had 71 items that met the criteria for high priority. The question rating academic accommodation barriers had 18 items that met the criteria. Examples of academic accommodation barriers included faculty having a poor understanding of ASD and how to accommodate these students, poor implementation of recommended accommodation, student needs more intensive supports than DRCs can provide, etc. Individual barriers faced by the students had 37 items that met the criteria. Some examples of individual barriers included sensory barriers, poor organizational skills, poor social skills, mental health issues. Lastly, systemic barriers identified 16 items. System barriers identified included items such as lack of peer support, fewer direct supports than what is received in secondary education settings, parental over-involvement, and low faculty support. A specific list of the items and their ratings can be seen in Table 8-10. There were 35 items which met the inclusion criteria that identified supports to help students with ASD as they enter PSE. Some examples of identified supports included Psychoeducation about ASD for faculty and other campus staff, DRC staff training, executive function skills training, mental health counseling, peer mentoring, etc. These items and their median and IQR scores can be seen in Table 11.

Table 4

Round 2 and Round 3 Results for Identified Barriers on Question 1: Items of High Priority (“sometimes to very frequent”) Ratings with Strong Consensus (IQR ≤ 1.5)

Item	Barrier in Providing Academic Accommodation	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
8	Faculty have a poor understanding of ASD and do not know how to accommodate students with ASD.	5	1.25	5	1.25
9	Poor implementation from faculty of recommended accommodations	4	1.25	4	0.25
11	Poor follow through by the students after accommodations have been made	4	1.25	4.5	1
12	Students need more intensive supports than DRC’s can provide.	4	1.25	4.5	1
4	Students with ASD are unaware of services they can request	5	1	4	1
3	Students with ASD do not seek out DRC services	4.5	1	4	1
2	Student has difficulty articulating needed supports	4.5	1	4	1
7	Faculty are uncomfortable working with students with ASD	4.5	1	4	1
14	Students with ASD are not sharing what the need with the counselor	4	1	4	1
20	Lack of institutional support for disability services	4	3	4	1
22	Parental over-involvement	4	1	4	1
30	Classroom is not equipped to make sensory accommodations	4	1	4	1
31	Stigma from faculty prevents them from providing accommodation	4	1.25	4	1
19	Lack of campus resources (e.g. testing center, technology, staff to provide training, etc.)	4	3	4	1
21	Unrealistic accommodation request by the student with ASD or their parent	4	1.25	4	1.25
24	Current tools do not meet the needs of all students with ASD	4	2	4	1.25
32	Classroom policies that restrict accommodation (e.g. not allowing technology)	4	3	4	1.25
23	Limited use of technology by students with ASD	3	1	4	1.5

Table 9

Round 2 and Round 3 Results for Question 3: Items with High Priority (“sometimes to very frequent”) Ratings and Strong Consensus (IQR ≤ 1.5)

Item	Individual barriers experienced by students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
83	Student with ASD does not identify as someone with a disability	4	1.25	4	0.5
91	Sensory barriers (e.g., noisy classroom, lighting, uncomfortable seating, etc.)	4	1	4	0.5
81	Poor organizational skills	5	1	5	1
82	Student with ASD is hesitant to seek supports	5	1	5	1
86	Perseveration on one topic prevention the student’s with ASD to move on to other topics/assignments	5	1	5	1
88	Poor social skills (entering/exiting conversations, oversharing, fixation on singular topics, not participating in conversations etc.)	5	1.25	5	1
89	Social behavior problems (e.g. hugging, stalking, physical proximity, etc.)	4	1.25	5	1
90	Difficulty in completing classes where there is little/no interest	4.5	1	5	1
92	Student with ASD has poor follow through when encountering a barrier	4	1	4	1
93	Student with ASD does not follow through with commitments once accommodations are recommended/provided	4	1	5	1
94	Adjusting to adult social norms (housing, classrooms, campus events, etc.)	4	1	5	1
95	Adjusting to independent living	4.5	1	5	1
96	Lack of understanding from dormitory staff	4	1	4	1
99	Inflexible timelines	4	1	4	1
100	Mental health issues: Depression	4	1	4	1
101	Mental health issues: Anxiety	5	2	5	1
102	General mental health issues: other	4	0.5	4	1
107	Poor organization	4	2	4	1
110	Handling “incompletes (I grade)” of courses	4	2	4	1
112	Inability of the student with ASD to self-advocate	4	1.5	5	1

(table continues)

Item	Individual barriers experienced by students with ASD	Round 2 (<i>n</i> = 24)		Round 3 (<i>n</i> = 21)	
		Median	IQR	Median	IQR
114	Student with ASD is unaware of how to access or use resources	4	1.5	4	1
115	Student with ASD is unprepared for college settings in general	4	1.25	4.5	1
117	Lack of social support	5	1	4	1
118	Poor problem solving skills	5	1	5	1
120	Difficulty transitioning from parent/school directive to intrinsic motivation	5	2.5	5	1
124	Student with ASD has poor attendance	4	1.5	4	1
125	Student with ASD has lack of attention in class	4	1	4	1
126	Student with ASD has difficulty maintaining course specific workload	4	0.5	4	1
80	Procrastination	5	1.5	5	1.25
97	Behavioral problems such as disruptive/rude verbal outbursts	4	2	4	1.25
105	Poor self-care	4	1.5	4	1.25
107	Poor organization	4	2	5	1.25
108	Poor time management	4	2	5	1.25
111	Student not approaching professors to report needed accommodations	4	1	4	1.25
85	Distraction from studying, writing, etc. (e.g., gaming, phone, fixation on singular project, hobbies, etc.)	5	2	5	1.5
87	Over focus on assignments or project, making it bigger than expected	5	2	5	1.5
123	Student with ASD has difficulty living with roommates	5	1	5	1.5

Table 10

Round 2 and Round 3 Results for Question 4: Items with High Priority (“sometimes to very frequent”) Ratings with Strong Consensus (IQR ≤ 1.5)

Item	Systemic barriers experienced by students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
137	Less support in higher education settings provided to students with ASD compared to secondary education settings	5	2	5	1
142	Lack of peer support for the student with ASD	5	0.75	5	1
144	Faculty misunderstanding/misinterpreting behavior	5	2	5	1
161	Multiple systems on campus that students with ASD are expected to manage (e.g., classroom attendance, academic advisement, social events, employment, food, etc.)	4.5	2.75	5	1
127	Parental over-involvement	5	1	4.5	1
128	Parental lack of understanding of academic accommodations provided at universities	4	1	4	1
129	Low faculty support	4	1.5	4	1
131	Discrimination by system as a whole	3.5	1	4	1
138	Classroom environment (sensory over stimulation)	4.5	1	4	1
141	Student with ASD taking too many classes in one semester/term	4.5	1.75	4	1
156	Change in routine (e.g. field trip)	4	1	4	1
159	Credit/grade requirements to access financial aid	4	1	4	1
135	Campus cultures not being accepting to students to students who identify as autistic	4	4	4	1.25
139	Classroom environment (inappropriate format of classroom lecture/learning activities)	4	2	4	1.5
160	Institutional policies on how to address violations by someone with ASD	4	1	4	1.5
162	Varied expectations form class to class	4	2.5	5	1.5

Table 11

Round 2 and Round 3 Results for Question 2: Items with High Priority (“sometimes” to “very beneficial”) Ratings Strong Consensus (IQR ≤ 1.5)

Item	Supports that would benefit students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
36	Continued research on services to help students with ASD in higher education settings	6	2	6	0.25
39	The provision of career counseling for students with ASD	6	2	6	0.25
40	Faculty training on how to develop courses that have flexibility to provide suggested accommodations for students with ASD (e.g., replace group projects with written assignments etc.)	6	2	6	0.5
41	Further DRC staff training about ASD	6	2	6	1
42	Support groups for students with ASD (e.g., peer run, counselor run)	6	1.25	6	1
43	Mental health counseling by an ASD specialist	6	1	6	1
44	Social skills training (e.g., classroom etiquette, how to talk to peers, how to approach faculty, etc.)	6	1.25	6	1
45	General executive functioning skills training	6	2	6	1
46	Specific executive functioning skills training: time management	6	1	6	1
47	Specific executive functioning skills training: organize/prioritize daily tasks	6	1	6	1
48	Specific executive functioning skills training: develop successful study habits	6	1	6	1
49	Supports for executive functioning deficits (e.g., DRC staff help organize the day, DRS staff help with time management, DRC staff help with independent living skills etc.)	6	1	6	1
56	Teach independent living skills (e.g., food preparation, hygiene, household chores) to students with ASD	5.5	2	6	1
59	Intensive orientation training for students with ASD (e.g. how to access campus resources how to find professors offices, how to read syllabi, how to access/send college based email, how to use meal plan, etc.)	6	2	6	1
67	Psychoeducation on ASD for campus police	6	2	6	1

(table continues)

Item	Supports that would benefit students with ASD	Round 2 (<i>n</i> = 24)		Round 3 (<i>n</i> = 21)	
		Median	IQR	Median	IQR
50	Self-advocacy training for students with ASD	6	1	6	1.25
66	Psychoeducation on ASD for faculty	6	3	6	1.5
55	Teaching test taking skills for students with ASD	5	2	5	0.5
37	Reduce sensory engagement opportunities for students with ASD	5	1.5	5	1
52	Dating/relationship building training for students with ASD	5	1.25	5	1
53	Relaxation/stress management training for students with ASD	5	2.25	5	1
54	Training on money management for students with ASD	4.5	2	5	1
58	Increased staff/coaching supports to provide more intensive one on one training for students with ASD	6	1.25	5	1
64	Provide a mentoring program for students with ASD	5	1	5	1
68	Campus promotion of autism awareness month	5	2.75	5	1
69	Campus based autism awareness activities to increase general student awareness of ASD	5	2	5	1
73	Accountability check ins to monitor goals and address issues in early stages for students with ASD	5	2	5	1
75	Campus based housing accommodations and supports (dorms, trained dorm staff, etc) for students with ASD	6	1	5	1
76	Campus based dining accommodations for students with ASD	4	2	5	1
79	Employment supports/training for students with ASD	6	1.5	5	1
71	Coursework flexibility (e.g., replace public presentation with written assignment) for students with ASD	4	1.5	4.5	1
57	Independent living (no roommates) on campus for students with ASD	5	2	5	1.25
74	Behavioral supports/advising on appropriate conduct within university settings for students with ASD	5	2	5	1.25
77	Academic advising (e.g. tutoring referrals, mapping out academic plans, informing students of expectation in different fields of study) for students with ASD	5.5	1.25	5.5	1.25
72	Parental/family support	4.5	1.25	4	1.5

Summary

This chapter presented the findings of the three-round Delphi survey employed for the current study. Medians and interquartile ranges were analyzed to determine which items met the established cutoff range for consensus regarding the level of priority related to addressing identified barriers and providing recommended supports to students with ASD attending PSE campuses. These scores were analyzed and the items were ranked in priority according to Round Three median and interquartile range. All items identifying barriers were measured by a frequency rating ranging from one to seven. The survey items that demonstrated a median of 4.00 or above and an IQR of 1.5 or lower were considered to have high frequency and strong consensus and were therefore considered to be a high priority. Of the 163 items reviewed, 71 identified barriers met these criteria. All items identifying supports were measured by a similar level of benefit rating ranging from one to seven. The same measurement of median and IQR was applied and 35 met the criteria and were rated as high priority. Items with variable frequency/benefit with poor consensus were also identified in all four questions and result can be seen in Appendix B. Chapter V will present a summary of the results, as well as a discussion of the implications. The limitations of the current study and recommendations for further research will also be discussed.

CHAPTER V

DISCUSSION

The primary purpose of this study was to explore the most common barriers that prevent students with autism spectrum disorder from completing post-secondary education as well as the most beneficial supports to help students with autism spectrum disorder complete post-secondary education. A review of the literature in Chapter II demonstrated that barriers exist to completing undergraduate studies for students with ASD. The literature also revealed that there is a dearth of information available in identifying the barriers that students with ASD face in PSE settings, as well as exploring how effective current services are in providing adequate supports. This study took a meaningful step forward by exploring the barriers individuals with ASD face in DRC's, and general systemic barriers when accessing PSE. This study also identified specific supports and services that can be considered when addressing reported barriers. This chapter provides a discussion of the implications of the data collected. Limitations and recommendations for future research are also discussed.

Identifiable Barriers

This study began with a three-round Delphi survey where a panel of experts gained strong consensus and moderate frequency on 18 barriers faced by students with ASD while attending PSE. Because the barriers achieved a strong consensus, and a rating of "frequent," it merits exploring these barriers further to better understand their origins and whether there are solutions that can be implemented. After analyzing the

data, both the identified barriers and supports were categorized into like groups. These identified high priority barriers were then paired with the high priority supports to determine matches. The results are depicted in Table 12.

All 10 of the high-priority barriers were directly linked with identified high priority supports. As a preliminary study, these ideas need to be explored further. However, the literature supports many of these findings. For example, social and communication deficits are a diagnostic trademark of ASD and it is no surprise that this is a common barrier for adults with ASD as they enter PSE. The findings in this study support the four themes identified in Chapter II. For example, sociopolitical barriers like poor social and communication skills are hindering the success of students with ASD in PSE settings (Ames, McMorris, Alli, & Bebko, 2016; Beardon & Edmonds, 2007; Blamires & Gee, 2002). Further, as identified in Chapter II, the literature addressing effective interventions in improving social skills is minimal. This study not only adds to the literature that social skills is a barrier, but also supports the call for further research in developing interventions to improve this skill at the PSE level. As disability service professionals explore best practices to help students access opportunities to learn, it may be of merit to further explore ways for DRC's to provide supports that enhance social skills.

Executive functioning barriers were also commonly identified as frequent barriers in this study. Anderson (2014), and Gelbar et al. (2015) also report a lack of executive functioning such as time management, organization, and independent living skills as barriers for students as they enter PSE. Although executive function covers a broad scope of skills, this study suggested some potential supports that can be provided

Table 12

Comparison Between Identified Barriers and Identified Supports

Identified barriers	Identified supports
<p>Social skills</p> <ul style="list-style-type: none"> ▪ Poor conversation/social skills ▪ Poor social behavior ▪ Perseveration on one topic ▪ Social interactions with roommates ▪ Reduced social supports 	<p>Social skills</p> <ul style="list-style-type: none"> ▪ Social skills training ▪ Dating/relationship training ▪ Mentoring program (peer/counselor run)
<p>Executive functioning deficits</p> <ul style="list-style-type: none"> ▪ Time management ▪ Organizational skills ▪ Study skill development ▪ Completing tasks ▪ Independent living 	<p>Executive functioning supports</p> <ul style="list-style-type: none"> ▪ Time management training ▪ Organization supports (daily schedules, alarms, timers, etc.) ▪ Accountability check ins with staff to monitor progress and provide support when needed ▪ On campus independent living training
<p>Mental health</p> <ul style="list-style-type: none"> ▪ Anxiety ▪ Depression 	<p>Mental health</p> <ul style="list-style-type: none"> ▪ Mental health counseling by an ASD specialist ▪ Training on relaxation techniques
<p>Faculty barriers</p> <ul style="list-style-type: none"> ▪ Faculty have poor understanding of ASD ▪ Faculty misunderstand/misinterpret student behavior ▪ Varied expectations from class to class 	<p>Faculty supports</p> <ul style="list-style-type: none"> ▪ Psychoeducation on ASD ▪ Faculty training on how to develop flexible courses
<p>Lack of direct supports</p> <ul style="list-style-type: none"> ▪ Low peer supports ▪ Limited 1:1 support and training for student on how to navigate campus and resources 	<p>Increased direct supports</p> <ul style="list-style-type: none"> ▪ Intensive orientation (how to access accommodations, classes, books, food, etc.) ▪ Career counseling ▪ Academic advising ▪ Employment support/training
<p>Self-advocacy deficits</p> <ul style="list-style-type: none"> ▪ Student hesitant to seek support ▪ Student need help self-advocating 	<p>Self-advocacy supports</p> <ul style="list-style-type: none"> ▪ Self-advocacy training
<p>Structural barriers</p> <ul style="list-style-type: none"> ▪ Multiple system on campus to navigate (classes, financial aid, dorms, registration, academic advising, DRC...) 	<p>Structural barriers</p> <ul style="list-style-type: none"> ▪ No consensus on supports
<p>DRC supports</p> <ul style="list-style-type: none"> ▪ Lack of resources ▪ Students needs are more intensive than what DRCs can provide 	<p>DRC supports</p> <ul style="list-style-type: none"> ▪ Further/ongoing training on ASD to DRC counselors and staff

(table continues)

Identified barriers	Identified supports
<p>Campus-wide trainings</p> <ul style="list-style-type: none"> ▪ Faculty have poor understanding of ASD ▪ Faculty do not know how to provide accommodation ▪ Discrimination <p>Continued research</p> <ul style="list-style-type: none"> ▪ Lack of understanding of ASD ▪ Current tool does not meet the needs of the students with ASD ▪ Lack of resources 	<p>Campus-wide trainings</p> <ul style="list-style-type: none"> ▪ Psychoeducation on ASD for faculty ▪ Psychoeducation on ASD for campus police ▪ Campus promotion of Autism Awareness Month <p>Continued research</p> <ul style="list-style-type: none"> ▪ Further research on how to best supports students with ASD in PSE settings

on campuses that could help address portions of this barrier. For example, DRC's might provide accountability check ins to help the student stay on task, follow through with commitments, and to identify issues early on before they become a crisis. A second support that also showed a strong consensus among disability service providers was to offer training courses on how to manage time and organize tasks as the student enters PSE. Although this does not address all issues related to executive functioning, it is a support that can fall under a DRC's scope of practice. Currently there is no literature addressing evidence-based practices in providing this service.

The need for direct supports (e.g., academic advisement, mental health counseling, academic/social clubs, DRC, etc.) was also identified as a barrier that aligned with suggested supports. In primary and secondary education settings, the level of direct supports is greater than what is provided in PSE. This reduction in individualized support potentially makes it more difficult for a student to navigate PSE campuses. The panel's suggestion of providing an intensive orientation offers a solution that can link the student to services that can provide more direct services.

Of all the barriers identified by the expert panel, all but one has been addressed in the literature. This is significant because these previous findings strengthen the validity of the findings in this study as well as validate the Delphi method as an effective tool when doing exploratory research. The novel barrier identified in this study was the need for further faculty training and supports. Three separate items, poor faculty understanding of ASD, poor implementation of recommended accommodations, and poor flexibility of class structure addressed this barrier. This barrier can have a direct link to DRCs and their charge to provide academic accommodation. This suggests that best practices in serving students with ASD involves providing supports beyond the individual, and addressing university and systematic issues.

Implications

The findings from this study have important implications for disability services in PSE. Notably, the identified barriers experienced, and services provided to students with ASD, may guide professional development opportunities (i.e., in-service training, workshops, etc.) for disability service professionals and other campus faculty and staff. Collins and Mowbray (2005) suggested that, because of their diverse educational and professional backgrounds, disability service professionals may not be prepared to provide best practices to students with ASD. They further recommend in-service training as an efficient method to remedy this issue. In the AHEAD Code of Ethics (AHEAD, 1996), disability service professionals are encouraged to pursue in-service training. This training not only expands individual understanding but additionally provides further guidelines in how to disseminate information to other campus faculty

and staff, as well as to other students. The findings from this study provide AHEAD and professional organizations with a set of institutional barriers, individual barriers, systematic barriers, and suggested accommodations and services to assist with identifying in-service training opportunities related to the provision of services to students with ASD. For training purposes, the next step is to sort and operationalize the items, establish a training protocol, and develop training evaluations and outcome measures. These elements will take the important step toward grounding the in-service training opportunities in sound pedagogical models.

This study also could primarily impact those who face the identified barriers first hand, namely the students. If university policy makers will take into consideration the finding of this study, then a discussion of “equal opportunity,” “equal access,” and best practice can be brought to the table for further exploration. Goodley (2001) suggested that it must be recognized that specific impairments have particular sociopolitical and epistemological some impairments/barriers face by students with ASD would be diminished. With the findings of this study, some direction can be provided for policy makers to have a more directive discussion of ways PSE settings can become more inclusive to this population. Based on these items, policy makers can have a broader understanding of how a variety of facets of their college or university affect students with ASD.

Based on these findings, an opportunity is provided to begin to explore whether the necessary support services are being provided to help students with ASD have equal opportunity to receive an education. Data from this study identified support services that DRC professionals believe would be helpful. However, many of those are not provided

by the university. This study is a stepping stone in beginning the exploration process of whether these identified services provide equal access to an education, similar to interpreters providing equal access to someone with a hearing impairment. The findings from this study can open the conversation of the development of program evaluation of DRCs to help make some of these determinations. To reiterate the language in Section 504 of the Rehabilitation Act of 1973,

No otherwise qualified handicapped individual in the United States shall, solely by reason of 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 or under any program or activity conducted by any Executive agency or by the United States Postal Service. (Rehabilitation Act of 1973, Public Law 93-112 § 504)

This raises the questions of whether the barriers identified by this panel “exclude from participation in, be denied the benefits of, or be subjected to discrimination” which limits the students access to equal opportunity to receive an education. If this is the case, then it can be assumed that the scope of practices to provided academic accommodations to students with ASD need to be expanded to prevent discrimination and to increase equal access.

Recommendations for Future Research

It is hoped that the current study will serve as a stimulus for future research. Because of the exploratory nature of this study, the results are far from conclusive. As noted by Jenkins and Smith (1994), a Delphi study should be viewed as a beginning statement and not as a definitive work. The final outcomes should not be seen as the only standard for identifying barriers or necessary supports for students with ASD in

PSE settings, but as a means to prompt further clarification of this appealing research. It is hoped that the current study will serve as a foundation for future research that more fully and analytically explores the barriers faced by students with ASD in PSE settings as well as the exploration of the effectiveness of implementing recommended supports and accommodations.

Discovering similarities and differences among stakeholder groups regarding what barriers are most common and which barriers are most easily addressed in PSE settings could lead to more effective collaboration and targeted interventions that better support students with ASD as they enter PSE programs. For example, this study provided a general overview of barriers experienced in providing academic accommodation as well as other barriers experienced in PSE settings, and has provided a framework to pair them with identified supports recommended by the expert panel. For example, items related to faculty training (#6 and 32 in Table 8), or increased DRC support and training (#7 and 15 in Table 8), or additional campus supports (#5, 6, 25, 33, and 43 in Table 8) may take on additional importance for students with ASD if the suggested supports can demonstrate that barriers are reduced and completion of PSE program is completed. Further, based on the identified supports by the participants, opportunities for community collaborations on non-university specific skill development such as executive functioning skill training (#11, 12, 13, 14, 22 in Table 8), social skill training (#10 in table 8), and mental health supports (#9 in Table 8) would be of merit to explore.

Based on the breadth of information provided from this study, it would be beneficial to further the study by taking the identified items that demonstrated

significance and have a large sample of disability resource professionals rate each item in level of importance. With a larger sample, a factor analysis can be run to narrow down the major component to provide greater clarity in identifying the major barriers and most beneficial supports and services.

Future research should explore variables not addressed in this study. This study did not explore demographic information of the students with ASD. It is expected that barriers would vary from student to student based on their background, history of previous supports, age of diagnosis, age of accessing interventions, amount of exposure to evidence based interventions, social support system, etc. By identify demographic information of the students with ASD, there is potential of narrowing the breadth of barriers identified in this study. In doing so, a better understanding of which academic accommodation or supports can be offered or recommended as the student enters their program of study in a PSE setting.

The use of the Delphi method to explore additional aspects of Disability Service Professionals in this or related topics would also appear to be a viable option based on the solid response to the current study's methodology, the quality of responses, and the between round attrition rates comparable to similar studies. Based from the finding of this study, researchers could extend the research by comparing PSE settings that implement specific academic accommodation or recommended supports with PSE settings that currently are not providing the same service and measure outcomes of student quality of life, or completion of program of study, etc.

Assumptions and Limitations

All studies have underlying assumptions that are implicit (Remier & Van Ryzin, 2010). In this study, it was assumed that barriers faced by students with ASD in PSE settings as well as specific beneficial supports and services could be identified. The second assumption was that the barriers and supports identified by the participants are representative of what is experienced and needed by the broad population of students with ASD in PSE settings. The third assumption was that the participants were able to accurately and honestly assess specific and general barriers students with ASD face when entering a PSE environment, as well as effective supports and services to best remedy identified barriers. Based on these assumptions, certainly one of the limitations of this study would be the difficulty in operationalizing the term expert. Although every attempt was made to include knowledgeable and experienced individuals, it is conceivable that the panelists did not have the necessary expertise to offer the most beneficial data for this study. Because there is no guideline, training, or certification in becoming an expert on autism specifically or tool to measure someone's knowledge and expertise in autism, there is potential risk that some participants' responses may not be the most accurate and therefore skew the data. In defense of the Delphi method, it has been suggested that the limitation of obtaining experts may be seen as less consequential in that these "less" knowledgeable participants often provide valuable information that leads to reaching the desired result (Jenkins, 1996). To address this issue, the participants were asked to identify the types of specialized training received on ASD, however, because information on adults with ASD is limited and how to

provide supports and academic accommodations in PSE settings is also rare, there was no way to identify the quality or quantity of ASD training received by the Disability Service Professionals.

As reported in Chapter IV, there were a total of 163 items for the participants to rate. The sheer volume of items considered was a limitation. Other Delphi studies have divided the questionnaire response sets in order not to overwhelm participants (Figley & Nelson, 1989). Although this recommended method was used in this study, some participants reported that Rounds Two and Three were longer than expected and took more time than expected. This may attribute to why some participants did not fully complete the survey, or participate in the final round. The issue of length of the study and time needed to complete the study may also have been a factor that limited participants focus and thoughtful response to each item being rated. Another considered limitation is that every participant was employed at a 4-year college/university. Some evidence suggests that students with disabilities are more successful in community college setting than in larger four-year universities (Flemming, Oertle, & Plotner, 2017). Because there was no representation from community colleges or trade school settings, the items identified may not be accurate across all settings and needs further exploration.

Conclusion

The current study was the first to identify barriers to providing academic accommodation for students with ASD in PSE settings. It also added to the research of individual and systemic barriers students with ASD experience when entering PSE.

Finally, this study was also the first to use an expert panel of Disability Service Professionals to identify services and supports that can most benefit students with ASD as they enter PSE settings. Students with ASD are an increasing presence on PSE campuses. Their right to enroll in PSE and reap the personal, social, and long term economic benefits is undisputed. However, researchers have recognized the challenges these student face, oftentimes leading to their withdrawal prior to degree completion (Camarena & Sarigiani, 2009; Chiang et al., 2012; Glennon, 2001; VanBergeijk et al., 2008). Disability service professionals are the primary providers of academic accommodations and have strong potential to support students with ASD in reaching their postsecondary education goals through direct services or referral to additional supports and services. The 34 academic accommodation barriers, 47 individual barriers, 37 systemic barriers, and 45 supports and services identified in this study provide disability service professionals with a framework to use toward improving services for student with ASD as they work toward achieving their personal academic goals. Guided by this study's findings and subsequent professional development opportunities, disability service professionals can move a step closer toward answering the calls to improve service for students with ASD in PSE.

REFERENCES

- Adreon, D., & Durocher, J. (2007). Evaluating the college transition needs of individuals with high-functioning autism spectrum disorders. *Intervention in School and Clinic, 42*(5), 271-279.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Americans with Disabilities Act of 1990, 42U.S.C.A. §12101 et seq. (West, 1993).
- Americans with Disabilities Act Amendments Act (ADAAA). (2008). PL 110-325, 42 U.S.C. 1211 et seq.
- Ames, M. E., McMorris, C. A., Alli, L. N., & Bebko, J. M. (2016). Overview and evaluation of a mentorship program for university students with ASD. *Focus on Autism and Other Developmental Disabilities, 31*, 27-36.
- Anderson J. (2014). *A qualitative inquiry into the two-year college experiences of students with Autism Spectrum Disorder* (Doctoral dissertation). University of Georgia, Athens. Retrieved from https://getd.libs.uga.edu/pdfs/anderson_james_m_201408_phd.pdf
- Anderson, H., Stephenson, J., & Carter, M. (2017). A systematic literature review of the experiences and supports of students with autism spectrum disorder in post-secondary education. *Research in Autism Spectrum Disorders, 39*, 33-53
- Ashby, C. E., & Causton-Theoharis, J. (2012). ‘Moving quietly through the door of opportunity’: Perspectives of college students who type to communicate. *Equity and Excellence in Education, 45*, 261-282.
- Association on Higher Education and Disability. (1996). *AHEAD code of ethics*. Retrieved from http://ahead.org/uploads/docs/resources/AHEAD_Code_of_Ethics.doc
- Association on Higher Education and Disability. (2005). *AHEAD program standards and performance indicators*. Retrieved from <http://ahead.org/uploads/docs/resources/Final-Program-Standards-with-Performance-Indicators.doc>
- Association on Higher Education and Disability. (2010). *AHEAD professional standards*. Retrieved from http://ahead.org/uploads/docs/resources/AHEAD_Professional_Standards.doc
- Association on Higher Education and Disability. (2012a). *State of the profession: Where to go from here*. Huntersville, NC: Author.

- Association on Higher Education and Disability. (2012b). *Supporting accommodation requests: Guidance on documentation practices*. Retrieved from <http://www.ahead.org/resources/documentationguidance>
- Association on Higher Education and Disability. (2013). *2012 Biennial AHEAD survey of disability service and resource professionals in higher education*. Retrieved from <http://ahead.org/uploads/docs/Ahead%202012%202013%20Biennial%20Report%20Employment%20and%20Compensation.docx>
- Association on Higher Education and Disability. (2018). *AHEAD program standards and performance indicators*. Retrieved from <https://www.ahead.org/professional-resources/information-services-portal/data-collection-and-management/performance-indicators>
- Autism Speaks. (2013). *What is autism?* Retrieved from <https://www.autismspeaks.org/what-autism>
- Barnhill, G. P. (2014). Supporting students with Asperger syndrome on college campuses: Current practices. *Focus on Autism and Other Developmental Disabilities*, 21, 1-13.
- Beardon, L., & Edmonds, G. (2007). *ASPECT Consultancy report: A national report on the needs of adults with Asperger syndrome*. Retrieved from <http://www.shu.ac.uk/faculties/ds/education/theautismcentre/docs/ASPECT%20Consultancy%20report.pdf>
- Blamires, M., & Gee, S. (2002). *Raising aspirations: Increasing the participation of students with autistic spectrum disorders (social communication difficulties) in higher education*. Retrieved from <http://create.canterbury.ac.uk/id/eprint/10226>
- Boston University. (2017). *Center for Psychiatric Rehabilitation: Reasonable accommodations*. Retrieved from <http://cpr.bu.edu/resources/reasonableaccommodations>
- Brinckerhoff, U. (1994). Developing effective self-advocacy skills in college-bound students with learning disabilities. *Intervention in School and Clinic*, 29, 229-237.
- Brown, J., & Wolf, L. (2014). Transition to higher education for students with autistic spectrum disorder. In McPartland, J., Klin, A. & Volkmar, F., (Eds.), *Asperger syndrome: Assessing and treating high-functioning autism spectrum disorders* (2nd ed., pp. 367-393). London, England: Guilford.
- Cage, E., Di Monaco, J., Newell, V. (2017). Experiences of autism acceptance and mental health in autistic adults. *Journal of Autism and Developmental Disorders*, 48(2), 473-484.

- Camarena, P., & Sarigiani, P. (2009). Postsecondary educational aspirations of high-functioning adolescents with autism spectrum disorders and their parents. *Focus on Autism and Other Developmental Disabilities*, 24, 115-128.
- Cavanagh, P. K., & VanBereijk, E. O. (2012). Transition planning for students with autism and other intellectual disabilities. In C. Franklin, M. B. Harris, & P. Allen-Meares (Eds.) *The school services sourcebook* (2nd ed., pp. 875-888). Oxford, England: Oxford University Press.
- Centers for Disease Control and Prevention. (2013). Changes in prevalence of parent reported Autism Spectrum Disorder in school-aged U.S. children: 2007 to 2011-2012. Retrieved from <http://www.cdc.gov/nchs/data/nhsr/nhsr065.pdf>
- Centers for Disease Control and Prevention. (2014). Prevalence of autism spectrum disorder among children aged 8 years – autism and developmental disabilities monitoring network, 11 sites, united states, 2010. *MMWR Surveillance Summary*, 63(SS02), 1-21.
- Chan, F., Bezyak, J., Romero-Ramirez, M., Chiu, C.Y., Sung, C., Fujidawa, M. (2010). Concepts, challenges, barriers, and opportunities related to evidence-based practice in rehabilitation counseling. *Rehabilitation Education*, 24(3-4), 179-190.
- Chiang, H., Cheung, Y., Hickson, L., Xiang, R., & Tsai, L. (2012). Predictive factors of participation in postsecondary education for high school leavers with autism. *Journal of Autism and Developmental Disorders*, 42, 685-696.
- Clayton, M. J. (1997). Delphi: A technique to harness expert opinion for critical decision-making tasks in education. *Educational Psychology*, 17(4) 373-386.
- Collins, M. E., & Mowbray, C. T. (2005). Higher education and psychiatric disabilities: National survey of campus disability services. *American Journal of Orthopsychiatry*, 75, 304-315.
- Collins, M. E., & Mowbray, C. T. (2008). Students with psychiatric disabilities on campus: Examining predictors of enrollment with disability support services. *Journal of Postsecondary Education and Disability*, 21(2), 91-104
- Clayton, M. J. (1997). Delphi: A technique to harness expert opinion for critical decision making tasks in education. *Educational Psychology*, 17(4), 373-386.
- Connor, D. J. (2012). Actively navigating the transition into college: Narratives of students with learning disabilities. *International Journal of Qualitative Studies in Education*, 25(8), 1005-1036.
- Dalkey, M., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science*, 9, 458-467.

- Dillon, M. R. (2007). Creating supports for college students with Asperger syndrome through collaboration. *College Student Journal*, 41(2), 499-504.
- Drake, S. M. (2014). *A qualitative study of academic success experiences of individuals with autism spectrum disorder* (Doctoral dissertation). Retrieved from [http://search/proquest.com.simsrad.net.ocs.mq.edu.au/docview/1525824453](http://search.proquest.com.simsrad.net.ocs.mq.edu.au/docview/1525824453)
- Dunn, D. S., & Elliott, T. R. (2008) The place and promise of theory in rehabilitation psychology. *Rehabilitation Psychology*, 53, 254-267.
- Figley, C., & Nelson, T. (1989). Basic family therapy skills I: Conceptualization and initial findings. *Journal of Marital and Family Therapy*, 15, 349-365.
- Fish, L. S., & Busby, D. M. (1996). The Delphi method. In D. H. Sprenkle & S. M. Moon (Eds.), *Research methods in family therapy* (pp. 469-482). New York, NY: Guilford.
- Fleming, A. R., Boeltzig-Brown, H., & Foley, S. M. (2015). Using the Delphi method for selecting effective rehabilitation practices for case study research: Methods, challenges, and solutions and implications for future research. *Rehabilitation Research, Policy, and Education*, 29(4), 391-405.
- Fleming, A., Oertle, K. M., & Plotner, A. J. (2017). Student voices: How colleges and universities can support students with disabilities better. *The Journal of Postsecondary Education and Disability*, 30(4), 309-326.
- Gardiner, E., & Iarocci, G. (2013). Students with autism spectrum disorder in the university context: Peer acceptance predicts intention to volunteer. *Journal of Autism and Developmental Disorders*, 44, 1008-1017.
- Gelbar N. W., Shefcyk, A., & Reichow, B. (2015). A comprehensive survey of current and former college students with autism spectrum disorder. *The Yale Journal of Biology and Medicine*, 88, 45-68
- Gelbar, N. W., Smith, I., & Reichow, B. (2014). Systematic review of articles describing experience and supports of individuals with autism enrolled in college and university programs. *Journal of Autism and Developmental Disorders*, 44, 2593-2601.
- Gibson, K., Cartwright, C., Kerrisk, K., Campbell, J., & Seymour, F. (2015). What young people want: A qualitative study of adolescents' priorities for engagement across psychological services. *Journal of Child and Family Studies*, 25, 1057-1065.

- Gilson, C. B., & Carter, E. W. (2016). Promoting social interactions and job independence for college students with Autism or Intellectual Disability: A pilot study. *Journal of Autism and Developmental Disorders*, 46(11), 3583-3596. doi: 10.1007/s10803-016-2894-2
- Glennon, T., (2001). The stress of the university experience for college students with Asperger Syndrome. *Work*, 17, 183-190.
- Gobbo, K., & Shmulsky, S. (2012). Classroom needs of community college students with Asperger's Disorder and Autism Spectrum Disorders. *Community College Journal of Research and Practice* 36(1), 40-46
- Gobbo K., & Shmulsky, S. (2014). Faculty experience with college students with autism spectrum disorders: A qualitative study of challenges and solutions. *Focus on Autism and Other Developmental Disabilities*, 29, 13-22.
- Goodley, D. (2001). 'Learning difficulties', the social model of disability and impairment: Challenging epistemologies. *Disability and Society*, 16(2), 207-231.
- Hanley, T., Williams, G., & Sefi, A. (2013). Pluralistic counselling for young people. In T. Hanley, N. Humphrey, & C. Lennie (Eds.), *Adolescent Counselling Psychology*, (pp. 133-156). London: Routledge.
- Hartley, M. T. (2010). Increasing resilience: Strategies for reducing dropout rates for college students with psychiatric disabilities. *American Journal of Psychiatric Rehabilitation*, 13, 295-315.
- Hartman, A. (1981). Reaching consensus using the Delphi technique. *Educational Leadership*, 38(6), 495-97.
- Hastwell, J., Harding, N., Martin, P., Baron-Cohen, P., & Harding, J. (2012). Giving Cambridge University students with Asperger syndrome a voice: A qualitative, interview-based study towards developing a model of best practice. *Good Autism Practice*. 13(1), 56-63.
- Hendrickson, J., Carson, R., Woods-Groves, S., Mendenhall, J., & Scheidecker, B. (2013). UI REACH: A postsecondary program serving students with autism and intellectual disabilities. *Education and Treatment of Children*, 36, 169-194.
- Hsu, C., & Sandford, B. A. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research, and Evaluation*, 12(10), 1-8.
- Hughes, J. L. (2009). Higher education and Asperger's syndrome. *Chronicle of Higher Education*, 55(40), 21.

- InclusionBC (2018). *What are disability supports?* Retrieved from www.inclusionbc.org/our-priority-areas/disability-supports/what-are-disability-supports.
- Jang, J., Matson, J., Adams, H., Konst, M., Cervantes, P., Goldin, R. (2014). What are the ages of persons studied in autism research: A 20-year review. *Research in Autism Spectrum Disorders, 8*, 1756-1760.
- Jarrow, J. E., & Lissner, L. S. (2008). From legal principle to informed practice. Huntersville, NC: Association on Higher Education and Disability.
- Jekel, D., & Loo, S. (2002). *So you want to go to college: Recommendations, helpful tips, and suggestions for success at college*. Watertown, MA: Asperger's Association of New England.
- Jenkins, D. (1996). A reflecting team approach to family therapy: A Delphi study. *Journal of Marital and Family Therapy, 22*, 219-238.
- Jenkins, D. A., & Smith, T. E. (1994). Applying Delphi methodology in family therapy research. *Contemporary Family Therapy, 16*(5), 411-430.
- Judd, R. C. (1972) Use of Delphi methods in higher education. *Technological Forecasting and Social Change, 4*, 173-186.
- Knott, F., & Taylor, A. (2014). Life at university with Asperger syndrome: A comparison of student and staff perspectives. *International Journal of Inclusive Education, 18*, 411-426
- Koegel, L. K., Ashbaugh, K., Koegel, R. L., & Detar, W. (2013). Increasing socialization in adults with asperger's syndrome. *Psychology in the Schools, 50*(9), 899-909.
- Kupferman, S. I. (2014). *Supporting students with psychiatric disabilities in postsecondary education: Important knowledge, skills, and attitudes* (doctoral dissertation). Utah State University, Logan, UT. Retrieved from <https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=3070&context=etd>.
- Linstone, H. A., & Turoff, M. (Eds.). (1975). *The Delphi method: Techniques and applications*. Reading, MA: Addison-Wesley.
- Longtin, S., & College, B. (2014). Practice Brief: Interdisciplinary support for students with autism spectrum disorders. *Journal of Postsecondary Education and Disability, 27*(3), 333-342.

- MacLeod, A., & Green, S. (2009). Beyond the books: case study of a collaborative and holistic support model for university students with Asperger syndrome. *Studies in Higher Education*, 34, 631-646.
- MacLeod, A., Lewis, A., & Robertson, C. (2013). 'Why should I be like bloody Rain Man?!' Navigating the autistic identity. *British Journal of Special Education*, 40, 41-49.
- Madriaga, M. (2010). 'I avoid pubs and the student union like the plague': Students with Asperger syndrome and their negotiation of university spaces. *Children's Geographies*, 8, 39-50.
- Madriaga, M., & Goodley, D. (2010). Moving beyond the minimum: Socially just pedagogies and Asperger's syndrome in UK higher education. *International Journal of Inclusive Education*, 14, 115-131.
- Mahoney, D. (2008). College students' attitudes toward individuals with autism. *Dissertation Abstracts International*, 68, 7672.
- Mason, R. A., Rispoli, M., Gantz, J. B., Boles, M. B., & Orr, K. (2012). Effects of video modeling on communicative social skills of college students with Asperger syndrome. *Developmental Neurorehabilitation*, 15(6), 425-434
- McEwan, R. C., & Downie, R. (2013). College success of students with psychiatric disabilities: Barriers of access and distraction. *Journal of Postsecondary Education and Disability*, 26(3), 233-248.
- McKeon, B., Alpern, C. S., & Zager, D. (2013). Promoting academic engagement for college students with autism spectrum disorder. *Journal of Postsecondary Education and Disability*, 26(4), 353-366.
- Milsom, A., & Dietz, L. (2009). Defining college readiness for students with learning disabilities: A Delphi study. *Professional School Counseling*, 12(4), 315-323.
- Mitchell, W., & Beresford, B. (2014). Young people with high-functioning autism and Asperger's syndrome planning for and anticipating the move to college: what supports a positive transition? *British Journal of Special Education*, 41, 151-171
- Morrison, J. Q., Sansosti, F. J., & Hadley, W. M. (2009). Parent perceptions of the anticipated needs and expectations for support for their college-bound students with Asperger's syndrome. *Journal of Postsecondary Education and Disability*, 22, 78-87.
- Muller, E., Schuler, A., & Yates, G. B. (2008). Social challenges and supports from the perspective of individuals with Asperger syndrome and other autism spectrum disabilities. *Autism*, 12, 173-190.

- National Center for Education Statistics. (2014). *Institutional retention and graduation rates for undergraduate students*. Retrieved from <https://nces.ed.gov/programs/coe/indicator.cva.asp>.
- Ness, B. (2013). Supporting self-regulated learning for college students with Asperger syndrome: exploring the “strategies for college learning” model. *Mentoring and Tutoring: Partnership and Learning*, 21(4), 356-377.
- Newman, L., Wagner, M., Knokey, A.-M., Marder, C., Nagle, K., Shaver, D., ... Schwarting, M. (2011). *The post-high school outcomes of young adults with disabilities up to 8 years after high school. A Report from the National Longitudinal Transition Study-2 (NLTS2) (NCSE 2011- 3005)*. Retrieved from <http://www.eric.ed.gov/PDFS/ED524044.pdf>
- Northern Arizona University (2018). *Student handbook*. Retrieved from <https://nau.edu/disability-resources/student-handbook/>
- Orsmond, G. I., Shattuck, P. T., Cooper, B. P., Sterzing, P. R., & Anderson K. A. (2013). Social participation among young adults with an autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 43, 2710-2719.
- Preble, J. F. (1983). Public sector use of the Delphi technique. *Technological Forecasting and Social Changes*, 23, 75-88.
- Pugliese, C. E., & White, S. W. (2013). Brief report: Problem solving therapy in college students with autism spectrum disorders: Feasibility and preliminary efficacy. *Journal of Autism and Developmental Disorders*, 44, 719-729. doi: 10.1007/s10803-013-1914-8.
- Qualtrics. (2013). *Research suite*. Provo, UT: Author.
- Ramsay, J. R., Brodtkin, E. S., Cohen, M. R., Listerud, J., Rostain, A. L., & Ekman, E. (2005). “Better strangers”: Using the relationship in psychotherapy for adult patients with Asperger syndrome. *Psychotherapy, Theory, Research, Practice, Training*, 42, 483-493.
- Rehabilitation Act of 1973. Public Law 93-112 § 504.
- Remier, D. K., & Van Ryzin, G. G. (2010). *Research methods in practice: Strategies for description and causation*. Thousand Oaks, CA: Sage.
- Salzer, M. S., Wick, L. C., & Rogers, J. A. (2008). Familiarity with and use of accommodations and supports among postsecondary students with mental illness. *Psychiatric Services*, 59(4), 370-375.

- Shackelford, A. L. (2009). Understand that ADA Amendments Act also amends Rehab Act. *Disability Compliance for Higher Education*, 14(5), 3.
- Shaw, S. F. (2009). Transition to postsecondary education. *Focus on Exceptional Children*, 42(2), 1-16.
- Shaw, S. F., & Dukes, L. L., III. (2001). Program standards for disability services in higher education. *Journal of Postsecondary Education and Disability*, 14(2), 81-90.
- Shaw, S. F., & Dukes, L. L., III. (2005). Performance indicators for postsecondary disability services. *Journal of Developmental Education*, 29(2), 10-19.
- Shaw, S. F., Keenan, W. R., Madaus, J. W., & Banerjee, M. (2010). Disability documentation, the Americans with Disabilities Act Amendments Act, and the summary of performance: How are they linked? *Journal of Postsecondary Education and Disability*, 22(3), 142- 155.
- Simmeborn Fleischer, A. (2011). Alienation and struggle: everyday student-life of three male students with Asperger syndrome. *Scandinavian Journal of Disability Research*, 14, 177- 194.
- Simmeborn Fleischer, A. (2012). Support to students with Asperger syndrome in higher education: The perspectives of three relatives and their coordinators. *International Journal of Rehabilitation Research*, 35, 54-61.
- Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education*, 6(1), 1-22.
- Smart, J. (2016). *Disability, society, and the individual*. Austin, TX: Pro-ed.
- Smith, L. E., Maenner, M., & Seltzer, M. M. (2012). Developmental trajectories in adolescents and adults with autism: the case of daily living skills. *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(6), 622-631.
- Taylor, J. L., & Seltzer, M. M. (2012). Changes in the autism behavioral phenotype during the transition to adulthood. *Journal of Autism and Developmental Disorders*, 40(12), 1431-1446.
- Taylor, M. J. (2005). Teaching students with autistic spectrum disorders in HE. *Education + Training*, 47, 484-495.
- Test, D. W., Fowler, C. H., Wood, W. M., Brewer, D. M., & Eddy, S. (2005). A conceptual framework of self-advocacy for students with disabilities. *Remedial and Special Education*, 26, 43-54.

- Toor, N., Hanley, T., & Hebron, J. (2016). The facilitators, obstacles and needs of individuals with autism spectrum conditions accessing further and higher education: A systematic review. *Journal of Psychologists and Counsellors in Schools*, 26(2), 166-190.
- Unger, K. V. (2007). *Handbook on supported education: Providing services for students with psychiatric disabilities*. Charleston, SC: BookSurge.
- U.S. Department of Education, Office of Special Education Programs. (2009). *Annual report to congress on the implementation of the individuals with disabilities education act, selected years, 1979 through 2007*. Retrieved from http://nces.ed.gov/programs/digest/d09/tables/dt09_050.asp.
- U.S. Department of Health and Human Services. (2018). *What is Sections 504 and how does it relate to Section 508?* Retrieved from <https://www.hhs.gov/web/section-508/what-is-504/index.html>
- Utah State University. (2018). *Accommodation*. Retrieved from <https://www.usu.edu/drc/accommodations>.
- VanBergeijk, E., Klin, A., & Volkmar, F. (2008). Supporting more able students on the Autism Spectrum: College and beyond. *Journal of Autism and Developmental Disorders*, 38(7), 1359-1370.
- Van Hees, V., Moyson, T., & Roeyers, H. (2015). Higher education experiences of students with autism spectrum disorder: Challenges, benefits and support needs. *Journal of Autism and Developmental Disorders*, 45, 1673-1688.
- Vázquez-Ramos, R., Leahy, M., & Hernández, N. E. (2007). The Delphi method in rehabilitation counseling research. *Rehabilitation Counseling Bulletin*, 50(2), 111-118.
- Volkmar, F. R., Reichow, B., Westphal, A., Mandell, D. S. (2014). *Autism and the autism spectrum: Diagnostic concepts*. Hoboken, NJ: Wiley
- Wagner, M., Newman, L., Cameto, R., Garza, N., & Levine, P. (2005). *After high school: a first look at the post-school experiences of youth with disabilities* (A report from the National Longitudinal Transition Study-2 [NLTS2]). Menlo Park, CA: SRI International.
- Wehman, P. H., Schall, C. M. McDonough, J., Kregel, J., Brooke, V., Molinelli, A., & Thiss, W. (2014). Competitive employment for youth with autism spectrum disorders: Early results from a randomized clinic trial. *Journal of Autism and Developmental Disorders*, 44, 487-500.

- Wei, J., Yu, J. W., Shattuck, P., McCracken, M., & Blackorby, J. (2013). Science, technology, engineering, and mathematics (STEM) participation among college students with an autism spectrum disorder. *Journal of Autism and Developmental Disorders, 43*, 1539-1546.
- Weiner, E., & Wiener, J. (1996). Concerns and needs of university students with psychiatric disabilities. *Journal of Postsecondary Education and Disability, 12*(1), 2-9.
- Westlake, G. (2013). *Evaluation of a biofeedback intervention in college students diagnosed with autism spectrum disorders* (Doctoral dissertation). Arizona State University, Tempe, AZ. Retrieved from https://repository.asu.edu/attachments/114552/content/Westlake_asu_0010E_13283.pdf
- What is Autism? (2017). Retrieved from <https://www.autismspeaks.org/what-autism>.
- White, S., Ollendick, T., & Bray, B. (2011). College students on the autism spectrum: Prevalence and associated problems. *Autism, 15*, 683-701.
- Yousuf, M. I. (2007). Using experts' opinions through Delphi technique. *Practical Assessment, Research, & Evaluation, 12*(4), 1-8.

APPENDICES

Appendix A

Institutional Review Board Approval Letter




Institutional Review Board

USU Assurance: FWA#00003308



Exemption #2

Certificate of Exemption

FROM: Melanie Domenech Rodriguez, IRB Chair
 Nicole Vouvalis, IRB Administrator 

To: Jared Schultz, Ryan Paskins

Date: April 16, 2018

Protocol #: 9289

Title: Supporting Students With ASD In Post-Secondary Education Settings: Common Barriers And Needed Accommodations And Supports

The Institutional Review Board has determined that the above-referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #2:

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through the identifiers linked to the subjects; and (b) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

This exemption is valid for three years from the date of this correspondence, after which the study will be closed. If the research will extend beyond three years, it is your responsibility as the Principal Investigator to notify the IRB before the study's expiration date and submit a new application to continue the research. Research activities that continue beyond the expiration date without new certification of exempt status will be in violation of those federal guidelines which permit the exempt status.

As part of the IRB's quality assurance procedures, this research may be randomly selected for continuing review during the 3-year period of exemption. If so, you will receive a request for completion of a Protocol Status Report during the month of the anniversary date of this certification.

In all cases, it is your responsibility to notify the IRB prior to making any changes to the study by submitting an Amendment/Modification request. This will document whether or not the study still meets the requirements for exempt status under federal regulations.

Upon receipt of this memo, you may begin your research. If you have questions, please call the IRB office at (435) 797-1821 or email to irb@usu.edu.

The IRB wishes you success with your research.

Appendix B

Delphi Items with Rounds Two and Three Median and IQR

Table B1

Round 2 and Round 3 Results for Question 1: Items with Moderate Frequency (“sometimes to frequent”) Ratings with Strong Consensus (IQR ≤ 1.5)

Item	Barrier in providing academic accommodation	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
8	Faculty have a poor understanding of ASD and do not know how to accommodate students with ASD.	5	1.25	5	1.25
9	Poor implementation from faculty of recommended accommodations	4	1.25	4	0.25
11	Poor follow through by the students after accommodations have been made	4	1.25	4.5	1
12	Students need more intensive supports than DRC’s can provide.	4	1.25	4.5	1
4	Students with ASD are unaware of services they can request	5	1	4	1
3	Students with ASD do not seek out DRC services	4.5	1	4	1
2	Student has difficulty articulating needed supports	4.5	1	4	1
7	Faculty are uncomfortable working with students with ASD	4.5	1	4	1
14	Students with ASD are not sharing what the need with the counselor	4	1	4	1
20	Lack of institutional support for disability services	4	3	4	1
22	Parental over-involvement	4	1	4	1
30	Classroom is not equipped to make sensory accommodations	4	1	4	1
31	Stigma from faculty prevents them from providing accommodation	4	1.25	4	1
19	Lack of campus resources (e.g. testing center, technology, staff to provide training, etc.)	4	3	4	1
21	Unrealistic accommodation request by the student with ASD or their parent	4	1.25	4	1.25
24	Current tools do not meet the needs of all students with ASD	4	2	4	1.25
32	Classroom policies that restrict accommodation (e.g. not allowing technology)	4	3	4	1.25
23	Limited use of technology by students with ASD	3	1	4	1.5

Table B2

Round 2 and Round 3 Results for Question 1: Items with Variable Frequency (“very rare to frequent”) Ratings and/or Poor Consensus (IQR > 1.5)

Item	Barrier in providing academic accommodation	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
6	DRC counselors are uncomfortable working with students with ASD	2	2.25	2.5	1
10	Poor implementation of recommended accommodations by DRS staff	2	1	2.5	1
27	Poor documentation of previous services received by the student with ASD in secondary education	3	3	3	1
34	DRC staff turn over	2	1	2.5	1
18	Lack of interest in ASD among DRC staff	2	2	2	1.25
5	Student’s personal lack of understanding of their ASD	4	1.25	4	2
1	DRC counselors having difficulty understanding/knowing student’s needs	4	2	4	2
16	Lack of knowledge about ASD among DRC staff	3	2	3	2
17	Lack of training about ASD among DRC staff	3	2	3	2
25	Policies and procedures are not current to meet the needs of students with ASD (e.g. reduced course load will not meet requirements of 30 units in academic year, or will not meet credit requirement to qualify for financial aid/scholarship)	4	2	4	2
26	Coursework does not always take into consideration some suggested accommodations (e.g., group work, public speaking, etc.)	4	1.5	4	2
28	Limited access to diagnoses by DRC counselor	3	2	3	2
29	Large class size	5	2	5	2
33	Typical academic accommodations do not meet the needs of students with ASD	4	4	4	2
15	Not enough DRC staff to provide adequate services	5	3	5	2.25
13	Inadequate funding to provide necessary services	5	3	3.5	4

Table B3

Round 2 and Round 3 Results for Question 2: Items with High Priority (“sometimes” to “very beneficial”) Ratings Strong Consensus (IQR ≤ 1.5)

Item	Supports that would benefit students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
36	Continued research on services to help students with ASD in higher education settings	6	2	6	0.25
39	The provision of career counseling for students with ASD	6	2	6	0.25
40	Faculty training on how to develop courses that have flexibility to provide suggested accommodations for students with ASD (e.g., replace group projects with written assignments etc.)	6	2	6	0.5
41	Further DRC staff training about ASD	6	2	6	1
42	Support groups for students with ASD (e.g., peer run, counselor run)	6	1.25	6	1
43	Mental health counseling by an ASD specialist	6	1	6	1
44	Social skills training (e.g., classroom etiquette, how to talk to peers, how to approach faculty, etc.)	6	1.25	6	1
45	General executive functioning skills training	6	2	6	1
46	Specific executive functioning skills training: time management	6	1	6	1
47	Specific executive functioning skills training: organize/prioritize daily tasks	6	1	6	1
48	Specific executive functioning skills training: develop successful study habits	6	1	6	1
49	Supports for executive functioning deficits (e.g., DRC staff help organize the day, DRS staff help with time management, DRC staff help with independent living skills etc.)	6	1	6	1
56	Teach independent living skills (e.g., food preparation, hygiene, household chores) to students with ASD	5.5	2	6	1
59	Intensive orientation training for students with ASD (e.g. how to access campus resources how to find professors offices, how to read syllabi, how to access/send college based email, how to use meal plan, etc.)	6	2	6	1
67	Psychoeducation on ASD for campus police	6	2	6	1
50	Self-advocacy training for students with ASD	6	1	6	1.25

(table continues)

Item	Supports that would benefit students with ASD	Round 2 (<i>n</i> = 24)		Round 3 (<i>n</i> = 21)	
		Median	IQR	Median	IQR
66	Psychoeducation on ASD for faculty	6	3	6	1.5
55	Teaching test taking skills for students with ASD	5	2	5	0.5
37	Reduce sensory engagement opportunities for students with ASD	5	1.5	5	1
52	Dating/relationship building training for students with ASD	5	1.25	5	1
53	Relaxation/stress management training for students with ASD	5	2.25	5	1
54	Training on money management for students with ASD	4.5	2	5	1
58	Increased staff/coaching supports to provide more intensive one on one training for students with ASD	6	1.25	5	1
64	Provide a mentoring program for students with ASD	5	1	5	1
68	Campus promotion of autism awareness month	5	2.75	5	1
69	Campus based autism awareness activities to increase general student awareness of ASD	5	2	5	1
73	Accountability check ins to monitor goals and address issues in early stages for students with ASD	5	2	5	1
75	Campus based housing accommodations and supports (dorms, trained dorm staff, etc) for students with ASD	6	1	5	1
76	Campus based dining accommodations for students with ASD	4	2	5	1
79	Employment supports/training for students with ASD	6	1.5	5	1
71	Coursework flexibility (e.g., replace public presentation with written assignment) for students with ASD	4	1.5	4.5	1
57	Independent living (no roommates) on campus for students with ASD	5	2	5	1.25
74	Behavioral supports/advising on appropriate conduct within university settings for students with ASD	5	2	5	1.25
77	Academic advising (e.g. tutoring referrals, mapping out academic plans, informing students of expectation in different fields of study) for students with ASD	5.5	1.25	5.5	1.25
72	Parental/family support	4.5	1.25	4	1.5

Table B4

Round 2 and Round 3 Results for Question 2: Items Moderately Benefit (“sometimes beneficial” to “very beneficial”) Ratings and Poor Consensus (IQR ≤ 1.5)

Item	Supports that would benefit students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
35	Having an ASD resource center, in addition to the campus DRC	5.5	2.25	6	2
38	Sensory appropriate study areas for students with ASD	6	1	5	2
51	Health/diet supports for students with ASD (e.g., exercise balanced diet, healthy meal prep, etc.)	5	2.25	5	2
60	Community space for people with ASD to meet and feel safe and accepted	6	1.5	5	2
61	Office that accommodates sensory issues within the DRC	5.5	2	5	2
62	Provide private rooms for testing for students with ASD	5	2	5	2
63	Develop a peer support social network for students with ASD	5	2	5	2
65	Tutoring (e.g., writing, core subjects, etc.) for students with ASD	4	1	5	2
70	Update campus policies to be more flexible (e.g., attendance flexibility, assignment extinction, lower credits to qualify for financial aid) for students with ASD	5	2	4	2
78	Connection to faculty and staff (e.g., personal introduction of students to faculty and staff they will work with each semester)	6	2	4	2

Table B5

Round 2 and Round 3 Results for Question 3: Items with Moderate Frequency (“sometimes to frequent”) Ratings and Strong Consensus (IQR ≤ 1.5)

Item	Supports that would benefit students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
83	Student with ASD does not identify as someone with a disability	4	1.25	4	0.5
91	Sensory barriers (e.g., noisy classroom, lighting, uncomfortable seating, etc.)	4	1	4	0.5
81	Poor organizational skills	5	1	5	1
82	Student with ASD is hesitant to seek supports	5	1	5	1
86	Perseveration on one topic prevention the student’s with ASD to move on to other topics/assignments	5	1	5	1
88	Poor social skills (entering/exiting conversations, oversharing, fixation on singular topics, not participating in conversations etc.)	5	1.25	5	1
89	Social behavior problems (e.g. hugging, stalking, physical proximity, etc.)	4	1.25	5	1
90	Difficulty in completing classes where there is little/no interest	4.5	1	5	1
92	Student with ASD has poor follow through when encountering a barrier	4	1	4	1
93	Student with ASD does not follow through with commitments once accommodations are recommended/provided	4	1	5	1
94	Adjusting to adult social norms (housing, classrooms, campus events, etc.)	4	1	5	1
95	Adjusting to independent living	4.5	1	5	1
96	Lack of understanding from dormitory staff	4	1	4	1
99	Inflexible timelines	4	1	4	1
100	Mental health issues: Depression	4	1	4	1
101	Mental health issues: Anxiety	5	2	5	1
102	General mental health issues: other	4	0.5	4	1
107	Poor organization	4	2	4	1
110	Handling “incompletes (I grade)” of courses	4	2	4	1
112	Inability of the student with ASD to self-advocate	4	1.5	5	1

(table continues)

Item	Supports that would benefit students with ASD	Round 2 (<i>n</i> = 24)		Round 3 (<i>n</i> = 21)	
		Median	IQR	Median	IQR
114	Student with ASD is unaware of how to access or use resources	4	1.5	4	1
115	Student with ASD is unprepared for college settings in general	4	1.25	4.5	1
117	Lack of social support	5	1	4	1
118	Poor problem solving skills	5	1	5	1
120	Difficulty transitioning from parent/school directive to intrinsic motivation	5	2.5	5	1
124	Student with ASD has poor attendance	4	1.5	4	1
125	Student with ASD has lack of attention in class	4	1	4	1
126	Student with ASD has difficulty maintaining course specific workload	4	0.5	4	1
80	Procrastination	5	1.5	5	1.25
97	Behavioral problems such as disruptive/rude verbal outbursts	4	2	4	1.25
105	Poor self care	4	1.5	4	1.25
107	Poor organization	4	2	5	1.25
108	Poor time management	4	2	5	1.25
111	Student not approaching professors to report needed accommodations	4	1	4	1.25
85	Distraction from studying, writing, etc. (e.g., gaming, phone, fixation on singular project, hobbies, etc.)	5	2	5	1.5
87	Over focus on assignments or project, making it bigger than expected	5	2	5	1.5
123	Student with ASD has difficulty living with roommates	5	1	5	1.5

Table B6

Round 2 and Round 3 Results for Question 3: Items with Variable Frequency (“rare” to “frequent”) Ratings and/or Poor Consensus (IQR > 1.5)

Item	Individual barriers experienced by students with ASD	Round 2 (<i>n</i> = 24)		Round 3 (<i>n</i> = 21)	
		Median	IQR	Median	IQR
84	Lack of motivation to complete assignment	4	2	4	2
98	Difficulty engaging in abstract or vague conversations within the classroom setting (e.g., engaging in hypothetical discussion)	4	1	5	2
103	Student with ASD has poor planning skills	5	2	5	2
104	Student with ASD lacks executive functioning skills	4	2	4	2
109	Difficulty doing group work	5	2	5	2
113	Lack of structure in university settings make coping difficult for students with ASD	4	0.5	4	2
116	Low family support	3	2	3	2
119	Gender/sexuality issues	4	0	4	2
121	Student with ASD is easily frustrated	5	1	5	2
122	Student with ASD has difficulty adjusting to change	5	2	5	2.5

Table B7

Round 2 and Round 3 Results for Question 4: Items with Moderate Frequency (“sometimes to frequent”) Ratings with Strong Consensus ($IQR \leq 1.5$)

Item	Systemic barriers experienced by students with ASD	Round 2 ($n = 24$)		Round 3 ($n = 21$)	
		Median	IQR	Median	IQR
137	Less support in higher education settings provided to students with ASD compared to secondary education settings	5	2	5	1
142	Lack of peer support for the student with ASD	5	0.75	5	1
144	Faculty misunderstanding/misinterpreting behavior	5	2	5	1
161	Multiple systems on campus that students with ASD are expected to manage (e.g., classroom attendance, academic advisement, social events, employment, food, etc.)	4.5	2.75	5	1
127	Parental over-involvement	5	1	4.5	1
128	Parental lack of understanding of academic accommodations provided at universities	4	1	4	1
129	Low faculty support	4	1.5	4	1
131	Discrimination by system as a whole	3.5	1	4	1
138	Classroom environment (sensory over stimulation)	4.5	1	4	1
141	Student with ASD taking too many classes in one semester/term	4.5	1.75	4	1
156	Change in routine (e.g. field trip)	4	1	4	1
159	Credit/grade requirements to access financial aid	4	1	4	1
135	Campus cultures not being accepting to students to students who identify as autistic	4	4	4	1.25
139	Classroom environment (inappropriate format of classroom lecture/learning activities)	4	2	4	1.5
160	Institutional policies on how to address violations by someone with ASD	4	1	4	1.5
162	Varied expectations form class to class	4	2.5	5	1.5

Table B8

Round 2 and Round 3 Results for Question 4: Items with Variable Frequency (“very rare to frequent”) Ratings and/or Poor Consensus (IQR > 1.5)

Item	Systemic barriers experienced by students with ASD	Round 2 (n = 24)		Round 3 (n = 21)	
		Median	IQR	Median	IQR
153	Stigmatization from DRC counselors	2	0	2	0
130	Low support form DRC staff	3	1.5	3	1
132	No support available to get the specific help a student with ASD needs	4	1.5	3	1
149	Bullying by instructors	3	1.75	3	1
158	DRC staff misunderstanding or misinterpreting behavior	2	1	2	1
140	Student with ASD dropping courses resulting in financial aid issues	3	2	3.5	1.25
146	Physical structural barriers	3	1	3	1.25
148	Lack of academic advising	3.5	2	3.5	1.25
134	Social science classes covering autism in lectures in a derogatory or stigmatized way	3	2	3	1.5
150	Bullying by students	3	2.75	3	1.5
133	Student with ASD misdiagnosed with a non-ASD diagnosis	3	1.5	3	2
136	Lack of campus awareness about ASD	2.5	1.75	4.5	2
143	Faculty not identifying student’s needs	4	1.5	4	2
145	Increased cost of education because of need for lower course load.	4	2	4	2
147	Transportation barrier (e.g., parking, riding buses, etc.)	3	1	3	2
154	Lack of money for treatment	4	2	4	2
155	Lack of qualified providers for treatment (e.g., Applied behavioral Analysis, Cognitive Behavior Therapy, etc.)	4	1.75	4	2
157	Media’s portrayal of ASD	4	1.75	4	2
151	Stigmatization from faculty	4	2.5	3.5	2.25
152	Stigmatization from students	4	2.5	4	2.25
163	Poor funding from services on campus	3.5	2.75	4	2.5

CURRICULUM VITA

RYAN T. PASKINS

CURRENT POSITION: Doctoral Candidate
 Department of Special Education and Rehabilitation
 Rehabilitation Counseling Program

ADDRESS: 1310 Marilyn Dr.
 Ogden, UT 84403
 Cell: 801-458-0499
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EDUCATION:

2014-present	Ph.D.	Utah State University Logan, UT	Rehabilitation Counseling
2009	M.A.	University of Utah Salt Lake City, UT	Social Work (MSW)
1998	B.A.	Weber State University	Social Work
	B.A.	Weber State University	Family Studies

CERTIFICATIONS / LICENSE

Licensed Clinical Social Worker (LCSW), Certification Number: 293178-3501
 Expiration Date: 09/30/2018

Qualified Mental Retardation Professional (QMRP), Utah State Department of
 Commerce, Expiration Date: none

OTHER TRAINING

Motivational Interviewing (MI). Completion of proficiency. Weber Human Services.
 2013 Ogden, UT.

Psychoeducational Multi-Family Group (PMFG). William R. McFarlane Ph.D,
 Multifamily Groups in the Treatment of Severe Psychiatric Disorders. January-March,
 2012. Ogden, UT

WORK EXPERIENCE

2015 – Present **Director of EmployAbility Clinic**
Emma Eccles Jones College of Education and Human Services,
Utah
State University, Logan Utah

Duties include working with adults with disabilities in the employment process. A customized employment model is used from initial intake through post-employment supports. The clinic partners with the Division of Services for People with Disabilities (DSPD) and with Utah State Office of Rehabilitation (USOR) to provide employment supports for people who meet the criteria of having a “most significant disability.” The clinic provides a thorough assessment that involves both formal and informal assessment tools. Based on these results the individual is supported in exploring potential employment opportunities in the community where they can receive both exposure and training. The clinic advocates for each individual, negotiates with community businesses, and works collaboratively with the individual’s natural support system. Once employment is obtained, ongoing support is provided until the individual achieves vocational independence.

2015 – Present **Mental Health Therapist (Part Time)**
Ryan Paskins LCSW, LLC,
Ogden, Utah

Work with families and individuals by provided mental health supports. Specialized focus is on families in transition (i.e. divorce, remarriage, blended families), and working with families/individuals who have an intellectual disability or autism.

2012 – Present **Mental Health Therapist (Part Time)**
Family Support Center of Ogden,
Ogden, Utah

Provide individual and family counseling services to families connected in the Utah Foster Care program. Provide diagnosis and treatment for children in the foster care system, provide educational and mental health supports to parents and other family members, implement evidence based practice strategies when working with children such as play therapy, cognitive behavioral therapy, and applied behavioral analysis.

2010 – 2014 **Mental Health Therapist (Full Time)**
Weber Human Services
Ogden, Utah

Provided mental health supports for individuals with Serious and Persistent Mental Illness (SPMI). Assessed, diagnosed, and treated adults with mental illness in both

individual and group settings. Received training in and provided evidence based practices such as Cognitive Behavioral Therapy (CBT), Motivational Interviewing (MI), Dialectical Behavioral Therapy (DBT), Psychoeducational Multi-Family Group Therapy (PMFG). Worked with families in providing education, resources, and support as they navigate the effects and treatments available when faced with mental illness. Presented to local law enforcement on ways to identify and address individuals with mental illness in a crisis situation. Collaborated with local agencies to increase resources available for people with mental illness. Provided crisis supports via phone and with “walk ins” to reduce suicide risk and to connect to temporary or long term supports as needed. Staffed cases collaboratively with support team of psychiatrists, administration, and case management to provide more inclusive care to each individual.

2012 – 2014 Mental Health/Addictions Specialist (Part Time)

*Weber Human Services
Ogden, Utah*

Collaborated with local drug court programs to provide addiction counseling to adults with substance abuse charges. Worked with clients that are part of the criminal justice program, including those recently released from prison, those on probation, and individuals awaiting trial. Conducted substance abuse and psychiatric assessments, conducted individual and group counseling. Worked extensively with diverse populations. Implemented evidence based theories of Motivational Interviewing (MI) and Cognitive Behavioral Therapy (CBT). Documented progress made and presented results to the courts and local law enforcement officers.

2009 – 2010 Mental Health/Addictions counselor

*Bountiful Treatment Center,
Ogden Utah*

Provided mental health and addiction counseling in individual and group settings. Implemented evidence based theories of Motivational Interviewing (MI) and Cognitive Behavioral Therapy (CBT).

2008 – 2009 Mental Health Counselor (Practicum Student)

*Veterans Affairs (VA)
Salt Lake City, Utah*

Provided mental health supports for veterans experiencing symptoms of depression, PTSD, anxiety, and personality disorders. Offered individual and group therapy. Main area of emphasis was on female veterans who experienced trauma. Developed and ran group therapy for female veterans.

2001 – 2008 **Support Coordinator (Case worker)**
Department of Human Services
Division of Services for People with Disabilities (DSPD)
Weber and Davis Counties, Utah

Acted as a service broker to connect individuals and families on the wait list to additional community supports. Sat on interagency committee meetings to coordinate services, and educate the community on issues related to disability. Served as a case manager for 30+ individuals with intellectual disabilities. Advocated as a court appointed guardian for individuals with disabilities who were in the states custody. Served as advisor to the local chapter of People First.

2000 – 2001 **Housing Case Manager**
Catholic Community Services
Ogden, Utah

Assessed individuals and families need for housing assistance. Managed Tanif funds to provide maximum level of support to ensure long term housing. Sat on interagency committee meetings to coordinate services.

1999 – 2000 **Volunteer**
Koforidua School for the Deaf/Cape Coast School for the Deaf
Ghana, Africa.

Volunteered as a tutor for deaf adolescents for two school in Ghana Africa. Tutored students in English, Math, and Social Studies. Developed a literacy class for deaf adults in the community. Trained community members to teach the class to develop sustainability.

1998 – 1999 **Case Manager**
Enable Industries Inc.
Ogden, UT.

Work with adults with intellectual disabilities in a sheltered workshop setting. Monitor clients' behavior, work with the individual to develop and implement treatment plan, co-facilitate groups, facilitate recreational therapy, document progress.

1997 – 1998 **Prevention Specialist (Practicum Student)**
Child Abuse Prevention Center
Ogden, UT.

Developed and presented age appropriate information on topics of abuse, anger management, and suicide prevention in schools and other community settings. Made referrals to state agencies and law enforcement when abuse was reported.

1994 – 1997 Habilitation Specialist

Rise
Ogden, UT.

Work with adults in residential setting. Monitor clients' behavior, implement treatment plan, co-facilitate group therapy, facilitate recreational therapy, document progress, taught family communication class.

1993 – 1994 Habilitation Specialist

Avatar
Ogden, UT.

Work with adults in residential setting. Monitor clients' behavior, implement treatment plan, co-facilitate group therapy, facilitate recreational therapy, document progress, taught family communication class.

PROFESSIONAL ASSOCIATION PARTICIPATION

National Association of Social Work

National Council on Rehabilitation Education

Association for Behavioral Analysis International

SCHOLARSHIP**RESEARCH AREAS / INTERESTS**

Adult Populations with Autism, Transition Services, Assessment in Employment Services, Mental Health Strategies for People with Disabilities.

MANUSCRIPTS IN PREPARATION

Hoffmann, A., Brady, A., Paskins, R. T., Sellers, T. (in review) Using Pictures Depicting App Icons to Conduct an MSWO Preference Assessment on a Tablet Device. *Journal of Applied Behavioral Analysis.*

Hoffmann, A., Brady, A., Paskins, R. T., Sellers, T. (in review) Examining Preference and Reinforcers Using High-Tech Stimuli. *Journal of Applied Behavioral Analysis.*

Paskins, R. T., Schultz, J. C. (In Preparation). The use and implementation of informal assessment in the customized employment process. *Counselor Education and Supervision.*

Paskins, R. T., Schultz, J. C. (in review). Current applied interventions in college settings to assist adult students with autism spectrum disorder: A systematic review. *Counselor Education and Supervision*.

PROFESSIONAL PRESENTATIONS

Peer Reviewed

Hoffmann, A. N., **Paskins, R.**, Brady, A.M., & Sellers, T. P. (2018, May) Using Pictures Depicting App Icons to Conduct an Multiple Stimulus Without Replacement Preference Assessment on a Tablet Device. In A. Hoffmann (Chair) *Emerging Technologies and Alternative Modalities of Preference Assessment*. Symposium presentation at the 44th annual meeting of the Association for Behavior Analysis International, San Diego, CA

Paskins R. T. (2016, October). *The role informal assessment in the customized employment process*. 2016 NCRE/RSA/CSAVR National Training Conference on Rehabilitation Education. Washington, D.C.

Paskins R.T., Hoffmann, A. (2017, May). *Using Pictures Depicting App Icons to Conduct an MSWO Preference Assessment on a Tablet Device*. Applied Behavior Analysis International (ABA). Denver, CO.

Paskins, R.T., Sellars, T., Brady, A. (2017). *Tools and Tips for Monitoring and Increasing Staff Fidelity*. UMTSS Conference, Provo, UT.

Shea, K.A, **Paskins, R.T.** (2017) *ABC's of Everyday Behavior: How to Find Functional Relations in Your Classroom*. Conceptual presentation presented at the annual UMTSS Conference, Provo, UT.

Paskins, R. T. Brady, A, Lee, J., Mattson, S., Sellers, T., & Hoffmann, A. (2017, August). *Examining high tech variables to improve client outcomes*. Presented at the Utah Association for Behavior Analysis Annual Conference in Salt Lake City, UT.

Invited Presentations / Trainings

Paskins, R. P. (2001). *Team Building Approaches to Unite Deaf Communities*, Ghana National Association of the Deaf (GNAD). January. Accra, Ghana

Paskins, R. P. (2013). *Benefits of Using Family Systems to Mange Symptoms of Schizophrenia*, Weber Human Services In-Service Training. May. Ogden, Utah

Paskins, R.P (2017). *Autism and Employment*, Utah State Office of Rehabilitation. Salt Lake City, Utah

GRANTS / EXTERNAL FUNDING

Funded:

Schultz, J.C., Riesen, T., & Oertle, K.M., Co-Principal Investigators. (Submission Date: May 29, 2015) *Comprehensive System of Personnel Development in Vocational Rehabilitation: Certificate Program*. Rehabilitation Services Administration (RSA), Office of Special Education and Rehabilitative Services (OSERS), U.S. Department of Education, \$1,000,000. Funded October, 2015 to September, 2020. (F&A, \$18,520). (Student collaborator writing bios of investigating team)

Not Funded

Paskins, R. T. (September, 2016) *Using a Technological Approach to Instruct Transition Age Students Marketable Computer Skills*. Autism Council of Utah (ACU), \$20,000.

Other External Funding

EmployAbility Clinic: Community based employment services are provided to individuals with disabilities. Funding is provided through a fee for service contract with the Utah State Office of Rehabilitation, Division of Services for People with Disabilities, and private pay.

TEACHING

UTAH STATE COURSES TAUGHT

Psychiatric Rehabilitation, Utah State University (REH 6180) – synchronous 2018

Human Growth and Development, Utah State University (REH 6260) Teacher Assistant (TA) -on site and synchronous 2017

Group Counseling Skills, Utah State University (REH 6250) Teacher Assistant (TA) - on site 2017

Rehabilitation of Persons with Severe Mental Illness, Utah State University (REH 6180) – asynchronous 2017

Advanced Assessment in Rehabilitation, Utah State University (REH 6210) - on site 2016, synchronous 2017

Acceptance and Commitment Therapy, Utah State University (REH 6560) Teacher Assistant (TA) – synchronous 2015

Practicum, Utah State University (REH 6140) – synchronous 2015

Rehabilitation Counseling Skill Development, Utah State University (REH 6130)
Teacher Assistant (TA) – on site 2016, 2017

Job Placement and Job Development, Utah State University (REH 6160) Teacher
Assistant (TA) – synchronous 2016

Supervision:

Student Advisor: Provided on site supervision to practicum students in the EmployAbility Clinic. Supervision is provided weekly to staff individual cases and to discuss issues pertinent to employment, mental health, community resources etc. May 2016 to Present.

Student Advisor: supervised graduate students who have been placed in mental health practicum settings. Reviewed recordings of mental health sessions and explored with student the theory used and skills that were applied. Provided constructive feedback for future practice in the field. Reviewed and provided feedback of case conceptualizations.

SERVICE

UNIVERSITY SERVICE

May 2016-Present: EmployAbility Clinic, Utah State University

Sept. 2016-2017: Autism Support Services: Education, Research, and Training (ASSERT) Program- Researcher, Utah State University

Sept. 2016-Present: Utah Behavioral Supports Center (UBSC)-Researcher, Utah State University

May 2016-2018 Practicum Advisor, Utah State University

Aug. 2017-Present Utah State University Doctoral Student Representative (elected position)

OTHER PROJECTS

Utah State University EmployAbility Clinic is a clinical services program located within the Rehabilitation Education Program. The purposes of this program are to provide clinical service instructional for students, to conduct clinical research, and to provide a service to the community. Program staff and students serve adults with disabilities who are interested in obtaining community based competitive employment. Services include assessment, vocational counseling, behavioral intervention, job placement and development, and support services following placement. Initially, services are focused on clients who are at risk of not being successful within the State-Federal rehabilitation program, individuals who qualify for supported employment funding through the

Division of Services for People with Disabilities, and on students who are transitioning from Special Education programs to community based employment. Responsibilities for this program have included conceptualization and proposal, fiscal planning and management, securing external sources of funding, personnel selection and evaluation, developing policies and procedures, consulting with the Utah State University Institutional Review Board, and clinical supervision and consultation.