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AUTISM SPECTRUM DISORDER: COMMUNITY COLLEGE FACULTY AWARENESS, PRACTICES, AND PROFESSIONAL DEVELOPMENT

Kristyn Sacrestano

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Kristyn L. Sacrestano

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Kristyn L. Sacrestano	Ceceilia Parnther, Ph. D.

ABSTRACT

AUTISM SPECTRUM DISORDER: COMMUNITY COLLEGE FACULTY AWARENESS, PRACTICES, AND PROFESSIONAL DEVELOPMENT

Kristyn Sacrestano

Students with Autism Spectrum Disorder (ASD) are increasingly selecting to participate in postsecondary education. These individuals often face a number of challenges and barriers to success resulting in poor persistence and completion rates. For institutions of higher education, it is imperative that appropriate supports be put in place and faculty are prepared to support learners with ASD to allow for positive student experiences and successful completion. The purpose of this study was to examine disability awareness and faculty preparedness for working with students with ASD in order to move towards creating welcoming campuses which appropriately support and retain learners with ASD. The sample included a national sample of community college faculty. Participants completed the *Faculty Awareness and Preparedness for Working with Students with ASD* survey online. Data were analyzed to determine the factors which influence faculty preparedness for supporting learners with ASD. The findings provide insight into the perceived knowledge, preparedness, and pedagogical techniques of community college faculty. This study adds to a limited body of research on faculty support of students with ASD and will inform future decisions by institutional leaders to allow for the success of students with ASD on their campuses.

Keywords: Autism Spectrum Disorder, community college, faculty awareness

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CHAPTER 1

Introduction

The number of postsecondary students with Autism Spectrum Disorder (ASD) is rapidly rising in the United States (Elias & White, 2018). In 2015, approximately 49,000 (est.) autistic students graduated from high school, many of whom were interested in pursuing postsecondary education (Sarrett, 2017). ASD diagnoses continue to increase. According to Cox (2017), college students with ASD comprise the fastest-growing demographic on college and university campuses, with an estimated 433,000 students with ASD enrolled in a college or university setting in 2020.

Students with ASD face a variety of challenges during their transition to and while enrolled in higher education. Students with disabilities continue to experience frustrations and face obstacles, consequently leading to poor performance, high course failure rates, and premature departure (Hong, 2015; Lombard et al., 2016). Additionally, the transition to college and employment can be challenging due to low expectations, limited awareness of options, lack of access, and uninspiring opportunities (Oertle & Bragg, 2014). While students with ASD fall within this discussion of students with disabilities, it is important to note that students with ASD have their own unique sets of needs. The needs and challenges faced by students with ASD must be examined to provide appropriate supports to this growing population. Faculty awareness of disability, particularly the degree to which college faculty are prepared to work with students with ASD, must be investigated to develop appropriate supports on college and university campuses (Cook et al., 2009; Tipton & Blacher, 2014; Zeedyk et al., 2019) to allow for successful participation and graduation of students with ASD alongside their neurotypical peers (Liasidou, 2014).

Students with ASD tend to be more successful in postsecondary environments where diversity is appreciated, unique individuals are valued, and there is an atmosphere of tolerance and understanding (Geller & Greenberg, 2009). These environments are especially prevalent in the community college setting. As open-access institutions, community colleges often have diverse student populations, including students with ASD (Shmulsky & Gobbo, 2018). Community colleges educate a large proportion of higher education students in the U.S. In 2018-2019, 8.2 million students enrolled at community colleges (Community College Resource Center, 2021) and community college students made up 41% of undergraduates in 2019 (American Association for Community Colleges, 2021). According to Wei et al. (2014), 81% of college students with ASD attend a community college at some point in their postsecondary education. The type and quality of interactions students have with instructors play an important role in their college success. For students with ASD, faculty priorities, behaviors, and the ability to support students with special needs influence their college experiences and success (Cook et al., 2009). It is essential to consider community college faculty concerning their awareness and preparedness for working with students with ASD as these faculty are likely to encounter students with ASD. Perspectives from not just full-time faculty, but also part-time faculty are essential, as they comprise about 70% of instructional faculty at community colleges and experience a lack of engagement, professional development, and resources from their institutions (Thirolf & Woods, 2017).

Purpose of the Study

The purpose of this non-experimental research survey study was to examine disability awareness and faculty preparedness for working with students with ASD.

Specifically, the study identified the extent to which faculty self-identify awareness of characteristics and needs of individuals with autism, how pedagogical practices to support learners with ASD are employed, and the training needed to improve their ability to support these students. The study also determined which factors influence preparedness for supporting students with ASD. Understanding the levels of awareness and preparedness of faculty adds to the limited literature on faculty support for students with ASD, and informs practice, particularly regarding faculty development in supporting this population. Historically, students with disabilities have been systemically marginalized, often facing challenges and experiences that make retention and persistence especially difficult.

Theoretical Framework

The theoretical lenses of Critical Disability Theory (CDT) and Critical Autism Studies (CAS) were explored to substantiate the challenges and experiences of students with ASD, including interactions with faculty in the community college setting. Critical Theory, introduced by Max Horkheimer in 1937, focuses on explaining oppression or what is wrong with a current social reality, as well as identifying objective ways to transform society. In the 1970's, Critical Theory was applied to law as the Critical Legal Studies (CLS) movement emerged in the United States. The purpose of the movement in a legal context is to achieve particular social objectives; the analysis of law must consider the impact on its social context. Limitations of CLS were identified in the 1980's and 1990's based upon structural biases in society, leading to the development of Feminist Legal Theory, Queer Theory, and Critical Race Theory. Similarly, Critical Disability Theory (CDT) recognizes the biases that exist in society for people with disabilities

(Hosking, 2008; Liasidou, 2014; Vallejo Pena, 2016; Hall, 2019). It expands upon the Social Model of Disability (Oliver, 1983) by considering the influences of impairment, personal responses to impairment, and the obstacles imposed by the social environment to the concept of disability. CDT values diversity, the voices, rights, and multidimensionality of individuals with disabilities, the impact of language, and transformative policies. The objective of CDT is to support societal transformation such that the diverse group of disabled people are included as equal participants in their communities. (Hosking, 2008). CDT aims to be transformative in critical analysis of the notion of disability and issues of social justice (Liasidou, 2014; Pena, 2016; Hall, 2019). CDT therefore challenges educators to critically analyze disabling structures, avoid emphasis on individual deficiencies, and consider the voices of students with disabilities in decision-making (Pena et al, 2016).

Critical Autism Studies (CAS) brings focus to the ways in which individuals with autism are oppressed (Woods et al, 2018). It calls for conversations of intersectionality and moves away from a deficit-focused discussion of autism, bringing recognition of the diversity and personhood of individuals with autism (O'Dell, 2016). An essential action for the advancement of CAS is allowing the voices of individuals with autism to be heard (Davidson & Henderson, 2010). CAS seeks to further the movement for socially just systemic change which ceases to view and treat individuals with autism as other than the societal norm.

CDT and CAS provide a framework for evaluating and understanding the experiences of students with ASD, including their interactions with faculty and campus experiences. The theories apply to the present research study in identifying faculty

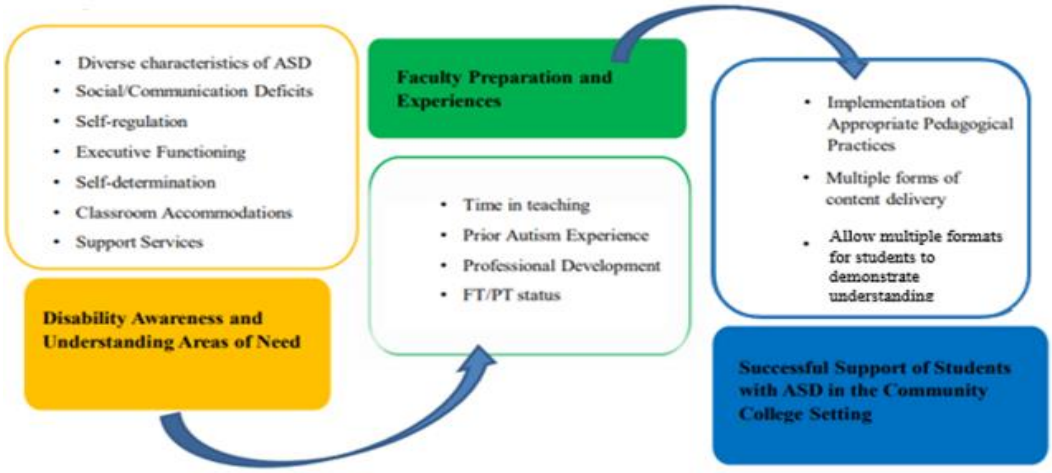
awareness of student needs and their preparedness for supporting students with ASD in their college experience despite navigating a system that is not designed to serve this student population.

Conceptual Framework

Understanding the challenges faced by students with ASD and the preparedness of faculty to develop and promote support for students in postsecondary education can be better realized when considering the concepts of Critical Disability Theory, Critical Autism Studies, and the variables identified in literature related to the current research study. An increase in college students with disabilities, specifically ASD, is recognized, but there is little research on faculty preparedness to support these students. Insight is needed to better identify and understand faculty ability to successfully identify and support the needs of students with ASD. Information gathered from faculty about their experiences and factors impacting their perceived preparedness provide insight into the best ways to develop welcoming and supportive campus communities.

Figure 1

Conceptual Framework



This conceptual framework considers the importance of awareness and understanding of common characteristics and areas of need associated with ASD as a foundation for cultivating positive interactions and supportive environments. Having this background knowledge allows instructors to be better prepared to support students with ASD in their classrooms. Additional experiences, including time in teaching, personal experience, professional development, and prior work with students with ASD influence one's ability to succeed with these students. The present study analyzed the awareness and preparation, seeking to identify relationships between these characteristics and pedagogical practice. Faculty prepared to work with students with ASD will implement pedagogical practices such as providing multiple formats of content delivery, allowing multiple formats for students to demonstrate understanding, and engaging students in the classroom in various ways. Ultimately, faculty who are adept at working with students with ASD will be more likely to positively impact a student's college experiences which impact motivation, satisfaction, persistence, and academic success. By measuring faculty experiences, the present study identified the extent to which faculty are aware of characteristics and needs of individuals with autism, the extent to which pedagogical practices to support learners with ASD are employed, and the training needed for improved ability to support these students.

Significance of the Study

In the literature, much of the focus on meeting students' needs with disabilities have centered around the K-12 system. For students who choose to pursue postsecondary education, either at a vocational or technical school, 2-year college, or 4-year college or university, the supports in place in high school may not be obtained as easily. Students

must then advocate for themselves and navigate new environments and situations. These students face additional challenges. Students with disabilities have lower retention and completion rates than their peers (Fleming et al., 2017). Lombardi et al. (2016) suggest that students with disabilities have higher course failure rates, lower retention rates, and significantly lower graduation rates than their nondisabled peers. Tansey et al. (2018) indicate that students with disabilities experience lower levels of social support, demonstrate more insufficient social skills, and experience worse quality of life than students without disabilities. They also encounter professors that do not necessarily understand their needs or provide the needed support in the classroom (Accardo et al., 2019).

Students with ASD comprise a growing population on college campuses. Identifying faculty awareness of students with autism and their preparedness to support such students is critical to informing decisions about how institutions can create campus environments that support positive experiences for students with ASD to retain them. Research in this area, particularly on the needs of faculty to position them to best support their students with ASD, is limited. The present study addresses a gap in the research by providing national data to generate a greater understanding of what faculty need to know and do to advocate for this underserved population.

Connection with Social Justice and Vincentian Mission in Education

In connection with the Mission of St. John's University, this research works toward improving the experiences and opportunities for students with ASD, a group of individuals faced with barriers and injustices in society. In higher education, students with ASD encounter many challenges to persistence and completion of a degree. This

work provides insights and information which will allow for the development of inclusive and welcoming college campuses which provide equal opportunities for education and social involvement for all students.

Research Questions

What is the awareness, perception, and pedagogical practices of community college faculty working with students with ASD? The following research questions explore the inquiry:

RQ 1: To what extent do faculty have knowledge and awareness of the needs of students with ASD?

- **(a)** What are the differences in community college faculty members' knowledge and awareness of ASD when comparing years of teaching experience and FT/PT teaching status?
- **(b)** What are the differences in community college faculty members' knowledge and awareness of ASD when comparing gender and area of instruction?

RQ 2: To what extent do FT/PT teaching status, years teaching experience, gender, area of instruction, and prior autism experience predict the use of best pedagogical practices?

RQ 3: What is the willingness of faculty to engage in professional development and what professional development/training opportunities do faculty feel would be beneficial to improved support of students with ASD?

Definition of Terms

The following operational definitions are provided to ensure understanding of terms used throughout the study.

Americans with Disabilities Act of 1990 (ADA): Civil rights legislation which prohibits discrimination against individuals with disabilities in public and private businesses, state and local governments, private places of public accommodations, and telecommunications. Public and private colleges and universities must provide equal access to postsecondary education for students with disabilities. Title II of the ADA covers publicly funded universities, community colleges and vocational schools. Title III of the ADA covers privately funded schools. (ADA National Network, 2021)

Accommodation: Aids and services individually designed to meet the needs of a student with a disability. (ADA National Network, 2021)

Critical Disability Theory (CDT): Emancipatory and developing discourse which is transformative in the critical analysis of the sociopolitical constructs of disability and the oppression of individuals with disabilities. (Hosking, 2008; Vallejo Pena et al, 2016; Hall, 2019)

Critical Autism Studies (CAS): Investigating power dynamics that operate in discourses around autism, questioning deficit-based definitions of autism, and consider intersectionality of disability. (Woods et al., 2018)

Faculty: Educators at institutions of higher education who instruct in the classroom, online, or in experiential education setting.

Office of Disability Services: Office on a college campus which provide services to students with documented disabilities and services to assist faculty in meeting the accommodation mandates set forth by federal legislation.

Section 504 of the Rehabilitation Act of 1973: Federal law designed to protect the rights of individuals with disabilities in programs and activities that receive Federal financial

assistance from the U.S. Department of Education including colleges, universities, and postsecondary vocational education and adult education programs.

Student: An individual enrolled in coursework at an institution of higher education.

Universal Design for Learning: Instruction including strategies which benefit all learners following four core principles: multiple means of representation; multiple means for engagement; multiple means for action and expression; and multiple means for assessment (Trostle Brand et al., 2012).

CHAPTER 2

Introduction

Chapter 1 provided the purpose of the study, summary of the theoretical and conceptual frameworks which guide the study, the significance of the study, and a summary of the research questions and design. This chapter provides an overview of both Critical Disability Theory (CDT) and Critical Autism Studies and includes a literature review that focuses on faculty and higher education institutions' preparedness to successfully provide opportunities for students with ASD to participate and complete a postsecondary education. As stated in Chapter 1, the purpose of this study was to examine disability awareness and faculty preparedness for working with students with ASD in order to move towards creating welcoming campuses which appropriately support and retain learners with autism spectrum disorder (ASD). The current chapter provides a framework for understanding historical and current research on the subject matter, while also providing insight into the development of the research design guiding the study.

With the rise in number of individuals with ASD attending college, it is critical that institutions of higher education, particularly community colleges, consider the ways in which they are prepared to meet the needs of these students. To promote student success and completion, institutions must create supportive environments that allow for equitable participation for all students and encourage positive faculty-student interactions. Critical disability theory (CDT) and Critical Autism Studies provide ways to better understand structural inequities related to student success.

Theoretical Framework

Critical Disability Theory (CDT) and Critical Autism Studies (CAS) provided the framework for this study. Critical Disability Theory (CDT), also referred to as Critical Disability Studies (CDS), emerged in the 1970's, focused on examining the consequences of disability as a social construct (Pena et al, 2016). It gets its roots from Critical Theory, which was introduced by Max Horkheimer in 1937 and focuses on naming inequities in current social realities, explaining oppression, and working to transform society (Hosking, 2008). The movement began when Critical Theory was applied to law as Critical Legal Studies (CLS) where the analysis of law must deliberate the impact on its social context. In the 1980's and 1990's, limitations of CLS were acknowledged based upon structural biases in society which sprouted Feminist Legal Theory, Queer Theory, and Critical Race Theory. Likewise, CDT recognizes the biases, stigma, and oppression existent in society for people with disabilities (Hosking, 2008). CDT aims to be transformative in critical analysis of the notion of disability and issues of social justice (Liasidou, 2014; Pena, 2016; Hall, 2019). It expands upon the Social Model of Disability (Oliver, 1983) by taking into account the influences of impairment, personal responses to impairment, and societal obstacles based on the concept of disability. The objective of CDT is to inspire societal transformation so that disabled people, who make up a diverse group, are included as equal participants in their communities (Hosking, 2008). It challenges societally created ableism which systematically excludes the non-normative (Hall, 2019).

Critical Autism Studies (CAS) draws upon Critical Disability Studies (CDS), diverting focus away from medical interpretations and drawing focus to the ways in which individuals with autism are oppressed (Woods et al, 2018). It calls for conversations of

intersectionality and moves away from a deficit-focused understanding of autism to appreciate the diversity and personhood of individuals with autism (O'Dell, 2016). Particularly important to the advancement of CAS is allowing the voices of individuals with autism to be heard. For example, Davidson and Henderson (2010) reported on a study analyzing 45 autism spectrum autobiographies which led to recognition of common challenges of knowing when to disclose and the difficult decision of choosing to do so, as individuals want to feel safe from the social stigma. Individuals' decisions to conceal the fact that they have autism as a result of societal implications were also noted. Individuals choosing to come out on the spectrum liken the experience to that of other marginalized groups coming out. A final theme identified was education through disclosure and the acknowledgment of individuals with ASD that coming out contributes to better understanding of what it means to be autistic. To cultivate understanding it is imperative to listen to a range of voices (Davidson & Henderson, 2010) and CAS is positioning individuals with ASD to reclaim autism narratives and co-produce knowledge about autism (Woods et al., 2018, O'Dell, 2016). Doing so may advance transformation on often unwelcoming college campuses. In a study of digital campus climate at 94 community colleges, Ranon Nachman and Brown (2020) found that mention of autism was not found on 29.8% of college websites and when autism was referenced, medical and legal language was used which portrayed students as deficient and autism was framed as outside of normalcy. Only 1 out of 94 community college websites included content written by autistic individuals. The need for the voices of autistic persons to be heard in the production of autism knowledge is evident.

In higher education, students with disabilities, afforded the ability to seek accommodations based on documented need as a result of federal legal mandates, often are not viewed as equal participants in their college communities. They are viewed as other than the norm. Liasidou (2014) challenges the perspective reflected in antidiscrimination legislation which stipulate the need for reasonable accommodations, stating that it positions disability as an individual problem rather than a systemic one. Len Barton, a pioneer of sociological study of education in the realm of disability studies and inclusive education, asserts that social exclusion is a socially constructed process in need of constant conceptual analysis (Goodley & Runswick-Cole, 2010). In higher education, the act of singling out students with disabilities as being different and requiring compensatory supports is a practice that is antithetical to the foundation of inclusive discourse focused on responding to learner diversity without segregating or stigmatizing accommodation provision (Liasidou, 2014). Goodley and Runswick-Cole (2010) assert that the practice of separating disabled and nondisabled children is highly problematic. Likewise, Liasidou (2014) suggests the need to avoid individual pathology perspectives that result in discriminatory forms of intervention, instead of recognizing the multiple sources of social disadvantage experienced by disabled students which impact their access to and ability to complete postsecondary education as an avenue to social justice reform in higher education. CDT and CAS, therefore, challenge educators to critically analyze disabling structures, avoid emphasis on individual deficiencies, and consider the voices of students with disabilities in decision-making (Pena et al., 2016). Students electing to disclose their disability in college often are faced with navigating their disability as well as how society treats them in relation to their disability and other

social identities. Educators must acknowledge this and engage in intentional interactions with students about their needs within and outside their disability to advocate on their behalf (Pena, 2016).

Critical Disability Theory and Critical Autism Studies lay the foundation for the present study in the recognition of societal challenges faced by students with ASD and the inequities they experience. In higher education, students with disabilities experience othering (Ranon Nachman & Brown, 2020), struggle with the decision to disclose their ASD diagnosis for fear of poor treatment, and when provided accommodations are often given generic supports which do not take into account individuals and intersectionality of their needs. Meaningful interactions and feelings of support from faculty are often non-existent. The present study takes into account this foundation and aims to examine faculty knowledge of ASD and preparedness to work with students with ASD in an effort to better understand future steps for positioning faculty to advocate for welcoming college environments which systematically create fair and socially just authentic education experiences. The section that follows provides a review of the literature which affords contextual background necessary for understanding the landscape of higher education as it relates to serving students with ASD.

Review of Related Literature

The literature review that follows begins with a discussion of policy and legislation in place to guarantee that the rights of individuals with disabilities are protected, followed by an explanation of the role of Offices of Disability Services. This review addresses characteristics of ASD as well as needs and challenges faced by students with ASD. To do this, it was essential to include students with ASD, explicitly

describing their college experiences in research. Examples of services and support programs that exist at colleges across the United States, faculty perspectives that play an important role in preparing to meet student needs and implementing training or professional development to support faculty make up the review of related literature for this study.

Student Rights and Accommodations

The Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 mandate equal access to postsecondary institutions for students with disabilities (Dymond et al., 2017; Sarrett, 2017). This legislation provides protection against discrimination based on disability. Institutions of higher education cannot require that students disclose their disability. Disclosure of a disability is voluntary; however, students can only receive accommodations if they disclose and provide evidence of their disability, either by presenting an Individualized Education plan (IEP) from high school or medical documentation. Students must also complete this process of self-identification and application for accommodations or services themselves. A parent or guardian cannot request accommodations on behalf of a student.

Disability Services in Higher Education

Colleges and universities typically have an Office of Disability Services, or similarly titled office, where students can go to seek supports and accommodations on campus. Many institutions provide classroom accommodations consistent with those provided to students in K-12 education. Sarrett (2017) writes:

> Typical academic accommodations for students with a range of disabilities, including autism, in higher education are similar to those received in high school,

such as extended test time, distraction free testing, flexible due dates for assignments, breaks during class, the use of technology in the class, note takers, clear directions, the use of visuals, and optional group activities. (p. 679-680)

Because students must self-advocate for the supports, they require and many students with ASD struggle with self-determination skills, students may not seek out these accommodations. For those that do self-advocate, these typical accommodations may not be enough. Accommodations are often determined by practitioners who make decisions about appropriate services without significant input from students, and so accommodations are often misaligned with student needs (Van Hees et al., 2014; Brown & Coomes, 2016; Sarrett, 2017; Accardo et al., 2019). For example, Brown and Coomes (2016) completed a mixed-methods study aimed at identifying what services are provided to students with ASD specifically and practices used by disability services professionals to supports these students. Participants included 146 Directors of Disability Services at 2-year public colleges across the United States. All participants completed a web-based survey regarding interventions for students with ASD. Ninety-five percent of Directors indicated that their institution enrolled at least one student with ASD and overall, 2-year public institutions served about 16 (M = 16.37) students with ASD. Participants indicated that their institutions served students with a wide range of functional limitations as a result of open enrollment. Accommodations commonly provided included extended exam time, alternate exam location, use of audio recorder, and note-takers. General support services such as a tutoring, general counseling, and career counseling were provided to students with ASD at 95% of institutions. Support services with a social focus were less common: peer mentoring (37.6%), transition programs (42.0%) and

disability student organization (36.2%). Forty-two percent of institutions offered transition programs. ASD-specific support services were reported by only 26% of Directors and just one institution offered ASD services for an additional fee. Interestingly, although services specific to individuals with ASD were seldom provided, analysis of qualitative data revealed that one of the strongest themes was that students with ASD are unique individuals who benefit from personalized services and accommodations. Respondents wrote that one cannot assume that all students with ASD function at the same level and need the same supports. The same strategies do not work for all students and accommodations should consider students' unique strengths and challenges.

Similarly, Cai and Richdale (2015) conducted a study aimed at highlighting the educational experiences and needs of students with ASD enrolled in higher education, with particular focus on disability supports. The study participants included 23 students with ASD from two universities and four colleges as well as 15 family members. Semi-structured focus groups were conducted with students and family members separately. Analysis of focus group discussions resulted in five keys themes: Core ASD Symptoms, Common Comorbid Conditions, Transition, Disclosure, and Services and Support. Related to educational experience, 63.6% of students felt that their educational needs were met and 27.3% felt their social needs were met, whereas 42.9% of family members thought their student's educational needs were met and 35.7% thought social needs were met. Two-thirds (68.2%) of students disclosed their learning needs at the start of their program and the rest chose not to disclose for fear of discrimination or were not diagnosed at the start of the program. Concerning the supports received, special testing

arrangements, lecture and classroom aids, note-taking, and peer-mentoring were reported, but negative experiences were also reported including inadequate support, limited resources, limited knowledge of ASD, and poor staff attitude. The need for targeted support to meet the needs of individual students was noted.

Accardo et al. (2019) also suggest that the types of services and accommodations students receive are important to their college experience and success. A multi-university study including a survey of 48 college students with a documented ASD diagnosis revealed that the accommodations students most preferred were extra time, a copy of class notes, priority registration, and use of technology. Students reported that accommodations offered that they did not prefer to use were a reader and/or scribe and audio recording of lectures. In terms of support services, academic coaching, tutoring, the writing center, and peer mentoring were the most desired. Students also provided suggestions for services they could benefit from that were not provided including flexibility in absences, alternate assessments, disability specific courses and clubs, and faculty mentors.

Those in Disability services need to understand the supports and services individual students with ASD may require. Disability offices typically have much more familiarity with assisting students with learning disabilities or physical disabilities than students with ASD (Geller & Greenberg, 2009). Burgstahler and Moore (2009) assert that students with ASD may feel disrespected and, like student services personnel, do not know how to deal with them. Staff needs to increase their comfort level, knowledge, and skills regarding disabilities, mainly invisible disabilities such as autism, and adequate understanding of rights, responsibilities, campus resources, and accommodations. Geller

and Greenberg (2009) posit that for students with ASD, the combination of supports needed can be more variable and require more creativity than others.

What is Autism Spectrum Disorder?

Autism Spectrum Disorder (ASD) is a neurodevelopment disorder with characteristics such as social communication difficulties, impaired social interaction, and restricted and repetitive patterns in interests, behaviors, and activities (American Psychiatric Association, 2013). According to the Centers for Disease Control (2020) individuals with ASD could learn, behave, and interact in ways different from other people. They can have learning, thinking, and problem-solving abilities which range from severely challenged to gifted. The term spectrum is used because of the heterogeneity of symptoms, skills, and level of functioning among individuals with ASD (American Psychiatric Association, 2013). Of note relating to the description of people with autism is that both person-first (person with autism) and identity-first (autistic person) are often used in reference to such individuals. The American Psychiatric Association has deemed both acceptable in writing and allows the terms to be used interchangeably. For the purposes of this study, person-first language is used in reporting consistent with professional reference. Individuals with ASD have their own unique strengths and challenges (Autism Research Institute, 2021). ASD includes autistic disorder, Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS), and Asperger Syndrome, which in the past had been separate diagnoses. To receive an ASD diagnosis the five criteria presented in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) listed in Appendix A must be met. Three levels are used to specify severity: Level 1 requires support; Level 2 requires substantial support; Level 3 requires

very substantial support (American Psychiatric Association, 2013). Currently, the autism rate is 1 in 59 with males four times more likely to be diagnosed than females (CDC, 2020).

Needs and Challenges of Students with ASD

Common characteristics of ASD that create challenges and barriers to success in the postsecondary setting include difficulty with communication and social skills that inhibit interactions with both peers and faculty and impacts participation and the ability to develop relationships (Couzens et al., 2015; Schindler & Cajiga, 2015; Dymond et al., 2017; Roberts & Birmingham, 2017; Sarrett, 2017;). For example, Van Hees (2014) investigated the challenges students with ASD face, as well as their support needs, in a qualitative study which placed value on student input. Twenty-three students from three institutions of higher education in Belgium participated in the study. All students had a formal diagnosis, fulfilled DSM IV criteria for Autistic Disorder, Asperger's Syndrome, or PDD-NOS, and no diagnosed intellectual disability. Twenty-one students identified social challenges which fell into the theme *Exhausting but Necessary Social Contacts*. Twenty-one students reported difficulties managing social demands such as reading social cues, knowing when it is appropriate to ask questions, knowing how to address professors, and initiating and maintaining conversations. Nineteen students spoke about striving to fit in and the need for friendships and relationships. Reponses regarding awareness of social problems were provided by 18 students including fear of saying the wrong things and the negative impact of anxiety on the students' confidence to engage with others socially.

In addition to communication and social challenges, students with ASD may struggle with executive functioning including planning, organizing information, time-management, and study skills necessary for academic success (Couzens et al., 2015; Schindler & Cajiga, 2015; Dymond et al., 2017; Sarrett, 2017; Elias at al., 2019). Geller and Greenberg (2009) add receptive language skills to this list. Other challenges include emotional regulation, adapting to changes in routine and environment, sensory processing difficulties, managing stress, independence, self-determination skills, and sense of self-identity (Couzens et al., 2015; Dymond et al., 2017; Sarrett, 2017; Elias et al., 2019). Dymond et al. (2017) conducted a qualitative study aimed at analyzing the experiences of parents and university personnel who support students with ASD in their pursuit of a degree for better understanding of student needs for success. Six university personnel (two administrators, two counselors, and two professors) from a large research university in the United States and 10 parents participated in individual semi-structured interviews. *Characteristics that influence success* were identified as one of five themes. Within this theme deficits cited included executive functioning, inclusive of time management, organization skills, and generalization of learned skills. Academic skills such as staying focused in class, submitted assignments on time, and studying effectively were also noted. Emotional support needs to address anxiety and frustration management and self-determination skills were reported as challenges impacting success as well. The theme of *transition to university* also included self-determination skills as well as independent living skills. In the theme of *available services and supports*, the most frequently used service reported by both university personnel and parents focused on academic supports, emotional and social supports, and living arrangements with support. The last two

themes, *barriers* and *improvements needed*, focused on limited information about supports and the need for faculty and staff training.

Besides recognizing the academic and social needs of students with ASD, it is also critical to recognize the high incidence of comorbidity of medical and behavioral health conditions that may impact students with ASD. The National Autism Association (2013) reports that these comorbid conditions include gastrointestinal disturbances, Epilepsy, sleep disorders, immune dysfunction, neuroinflammation, allergic disorders, and metabolic abnormalities. Behavioral health conditions include Depression, Bipolar Disorder, Attention Deficit Hyperactivity Disorder (ADHD), Obsessive Compulsive Disorder (OCD), Oppositional Defiance Disorder (ODD), and Anxiety. Mental health problems can be exacerbated by feelings of social isolation (Gelbar, 2014). In a systematic review of 20 peer-reviewed journal articles focused on the college experiences of individuals with ASD, Gelbar (2014) coded firsthand experiences of college students with ASD, academic accommodations, and no-academic supports. A major finding was that mental health problems were commonly reported by students with ASD. Anxiety was reported in 71% of the studies and was the most commonly reported experience. Loneliness was reported in 53% of the studies and depression was reported in 47% of the studies. Reports of isolation and peer rejection were also noted. Students with ASD often struggle with some of these added difficulties that influence their ability to participate, focus, and perform satisfactorily in the classroom. Research indicates that many of these students do not complete degrees. The National Center for Special Education Research (NCSER) completed the National Longitudinal Transition Study-2 (NLTS-2). In the *Post-High School Outcomes of Young Adults with Disabilities up to 8 Years After High*

School, Newman et al. (2011) report on data from NLTS-2 from the subset of individuals aged 21 to 25 years. Data were analyzed for variables that describe the young adults' experiences. Some of the factors considered included postsecondary enrollment, accommodations and support received, disclosure of disability, credits earned, and completion. Findings indicate that postsecondary completion rates are 38.8% for students with ASD compared to 51.2% for the general population. The challenges students with ASD face negatively impact how they navigate higher education. It is necessary to learn about their experiences and goals from the students themselves.

Student Post-Secondary Goals and Perspectives

Secondary students with Individualized Education Plans (IEP's) have the right to participate in transition planning under IDEA. Transition planning includes goal setting and developing plans for transition from high school to adult life after high school. Transition planning must begin by the time a child is 14 years old and elements of the transition plan must be in place by age 16 (IDEA, 2004). For many students with disabilities, a transition planning goal is going to college, which is an important part of preparation for adult life (Geller & Greenberg, 2009). Students with ASD want to attend college because they want to learn, get a degree, and feel attending college is necessary to get a job (Accardo et al., 2019). Little research has been done linking goals with post-high school outcomes for students with ASD, however, Wei et al. (2016) utilized National Longitudinal Transition Study-2 (NLTS-2) data to investigate the connection between transition planning, including goal setting, and college enrollment. The NLTS-2 data analyzed in the study included responses from approximately 920 youth with ASD and/or their parents who participated in interviews and mailed surveys in Wave 1 of the

national study. Approximately 660 of those participants remained in the study at Wave 5. Schools' transcripts and surveys of school staff were also analyzed. The researchers found that 24.2% of students had a primary transition goal of obtaining a college education. Similarly, 29.63% of students attended a 2- or 4-year college post high school. Students with ASD are aspiring to attend college and it is important to acknowledge this goal.

Recognizing that research has not focused on the aspirations of students with ASD specifically, Camareni and Sarigiani (2009) conducted a study aimed at gathering insight from students with ASD and their parents about their educational aspirations and the factors they perceive as obstacles to their participation in postsecondary education. Twenty-one students with ASD and their parents (20 mothers and 13 fathers) participated in semi-structured interviews. During the interviews, participants were asked to respond to some questions about future plans with a rating on a 7-point to scale from not at all to very much and were asked to answer other open-ended questions in their own words. When asked about how important college is, students felt strongly that it is important ($M = 6.00$, $SD = 1.27$) and they felt that it was very important to their parents as well ($M = 6.50$, $SD = 0.71$). Students were also confident they would attend college ($M = 5.37$, $SD = 1.34$). Mothers and fathers were confident that the students would attend college as well, both with mean scores above 5.0. Many participants indicated that a 4-year degree was the ultimate goal (57% or adolescents, 55% of mothers, 75% of fathers). Most participants believed college was necessary for future career opportunities with 18 out of 21 families commenting as such. Mothers also focused on building independence and people skills. A small number of parents alluded to college attendance being a civil

rights issue such that higher education should welcome students with disabilities even if significant accommodation is required. With regard to perceived obstacles to college attendance and success, adolescents most commonly cited coursework requirements and curriculum, indicating lack of confidence on the ability to keep up and complete required work. Parents' greatest academic concern was the adolescents' skills and capacity for success, including organizational and communication skills. Campus disability awareness was the major non-academic concern for students, and social skills and the need for mentoring and peer support were viewed as potentially most problematic by mothers and fathers. The availability of a special program was indicated as a variable impacting college choice. These insights into student aspirations and perceived obstacles are important for higher education institutions to consider as they welcome students with ASD to their campuses. The perspectives of current college students should also be considered to assess the current college supports.

Student Perspectives

Sarrett (2017) conducted a national exploratory mixed-method study to identify the needs and accommodations required of students with autism in higher education and determine strategies institutions can follow to improve the student experience. Participants included 66 students who were 18 years or older, enrolled at higher education institutions, and self-identified as students with autism. The five most commonly received accommodations reported by participants were extended test time, note takers, distraction free test areas, flexible due dates, and technology use in the classroom. Thirty-one percent of students surveyed indicated that the accommodations they received did not meet their expectations. Overall, students noted an inconsistent

implementation of accommodations by professors. In response to this concern, one student noted that the accommodation would have been useful "if the accommodations listed had consistently been provided without excessive difficulty from professors and the need to advocate for myself constantly". Lack of accommodation implementation was also a concern reported by focus group participants with the need for better awareness and accommodation provision by faculty and staff being the second most commented need in the area of accommodations. The most commonly identified need from both the survey and focus groups was the need for greater autism awareness. Participants commented on the need for training on autism for staff and professors. When asked about how a college could make campus more autism friendly, students identified the desire for disability support groups, mediators to assist with accommodation provision, mentors or peer mentors, sensory friendly activities and events, staff and faculty training, and ASD Awareness programs for peers.

Likewise, Zeedyk et al. (2019) describe the institutional shortcomings impacting students with ASD in a mixed-method study to evaluate student experiences and needs. Students reported that because autism is an invisible disability, one without physical indications, it is difficult to explain to others the required help. As in Sarrett, 2017, issues related to disability services were also concerning, more specifically, that supports offered are often designed for individuals with physical disabilities or are general, such as extra time for tests. Some professors will provide unofficial accommodations based on their understanding of student needs. Also related to disability services, the quality of interactions with student services staff was identified as impactful (Zeedyk et al., 2019). Additionally, there is a need for greater knowledge and understanding amongst faculty

and the broader college community. Accardo et al. (2019) report that relationships with professors, relationships with peers, and campus activities impact college success for students with ASD. Limited understanding by members of the college community including feeling misunderstood by professors and having inflexible professors create barriers to success. Students must self-advocate for support and make their need known. Transition and support programs are one way students find support as they adjust to and persist in college.

Support Programs

As discussed above, transition planning begins in adolescence for students with disabilities and includes the implementation of supports to address students' needs to realize their goals post-high school. These supports end after high school completion, however. For students who choose to attend college, the availability of services to support their needs may benefit their college success. For higher education institutions, the development of transition and support programs should be considered to provide needed assistance to these students and improve their retention. Schindler and Cajiga (2015) studied a transition program that included one on one mentoring. Occupational therapy students served as mentors for students with ASD. Students chose to attend sessions either once or twice per week for 2-hour sessions which focused on positive transitions to college by developing goals, identifying challenges, and using strengths to address problems. Positive results from the program were indicated by 9 out of 11 students. Examples of other programs designed to promote successful student transitions and positive college experiences are provided in this section.

STEPS

The Stepped Transition in Education Program for Students with ASD (STEPS) was developed to support students with ASD in their transition to college. White et al. (2017) developed the program, recognizing the importance of self-determination and self-regulation in college adjustment, academic success, and healthy independent living. STEP 1 is designed for students with ASD still enrolled in secondary school and includes six counseling sessions, assigned activities related to transition goals, check-ins with a counselor, and an immersion experience where students visit a college campus, meet with staff of the disabilities support office, attend a class, and eat in a campus dining facility with coaching from the counselor during the experience. STEP 2 is designed for students with ASD enrolled in college classes but not yet matriculated and includes one-on-one counseling, outings in the community, and online curriculum content delivered over a 12 to 16-week period to focus on social integration. Participants in a randomized control trial and their parents completed satisfaction ratings on a 5-point scale following completion of the program. Students found STEPS to be helpful ($M = 4.39$, $SD = 0.79$) and reported that they would recommend the program to others ($M = 4.38$, $SD = 0.70$). Parents also indicated that they felt STEPS was helpful ($M = 4.39$, $SD = 1.03$) and that they would recommend the program ($M = 4.78$, $SD = 0.60$). STEPS could be beneficial for students with ASD as they transition to college, empowering greater independence and social integration (White et al., 2017).

ACCESS

Acquiring Career, Coping, Executive control, Social Skills (ACCESS) is a program that includes group intervention for young adults with ASD in order to improve social and adaptive skills, self-determination skills, and coping self-efficacy. ACCESS is

a 20-week program with 1.5 hours of intervention per week focusing on stress and anxiety coping skills, self-determination skills, and adaptive and social skills. Caregivers also acted as Social Coaches and participated in a group that provides support, caregiver training, and community resources. In a randomized control trial of the ACCESS program, Oswald et al. (2017) found that Social Coaches reported significant improvements in participants' adaptive functioning with mean scores on that Adaptive Behavior Assessment System General Adaptive Composite that were 4.1 higher in the Treatment group compared with the Control group. The difference in self-determination performance was also significant with a mean score that was 3.7 higher in the Treatment group compared with the Control group. A higher belief in the ability to cope with stress by seeking social support from friends and family was self-reported by participants. Oswald et al. (2017) contribute to an area of study that continues to require further research in order to develop appropriate interventions and supports for young adults with ASD.

Institutions Providing Specialized Support Programs

Simon Fraser University (SFU) has a program specifically for students with ASD named the Autism Mentorship Initiative (AMI). The Centre for Students with Disabilities (CSD), the Faculty of Education, and the Department of Psychology at SFY collaborate to run the program that matches students with autism (mentees) with neurotypical senior undergraduate students or graduate students (mentors). Mentors participated in a full day training and attended monthly supervision meetings with a Clinical Supervisor, the Program Coordinator, and program assistants. Educational workshops and social events geared toward the mentees were held throughout the year.

Mentees and mentors met over two semesters for 1-2 hours per week. They focused on learning, communication, and academic and social goals. Roberts and Birmingham (2017) conducted interviews with nine pairs of mentor-mentee pairs. Participants were interviewed individually. One finding was that the participants experienced a natural progression of the relationship over time and that they become more open and comfortable with one another. Meetings became more mentee led as the interactions became more comfortable. The researchers found that mentors had to be supportive and flexible, acting as a both a guide and a friend to the mentees. Consistency in time and location of meetings was important. Meetings involved check-ins and follow-ups on issues relevant to the mentees. The types of goals addressed seemed to fall into a hierarchy with academic and career goals addressed first and then social goals addressed when a mentee was satisfied with academic performance. Six out of nine pairs reported positive experiences.

Programs like STEPS, ACCESS, and AMI show promise for specialized programs designed for students with ASD. STEPS and ACCESS are designed to build skills in preparation for the transition to college and provide examples of the types of supports that could be beneficial if continued in college. AMI provides an example of how an institution could support students with ASD during their college experience. All three programs include a coaching or mentoring element which allows for counseling to work on skills like self-determination, communication, coping skills, and social skills. The table below lists other programs offered at colleges and universities as well as the focus of each. There is a lack of research on the impacts of programs that exist across the country, however, the existence of such programs indicates a greater focus on equity and

supporting the diverse needs of students with ASD on college and university campuses. Further research is needed on the efficacy of such supports and to develop additional programs to address the needs of students with ASD. Additionally, many of these programs are run by trained staff who may have limited influence on what happens in the classroom. It is important to understand faculty perspectives to recognize and improve faculty understanding of how to support students with ASD. Figure 2 below provides information on specialized programs at colleges and universities in the U.S.

Figure 2

Specialized Programs for Students with ASD offered at U.S. Colleges and Universities

College or University	Program	Focus
University of Florida	Social Gators (Student Opportunities for Career, Independent, and Academic Life)	mentoring, weekly group meetings, and online learning modules
California State University East Bay	College Link Program (CLP)	academic and social skills, increased independence
Harper College	Transition Autism Program (TAP)	peer mentoring, academic support, job readiness workshops, and on-campus social events
Western Kentucky University	Kelly Autism Program (KAP)	private dormitories, mentoring, counseling, weekly advisor meetings, and social events
New York University	NYU Connections ASD Program	offers one-on-one and group support
Ohio State University	Autism College Experience (ACE)	self-determination, social communication, campus connections
Drexel University	Drexel Autism Support Program (DASP)	Peer mentoring, coaching, social events

Note: Adapted from College Autism Spectrum, n.d

Faculty Perspectives

Faculty awareness and understanding of the needs of students with ASD is critical to providing appropriate levels of support. Consideration of faculty perspectives can provide insight into further action necessary to allow colleges and universities to best support students with ASD. Gobbo and Shmulsky (2013) conducted a qualitative study using focus groups of faculty at a small New England liberal arts college with the purpose of identifying faculty viewpoints on strengths, weaknesses, and teaching strategies for students with ASD specifically. The 18 participants had an average of 18 years of higher education teaching experience and taught a wide range of disciplines. Faculty identified three categories of student strengths: passionate interests, adherence to rules, and the desire to acquire accurate knowledge. Areas of academic difficulty were clustered in three categories: deficits in social skills that manifest in the classroom, challenges in critical thinking that impact the ability to understand audience and generalizing from specifics, and anxiety that interferes with learning. Faculty reported two critical areas regarding teaching practices: providing structure and attending to the emotional climate. It is important to understand the strengths and weakness of students with ASD in order to implement appropriate instructional practices that promote the success of these students.

In a qualitative study focused on discovering educator perspectives of the challenges faced by students with autism in their transition to postsecondary education, Elias et al. (2019) interviewed 20 secondary and postsecondary educators in four focus groups. All of the participants were educators who had interacted with students with ASD. From the interviews, three major themes emerged. One theme identified by

educators was difficulty moving through autonomy to interdependence. Students are very often reliant on parents and educators in high school and have difficulty with self-sufficiency and the ability to request the appropriate supports for themselves in the postsecondary setting. Challenges with developing interpersonal competence were also noted by educators. The ability to engage in social exchanges, listening and communicating in turn with peers is difficult for many individuals with ASD. A third theme that emerged was difficulty with developing mature interpersonal relationships. A large part of the college experience involves establishing and maintaining relationships. Individuals with autism may have a desire for friendships or romantic relationships but lack the skills to seek out and maintain such relationships. For educators to best support students with ASD in their classrooms, knowledge must be shared to increase awareness and acceptance in postsecondary education.

Dymond et al. (2017) examined the experiences of individuals who provide support to students with ASD enrolled in postsecondary degree programs that included six university personnel with substantive experience supporting students with ASD at a large public research university in the United States who participated in semi-structured interviews. Four of the university personnel raised concern about students not being aware of all the available services on campus. That said, the services reported as commonly used were academic support, emotional and social support, and special living arrangements. The limited information and lack of awareness of the types of support and services available are noted as barriers to success. Additionally, participants expressed that opportunities for training for faculty, staff, and peers relating to the characteristics and needs of students with ASD were lacking. Interestingly, Zeedyk et al. (2019) found

in their survey of 132 faculty members that 88% of faculty were willing to engage in training to better understand and accommodate students with ASD. Remarkably however, only 45% included a statement about disability services on their syllabi. Gibbons et al. (2015) found that only 64.7% of faculty surveyed at a large public university felt agreed with changing teaching style to allow for equal opportunities of for all students and 47.1% felt that having students with intellectual disabilities or ASD in their classes would interfere with regular activities. A smaller percentage of faculty (25.5%), but still noteworthy, believed that these students would take more than their fair share of time from their professors. These statements indicate that professional development in the area is critical to improving knowledge and support.

Specific measures of faculty preparedness and self-evaluation in higher education are not widely studied, however K-12 faculty educator perspectives may assist in developing greater understanding of faculty members perceived needs. While there is a dearth of information available on the needs of educators to best provide support to students with ASD, Able et al. (2014) found that among 34 K-12 educators perceived needs included knowledge of ASD and individual student needs, understanding of classroom accommodations, and knowledge of how to advocate for students with ASD. The teachers expressed a need for ongoing professional development on practical classroom strategies. Additionally, the need for collaboration with other school staff including counselors and psychologists was reported to create more inclusive and support classroom and school environments. Because such a large percentage of students with ASD attend community colleges at some point in the postsecondary education, it is

important to consider that the needs of their K-12 teachers in terms of their ability to support the students would likely apply to community college faculty as well.

Faculty Knowledge and Impact on Support

Faculty perceptions like those discussed above and the provision of support may be impacted by faculty knowledge of ASD. Tipton and Blacher (2013) studied autism knowledge on a large university campus in the Southwestern US. The researchers sought to identify the level of autism knowledge in the college community, discover whether or not respondents either with autism themselves or in their families had more autism knowledge than others, and determine other demographics associated with the extent of autism knowledge. The Autism Awareness Survey was completed in its entirety by 1,057 individuals. Students made up 58.3% of respondents and faculty and staff made up the remaining 41.7%. Survey items pertaining to autism knowledge and were scored from 0 to 4 and cores ranged from 17 to 55 with M = 38.5 (SD = 5.9). The mean score among faculty was 39.7. There was a significant relationship between level of education and score with a low of 32.9 (less than high school) to a high score of 39.8 (more than 4 years of college). Respondents with autism or a family member with autism scored slightly higher than those without a connection to anyone with ASD (M = 36.5 vs M = 38.4). Women had more correct responses (75%) than men (63%). The questions with the greatest percentage of correct responses pertained to understanding that there is not one intervention that works for all people with autism (80.6%), special education services are important for individuals with autism (79.9%), and individuals with autism can grow up to live independently (77.1%). The areas where the highest percentage of incorrect answers indicated the least knowledge pertained to understanding that diet will not

impact the severity of autism (32.1%), autism is not an emotional disorder (31.8%), not all individuals with autism display poor eye contact (30.5%), and autism runs in families (26.6%). Overall, a mean total correct score of 38.5 is promising as a score of 28 would reflect all neutral responses or as many correct responses as incorrect responses. Half of the items had greater than 25% neutral responses. This indicates that there is a great deal of uncertainty regarding knowledge surrounding ASD. For faculty and staff, it is critical to have autism knowledge to best support students with ASD, as without this understanding it is difficult to appropriately design instruction and provide appropriate resources.

Other areas of consideration regarding faculty willingness or ability to provide support to students with ASD include knowledge about legal responsibilities for the education of students with disabilities, institutional support, attitudes toward the education of students with disabilities, and level of comfort working with students with disabilities. Zhang et al. (2010) surveyed 206 faculty members from nine institutions in a university system in the South aimed at addressing these areas. Faculty from diverse disciplines were represented in the sample. Faculty scored 18.22 out of 24 (SD = 3.13) on the Knowledge of Legal Responsibilities construct. This reflects good understanding but leaves room for improvement. In the area of perceived institutional support, the mean score given by faculty was 3.67 out of 5 (SD = 0.81) while the mean rating on the Personal Beliefs Regarding the Education of Students with Disabilities was 4.00 (SD = 0.61). This indicates that while faculty may believe that they should provide certain services to students, they may not have adequate institutional support to do so. Additionally, the mean Level of Comfort rating was 3.55 (SD = 0.63), suggesting that

faculty need to attain more knowledge about students with disabilities. Finally, in the area of Provision of Accommodations, the mean score was 3.11 (SD = 0.63). Therefore, many faculty were not providing the needed support to students with disabilities.

Likewise, Cook et al. (2009) found in their survey of 307 faculty members in a large university system that faculty believed that the issue of willingness to provide accommodations was of low importance. Results revealed that provision of accommodations was not being addressed appropriately. Faculty did however indicate that issues such as disability law, disability characteristics, and Universal Design for Learning (UDL) were important. Again, results suggest that though believed to be important, these issues were not handled appropriately. Training provided by institutions could improve faculty knowledge and personal beliefs which would benefit students and provide the necessary changes so that students receive the services to which they are entitled for college success.

Training and Professional Development

With the increased enrollment of students with disabilities, including students with ASD, at higher education institutions, some colleges and universities are realizing the need for faculty training and professional development. Research on student perspectives and faculty feedback supports this need. Brown and Coomes (2016) recommend that faculty receive education on what to expect when working with students with ASD as a result of their survey of 367 disability services professionals regarding best practices at community colleges. Training targeting disability characteristics, disability law, and instructional techniques can improve faculty understanding and priorities (Cook et al., 2009). Student success is to some level impacted by the quality of

interactions with faculty and the ways in which faculty approach interactions with students with disabilities influence their higher education experiences (Cook et al., 2009). Training opportunities will assist faculty in changing behaviors and priorities as necessary (Zhang et al., 2010). Though research is limited on the impact of such opportunities on student success, particularly for students with ASD, it is important to consider the opportunities that exist for future development of faculty training and professional development.

Disability Awareness, Training, and Empowerment (DATE) is a training program on a midsize public university campus in the Northeastern Unites States. The program was designed to help faculty better support students with disabilities as a result of a noted lack of understanding of barriers and issues related to the success of students with disabilities. Taking into consideration input from students, faculty, and administrators, the program was designed such that training could be delivered in a time-conscious matter and would address topics such as responsibilities as mandated by ADA and Section 504 of the Rehabilitation Act of 1973, review of documentation related to disability, and accommodations. The program was delivered in a hybrid format including online readings and videos, an in-person presentation, and collaborative learning exercises to practice classroom scenarios. Based on feedback from the 60 participants in the pilot of the DATE program, the researchers recommend offering trainings throughout the year as opposed to a one-time training (Roth et al., 2018).

Debrand and Salzberg (2005) studied the perceived importance and comprehensiveness of the Accommodation Students with Disabilities training curriculum created at Utah State University. The 90 minute in-person workshop focused on

disability law, the accommodation process, case studies, and included a student panel. Supplementary units of the curriculum included Universal Design for Learning (UDL), web accessibility, common accommodations, and common faculty-related problems. Results of a survey completed by 420 Disability Services Directors and staff, faculty, and Student Services professionals indicated that the contents of the curriculum to be delivered face-to-face were viewed as both comprehensive (mean percentages by topic 82.7% to 89.2%) and important (mean ratings by topic ranging from 5.6 to 6.4 out of 7) and. The accommodations and law components received the highest importance ratings (6.4 and 6.3 respectively). Each of the supplementary units were also perceived as important. The Faculty-Related Problems unit received the highest importance rating (6.4).

The Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Center at the University of Washington has led 20 partner postsecondary institutions in the creation and development of trainings that could be offered on any college campus. These resources, titled Students with Disabilities and Campus Services: Building the Team Presentation and Resource Materials are available for free online (Burgstahler & Moore., 2009). Burgstahler and Moore (2009) indicate that participants of focus groups consisting of 53 college students with disabilities and 72 student services professionals identified a need to increase staff comfort levels when working with students with disabilities as well as a need for greater staff knowledge and skills, particularly regarding invisible disabilities. Communication and accommodations strategies, rights and responsibilities, and campus resources were also identified as areas where greater

knowledge is needed. The DO-IT Center initiative was spurred by these findings which suggest a need for trainings.

Murray et al. (2009) assessed the impact of disability-focused training on faculty members' attitudes towards students with disabilities. Though their study did not focus on students with autism, it provides insight into the willingness of faculty to participate in disability-related workshops. Analysis of survey responses from 198 faculty members at a large, urban university in the Midwest revealed that faculty who had participated in some forms of disability-related training were more willing to provide exam accommodations, fairer and more sensitive to student needs, had greater disability knowledge, were willing to personally invest in students, and invited disability disclosure. The most positive attitudes were reported by faculty who participated in disability-focused workshops, followed by those who participated in other forms of training, such as reading books or articles and visiting websites. Additionally, the total number of types of training and total time spent in trainings were predictive of faculty attitudes. Murray et al. (2009) recommends including multiple types of training into professional development, department meetings, and new faculty orientations to bring greater awareness of the needs and rights of students with disabilities in college settings. Accardo et al. (2019) suggest that such training opportunities will help faculty to focus on proactive supports and services for students with autism that provide the opportunity for a successful college experience.

Universal Design for Learning

In addition to faculty training related to gaining autism knowledge and providing supports and accommodations in the classroom, institutions of higher education should

consider providing professional development on the topic of Universal Design for Learning (UDI), also referred to as Universal Design for Instruction (UDI). UDL was introduced by the Center for Applied Special Technology (CAST) to create accessible environments and reduce the need for special accommodations and compensatory supports (Trostle Brand et al., 2012; Liasidou, 2014). There are four core principles of UDL: multiple means of representation; multiple means for engagement; multiple means for action and expression; and multiple means for assessment (Trostle Brand et al., 2012). Instruction following these principles is proactive by design in the use of instructional strategies that benefit all learners and minimize the need for accommodations (Cook et al., 2009). Hadley (2011) asserts that campuses can implement and encourage UDL when creating courses to improve the experiences of students with disabilities. By embracing UDL, faculty and institutions of higher education can improve teaching and learning by meeting learner diversity in non-discriminatory and socially just ways (Liasidou, 2014).

Colleges and universities can prioritize inclusive education by providing faculty with UDL training. Debrand and Salzberg (2005) found in their assessment of college faculty and staff members' perceptions of the Accommodating Students with Disabilities training program, that a supplementary unit on Universal Design was viewed as important (scoring 5.7 out of 7). Similarly, Cook et al. (2009) found in their survey of faculty priorities and understanding regarding college students with disabilities that items related to UDL were believed to be important, but were not being appropriately addressed. For example, the idea that faculty members provide lecture and course materials in a variety of formats received an 89% index rating but only a 46% agreement

rating. This indicates that though faculty believed it was important to provide class materials in a variety of ways, it was not often being done. Faculty who embrace UDL will embolden their support for equal access and appropriate programs and services for all students. To work towards challenging deficit-oriented perspectives and adopting inclusive pedagogical practices, colleges and universities must provide faculty with the training necessary to implement UDL in their classrooms.

Best Practices

Understanding of faculty perspectives regarding their willingness and ability to support student with ASD, examination of their knowledge of the needs of students with ASD, and the development of professional development opportunities to improve faculty readiness to educate and advocate for this population of students are essential to creating inclusive and supportive community college campuses. Consideration of best practices adds to this movement for transformation, however little research exists on specific classroom strategies for meeting the unique needs of students with ASD. Austin and Pena (2017) considered the practices of nine faculty members from 2- and 4- year institutions who were identified as exceptional in their interactions with students with ASD. Via interviews with these faculty, the researchers identified commonalities amongst these educators. Many had prior personal experience with people with ASD. They believed in students' abilities, had high expectations, had a passion for teaching and their students, and were committed to social justice. Pedagogical practices utilized included scaffolding by breaking larger assignments into smaller parts, teaching content using multiple methods, and providing classroom accommodations. A valuable takeaway from the interviews was the importance collaboration with Disability Services offices and

others on campus to support students. Highlen (2017) also asserts the importance of having discussions with others on campus to further faculty support of students with ASD. Building relationships with these students and creating welcoming classrooms which value diversity and individuality and provide structured guidelines so that all students are comfortable with classroom expectations are practices which promote success (Highlen, 2017).

Longtin (2014) and Shmulsky and Gobbo (2019) offer recommendations for actions that faculty and staff at colleges without specialized autism programs can put into practice using resources that already exist in college infrastructure. Collaboration is key. Disabilities Services offices can coordinate services available through other components of the college to address the needs of students with ASD with the help of Student Affairs (Longtin, 2014). Psychologists or counselors employed by the college could offer support groups (Longtin, 2014) and social groups (Shmulsky & Gobbo, 2019). Learning Centers, to which faculty may refer students for additional academic support, should document and share progress with instructors. Additionally, Learning Center staff, which often include faculty, should be trained to address executive functioning issues. Centers for Teaching and Learning should provide ASD related faculty development (Longtin, 2014). For community colleges which may lack resources and specialized programs, these recommendations may provide opportunities for faculty to better support students with ASD.

Conclusion

Students with ASD often aspire to attend college post high school but face a number of challenges to their successful integration into the college environment and completion of a degree. Barriers to successful college experiences may include

difficulties with communication skills, social skills, self-determination, and executive functioning. Individuals with ASD may present with diverse challenges, however. Students have identified inconsistent implementation of accommodations, inflexible or difficult faculty, and lack of faculty awareness and knowledge as issues impacting their success. Supports such as transition programs, counseling, and mentoring may help students to identify goals and use their strengths to meet those goals, but research on student and faculty perspectives indicate a need for faculty training and professional development to increase awareness and better prepare faculty to create inclusive classrooms and college campus environments which meet the needs of students with ASD. Further research is needed to assess faculty skills in supporting these students. The present study will extend research on the support of college students with ASD by examining faculty awareness of characteristics of ASD, the pedagogical practice they employ in their classrooms, and the professional development they desire to better support these students on a national level.

CHAPTER 3

Introduction

Chapter 1 provided an introduction guided by the theoretical framework and review of relevant literature in Chapter 2. The purpose of this chapter is to introduce the research methodology for this quantitative study regarding faculty awareness and preparedness for working with students with ASD in the community college setting. A non-experimental design utilizing cross-sectional survey research was employed in this study. This approach allowed for greater understanding of faculty background and experiences which influence readiness to support learners with ASD. The research design, including the methodology, study participants, instrumentation, procedures, and research ethics will be discussed in this chapter.

Methods and Procedures

Research Questions

The researcher intends to understand the degree to which community college faculty are aware of the needs of students with ASD and prepared to support such students. Specifically**,** this study will answer the following research questions:

RQ 1: To what extent do faculty have knowledge and awareness of the needs of students with ASD?

(a) What are the differences in community college faculty members' knowledge and awareness of ASD when comparing years of teaching experience and FT/PT teaching status?

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon teaching experience.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon teaching status.

H_0: There will be no interaction between teaching experience and teaching status.

(b) What are the differences in community college faculty members' knowledge and awareness of ASD when comparing gender and area of instruction?

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon gender.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon area of instruction.

H_0: There will be no interaction between gender and area of instruction.

***RQ 2*:** To what extent do FT/PT teaching status, years teaching experience, gender, area of instruction, and prior autism experience predict the use of best pedagogical practices?

H_0: There will be no significant relationship between teaching status, teaching experience, gender, area of instruction, or prior autism experience and pedagogical practices.

***RQ 3*:** What is the willingness of faculty to engage in professional development and what professional development/training opportunities do faculty feel would be beneficial to improved support of students with ASD?

This question will be analyzed using descriptive statistics and thus a hypothesis is not appropriate.

Research Design and Data Analysis

A non-experimental design utilizing cross-sectional survey research was employed in this study. In non-experimental research, variables are not manipulated in any way. A cross-sectional survey collects information at just one-time from a sample representing a predetermined population (Fraenkel et al., 2019). Web-based survey research was chosen as it allowed this researcher to reach a large sample of participants to allow for collection of a large amount of data (Fraenkel et al., 2019). It encouraged responses to sensitive topics and provided easy access for participants. This method was also appropriate for ease of data collection.

Data analysis included Analysis of Variance (ANOVA) tests to address research questions 1a and 1b. A two-way between-subjects ANOVA was conducted to determine if there were statistically significant differences in autism knowledge and awareness based on full-time or part-time status or years in teaching. A two-way between-subjects ANOVA was also performed to determine if there were statistically significant differences in autism knowledge and awareness based on gender or area of instruction. To address research question 2 correlation and multiple regression analyses were executed to identify if the variables predicted Pedagogical Practices scores. Descriptive statistics were also calculated to further examine the responses to the items of the Pedagogical Practices scale. Means and standard deviations are reported by item to demonstrate the extent to which community college faculty employ pedagogical practices to support students with ASD. Descriptive statistics were conducted to determine the willingness of faculty to participate in professional development and the topics of the professional development opportunities they were interested in to improve their

preparedness for working with students with ASD. Figure 3 indicates the analyses conducted and the applicable survey items for each test.

Figure 3

Statistical Analyses by Survey Item

Research Question	Survey Items	Analysis	Independent Variables	Dependent Variable
1a	7-17	Two-way ANOVA	Items 2 & 3 (FT/PT, Years in teaching)	Autism Knowledge and Awareness Scale Score
1b	7-17	Two-way ANOVA	Items 4 &5 (Gender, Area of instruction)	Autism Knowledge and Awareness Scale Score
2	18-22	Multiple Linear Regression	Items 2-6 ((FT/PT, Years in teaching, Gender, Area of instruction, Prior autism experience	Pedagogical Practices Scale Score
2	18-22	*M*, *SD*, *n*, %	NA	NA
3	23-33	*M*, *SD*, *n*, %	NA	NA

Reliability and Validity of the Research Design

To enhance validity in this study, all information was collected anonymously to increase confidence that participants would respond to questions honestly. There are known threats to the non-experiment design, however. A possible threat to internal validity may include instrumentation as participants will complete the survey instrument online and there is no guarantee that each participant has equivalent levels of technological competence or will check their responses for accuracy before submission. A potential threat to external validity may include reactive effects as the participants are aware that they were participating in the study, which may impact their responses. In order to minimize the possible threats to internal validity, the researcher will attempt to standardize the conditions under which the study occurred. The survey instrument, *Faculty Awareness and Preparedness for Working with Students with ASD*, adapted from an instrument used in a previous study (Hanks, 2020), was completed online in the same format by all participants to standardize the way data is collected. To minimize the possible threats to external validity, participants were made aware that neither IP addresses nor community college at which they are employed would be collected.

Sample

Participants of the study included both men and women who teach in a community college setting. They included both part-time and full-time instructors with varying years of teaching experience. The researcher sought to acquire a minimum of 100 participants. Participants were chosen via purposive sampling. In purposive sampling, researchers select a sample, using their judgement, that they believe will provide the data they need (Fraenkel et al., 2019). Only faculty employed at community

colleges were invited to participate. Notification of the study and invitations to participate were shared by post to the Facebook page of the Council for Study of Community Colleges (CSCC). CSCC's membership includes researchers and practitioners of community colleges. The council conducts and disseminates research relating to community colleges and contributes to the development of training for community college professionals (Council for the Study of Community Colleges, 2021). The SUNY Faculty Council of Community Colleges comprised of teaching faculty from community colleges across the state of New York shared the invitation to participate with members via email. The College Autism Network, a national organization which connects varied stakeholders invested in efforts to improve access, experiences, and outcomes for college students with autism, allowed the researched to email its Listserv and the Association of American Colleges and Universities (AACU) shared the invitation on the postings page of the organization's website. Additionally, IRB approval was received from a large community college system in the Southwest and notification of the study was emailed to faculty. Though IRB approval was also received from three community colleges in the Northeast, the survey was not distributed to faculty at these institutions as multiple attempts were made to gain the ability to reach the faculty, but messages were not returned to grant that opportunity.

From the attempts made to gain participants, 121 community college faculty members consented to and submitted surveys via Qualtrics. Ultimately seven cases were deleted due to incomplete data and one additional case was determined to be an outlier and was thus deleted. The final sample included 113 participants who were either full-

time or part-time faculty with varying teaching experience, prior autism experience, and areas of instruction. Table 1 provides a description of the participants.

Table 1

Description of Participants

Category	*n*	%
Gender		
Male	12	15.9
Female	92	81.4
Non-binary/third gender	2	1.8
Prefer not to answer	1	0.9
Teaching Status		
Full-time	81	71.7
Part-time	32	28.3
Teaching Experience		
0-5 years	17	15
6-10 years	31	20.4
11-15 years	31	27.4
Over 15 years	42	37.2
Area of Instruction		
Arts, Humanities & Communication	44	37.2
Business Management, Mathematics, Marketing & Finance	3	2.7
Education & Human Services	16	14.2
Health Sciences	10	8.8
Science Information Technology, Engineering & Business Technologies	24	21.2
Social Sciences	16	14.2
No discipline indicated	2	1.8

Instrument

The key variables were measured by a mixed item format questionnaire (multiple choice and Likert-type questions) to determine the ways in which community college

faculty have awareness of ASD and how they are prepared for working with students with ASD. The instrument was designed to be administered to community college faculty in an online format via Qualtrics. The questionnaire includes items to identify demographic characteristics including gender, part-time or full-time status, years of community college teaching experience, and discipline.

The survey instrument utilized in the present study, *Faculty Awareness and Preparedness for Working with Students with ASD,* was adapted from the tool used in a prior study, "Autism Spectrum Disorder Students: A Survey of Rural Community College Educators" (Hanks, 2020) which was conducted on a small scale. The present research expanded the reach of the study. Contact was made with the researcher via email and permission was granted to use and adapt the instrument in the present study. The instrument includes 4 demographic questions and 26 questions related to knowledge of ASD, pedagogical practices, and professional development. Due to commonalities in the research questions and purpose of the Hanks (2020) study as compared to the present study, it is appropriate to adopt the instrument for use in the present study. The adapted survey contains 33 questions in total and participants were able to complete the questionnaire in approximately 10 minutes. The items added relate to prior autism experience, either personally or in the classroom, the practice of including a Disability Services statement in syllabi, and willingness to engage in professional development. Directions for completing the questionnaire were clearly written at the start through informed consent. Participants were made aware that there was no compensation, nor was there any known risk for participating. Participants were not asked to provide their

names, community college at which they teach, IP address, or other identifying information, so as to maintain anonymity.

The questionnaire includes items to identify demographic characteristics including gender, discipline taught, years of community college teaching experience, and full-time or part-time status. The responses to demographic questions provided descriptive information on the participants. These demographics also serve as independent variables. The following scales are included in the survey:

Autism Experience: This scale was added by the researcher and includes one item which requires the respondent to select from the following statements related to autism experience: "I have an ASD diagnosis", "I have a family member with an ASD diagnosis", "I have prior experience with students with ASD in the classroom", or "I do not have prior autism experience".

Autism Knowledge and Awareness: This scale includes 11 Likert-type items to which respondents will select whether they disagree, are not sure, or agree with statements related to common autism characteristics. Examples include "Students with Autism Spectrum Disorder have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor" and " Students with Autism Spectrum Disorder display poor executive functioning behaviors." These items serve as dependent variables.

Pedagogical Practices: This scale includes 5 Likert-type items to which respondents will select whether they employ the practices never, not often, often, or very often. Examples include "I notify students in advance of a schedule change" and "I provide multiple

formats for delivery of new content." The researcher added the item "I include a Disability Services statement in my syllabus." These items serve as dependent variables.

Preferred Professional Development: This scale includes 10 Likert-type items to which respondents will select strongly disagree, disagree, agree, or strongly agree to indicate the topics they desire to be addressed in professional development. Examples include "how to recognize communication patterns" and "classroom instructional strategies to aid students with ASD." These items serve as dependent variables.

Procedures for Collecting Data

The present study utilized survey research. Web-based survey research was chosen as it allowed this researcher to reach a large sample of participants to allow for collection of a large amount of data and it encouraged responses to sensitive topics (Fraenkel et al., 2019). Data for the study was be collected from the *Faculty Awareness and Preparedness for Working with Students with ASD* survey. Full-time and part-time teaching faculty from community colleges were invited to participate via post to social media or web pages of the Council for the Study of Community Colleges and the Association of American Colleges and Universities and via email to members of SUNY Faculty Council of Community Colleges, College Autism Network, and community college system in the Southwest. Consent containing a statement informing participants that individuals could choose to end their participation at any time without consequences were electronically signed. Each consenting participant anonymously completed the survey instrument online via Qualtrics by selecting their responses. Data were collected over span of 10 weeks then cleaned for missing variables. Codes and a codebook were

created. Data were analyzed using SPSS. ANOVA and multiple regression analyses were be conducted at a 95% confidence interval.

Research Ethics

Ethics is a top priority in this research study. Participation in the present study was entirely voluntary. There were no consequences for individuals electing not to participate and the researcher foresees minimal risks for those choosing to participate. There were no known physical, social, economic, or legal risks. Minimal psychological risks may include discomfort or anxiety as a result of responding to survey questions. Informed consent was obtained from all participants and participants can choose to end their voluntary participation at any time. Confidentiality was maintained for all participants as the survey was completed anonymously and collected data was securely stored. A potential benefit of the research study is that results may inform support for community college faculty to improve their ability to advocate for and serve students with ASD.

Conclusion

The goal of this chapter was to outline the quantitative research method and procedures used to answer the research question centered around identifying the awareness, perception, and pedagogical practices of community college faculty working with students with ASD. It includes a discussion of the research design, participants, instrument, and data collection used to identify the needs of community college faculty to be addressed through professional development and institutional support. It is imperative that community college faculty are knowledgeable and skilled in working with students with ASD as so many of these students are attending community college at some point

during their postsecondary education. The next chapter will provide the findings of the study.

CHAPTER 4

Introduction

Chapter 4 presents the results of the data analyses for each of the three research questions in the current study. The findings are further explored in Chapter 5 in a discussion of the implications and recommendations for future research.

Results

This study was conducted with a national sample of full-time and part-time community college teaching faculty across the United States. Consent was received from 121 faculty members. Due to missing responses and one outlier, the final sample was comprised of 113 community college faculty members.

The researcher sought to examine the degree to which community college faculty are aware of the needs of students with ASD, considering the influence of years of teaching experience, FT/PT teaching status, gender, and area of instruction on autism knowledge and awareness. The researcher chose to examine the extent to which faculty employ best practices in their classrooms to appropriately support these learners. Specifically, the above factors as well as prior autism experience were examined to determine predictors of pedagogical practices. Additionally, the researcher sought to ascertain the willingness and desire of faculty to participate in professional development to better support their students with ASD. Three research questions were investigated for this study.

Research Question 1a

To what extent do faculty have knowledge and awareness of the needs of students with ASD?

a) What are the differences in community college faculty members' knowledge and awareness of ASD when comparing years of teaching experience and FT/PT teaching status?

Hypotheses

The hypotheses chosen for this research question included the main effects and the interaction effect of the independent variables teaching status and teaching experience with the dependent variable Autism Knowledge and Awareness scale score.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon teaching experience.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon teaching status.

H_0: There will be no interaction between teaching experience and teaching status.

A two-way between-subjects ANOVA was selected to analyze the data and answer research question 1(a) since there were two independent variables with categorical levels and a continuous dependent variable. The rationale for choosing the two-way between subjects ANOVA was to compare the mean differences between groups and to determine if there was an interaction between the two independent variables on the dependent variable. An alpha level of .05 was chosen to test for significance.

The researcher imported the data into SPSS. The data were screened. Seven missing values were found and so those cases were deleted. One outlier with a z-score of -3.255 was identified in the data and was deleted.

The assumption tests for a two-way between subjects ANOVA were conducted prior to running the statistical analysis. The dependent variable Autism Knowledge and Awareness score was measured on a continuous scale. The independent variable teaching experience was categorical with four levels: 0-5 years; 6-10 years; 11-15 years; and over 15 years. The independent variable teaching status was categorical and contained two levels: Full-time and Part-time. There was independence of observations as there were different participants in each level of each group. The test for normality indicated that the data were normally distributed evident in the results of the Shapiro-Wilk's test (Full-time, $p = .072$; Part-time, $p = .057$; 0-5 years, $p = .268$; 6-10 years, $p = .333$; 11-15 years, $p = .248$; Over 15 years, $p = .055$). The test for homogeneity of variance was not significant as indicated by the Levene's test result, $F(7,105) = .677$, $p = .691$), therefore the assumption was met.

The results indicated that there was not a significant interaction effect between teaching experience and teaching status, $F(3,105) = .296$, $p = .828$. The null hypothesis for the interaction effect was retained. The main effect of teaching experience did not show a significant difference in autism knowledge and awareness, $F(3,105) = .819$, $p = .486$, as shown in Table 1. The null hypothesis for Factor A was retained. The main effect of teaching status did not show a significant difference in autism knowledge and awareness, $F(1,105) = .291$, $p = .591$. The null hypothesis for Factor B was retained. These results suggest that neither the number of years of teaching experience faculty possess nor their status as Full-time or Part-time instructors contribute to their knowledge and awareness of the common characteristics of learners with ASD.

Table 2

A Two-Way Analysis of Variance of Autism Knowledge and Awareness Based on Teaching Experience and Teaching Status

Source	*SS*	*df*	*MS*	*F*	*p*
Teaching Experience	29.728	3	9.909	0.819	0.486
Teaching Status	3.52	1	3.52	0.291	0.591
Teaching Experience*Teaching Status	10.74	3	3.58	0.296	0.828
Within (Error)	1271.17	105	12.106		
Corrected Total	1353.68	112			

Research Question 1b

b) What are the differences in community college faculty members' knowledge and awareness of ASD when comparing gender and area of instruction?

Hypotheses

The hypotheses chosen for this research question included the main effects and the interaction effect of the independent variables gender and area of instruction with the dependent variable Autism Knowledge and Awareness scale score.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon gender.

H_0: There will be no significant difference in Autism Knowledge and Awareness scores based upon area of instruction.

H_0: There will be no interaction between gender and area of instruction.

A two-way between-subjects ANOVA was selected to analyze the data and answer research question 1(b) since there were two independent variables with

categorical levels and a continuous dependent variable. The rationale for choosing the two-way between subjects ANOVA was to compare the mean differences between groups and to determine if there was an interaction between the two independent variables on the dependent variable. An alpha level of .05 was chosen to test for significance.

The assumption tests for a two-way between subjects ANOVA were conducted prior to running the statistical analysis. The dependent variable Autism Knowledge and Awareness score was measured on a continuous scale. The independent variable gender was categorical with four levels: female; male; non-binary/third gender; and prefer not to say. The independent variable area of instruction was categorical and contained six levels: Arts, Humanities, and Communication; Business, Management, Marketing, Mathematics, and Finance; Education and Human Services; Health Sciences, Science, Information Technology, Engineering, and Business Technologies; and Social Sciences. There was independence of observations as there were different participants in each level of each group. The test for normality indicated that the data were normally distributed evident in the results of the Shapiro-Wilk's test (Female, $p = .085$; Male, $p = .174$; Arts, Humanities, and Communication, $p = .239$; Business, Management, Marketing, $p = .363$; Education and Human Services, $p = .203$; Health Sciences, $p = .300$; Science, Information Technology, Engineering, and Business Technologies, $p = .086$; Social Sciences, $p = .882$). The test for homogeneity of variance was not significant as indicated by the Levene's test result, $F(11,98) = 1.527$, $p = .134$), therefore the assumption was met.

The results indicated that there was not a significant interaction effect between gender and area of instruction, $F(5,98) = .947$, $p = .454$. The null hypothesis for the interaction effect was retained. The main effect of gender did not show a significant difference in autism knowledge and awareness, $F(3,98) = 1.165$, $p = .327$, as shown in Figure 1. The null hypothesis for Factor A was retained. The main effect of area of instruction did not show a significant difference in autism knowledge and awareness, $F(6,98) = 1.139$, $p = .345$. The null hypothesis for Factor B was retained. The results of the analysis indicate that neither faculty members' gender nor the academic area in which they teach influence their knowledge and awareness of the common characteristics of students with ASD.

Table 3

A Two-Way Analysis of Variance of Autism Knowledge and Awareness Based on Gender and Area of Instruction

Source	*SS*	*df*	*MS*	*F*	*p*
Gender	39.175	3	13.058	1.165	.327
Instruction Area	76.616	6	12.769	1.139	.345
Gender*Instruction Area	53.066	5	10.613	.947	.454
Within (Error)	1098.257	98	11.207		
Corrected Total	1353.681	113			

Research Question 2

To what extent do FT/PT teaching status, years teaching experience, gender, area of instruction, and prior autism experience predict the use of best pedagogical practices?

Hypotheses

H_0: There will be no significant relationship between teaching status, teaching experience, gender, area of instruction, or prior autism experience and pedagogical practices.

Multiple regression was the chosen analysis as it would allow the researcher to examine the strength of the relationship between the dependent variable (Pedagogical Practices scale score) and several independent variables (teaching status, teaching experience, gender, area of instruction, and prior autism experience). An alpha level of .05 was chosen to test for significance.

Prior to conducting the analysis, the data were screened. There were no missing or miscoded values. Each of the independent variables were polychotomous categorical variables and so they were coded into dummy variables.

Assumption tests were conducted prior to running the statistical analysis in SPSS. The relationship between the independent variables and dependent variable is linear as the independent variables were dummy variables which results in linearity by nature. There was no multicollinearity in the data as VIF scores (ranging from 1.098-1.678) were well below 10, and tolerance scores (ranging from .596-.945) were above 0.2. The values of the residuals were independent as the Durbin-Watson statistic was close to 2 (Durbin-Watson = 1.56). The variance of the residuals was constant as the plot of standardized residuals versus standardized predicted values showed no obvious signs of funneling. The assumption of homoscedasticity was therefore met. The values of the residuals were normally distributed as the P-P plot for the model demonstrated that the dots lay close to the line, suggesting that the assumption of normality of the residuals had not been violated. Finally, there were no influential cases biasing the model as the Cook's Distance

values were under 1. This suggests that individual cases were not unduly influencing the model.

Correlation and multiple regression analyses were performed to identify the variables which predicted Pedagogical Practices scores. There was a significant positive correlation between Education and Human Services area of instruction and pedagogical practices, $r(111) = 0.176$, $p = .031$. Faculty having an ASD diagnosis was also significantly correlated with pedagogical practices $r(111) = 0.165$, $p = .014$. There was a significant negative correlation between suspecting having had a student with ASD in the classroom who did not disclose having had the diagnosis and pedagogical practices, $r(111) = -.0164$, $p = .042$. The results of the regression indicated that 17.5% of the variance in Pedagogical Practices scores could be explained by the predictor variables ($R = .419$, adjusted $R^2 = .175$). The model was not a significant predictor of Pedagogical Practices score however, $F(16, 96) = 1.275$, $p = .229$ and thus the null hypothesis was retained. This indicates that FT/PT teaching status, years teaching experience, gender, area of instruction, and prior autism experience do not predict the use of best pedagogical practices in the classroom.

Descriptive statistics were also calculated to further examine the responses to the items of the Pedagogical Practices scale. The items in the scale reflect five best practices for supporting students with ASD in the classroom. A score of 3 indicates that a practice was used very often while a score of 0 indicates that the practice was never used in the classroom. Table 3 summarizes the use of best pedagogical practices. Including a Disability Services statement in course syllabi was the most used practice ($M = 2.92$, $SD = .318$) with 94.7% of faculty indicating that they do this very often. The practice

implemented least was providing multiple formats for students to demonstrate understanding (M = 2.05, SD = .754) with 34.5% of faculty indicating they employ this strategy very often.

Table 4

Use of Best Pedagogical Practices

Pedagogical Practice	*n*	%	*M*	*SD*
Notify students in advance of a schedule change			2.74	4.78
Never	0	0		
Not Often	2	1.8		
Often	25	22.1		
Very Often	86	76.1		
Provide multiple formats for delivery of new content (lecture, electronic documents, videos)			2.40	.714
Never	2	1.8		
Not Often	9	8		
Often	44	38.9		
Very Often	58	51.3		
Provide multiple formats for students to demonstrate understanding (written test, verbal test, paper, or project)			2.15	.754
Never	2	1.8		
Not Often	19	16.8		
Often	53	46.9		
Very Often	39	34.5		
Provide multiple formats for engagement in the classroom (project-based, group work, individual work)			2.20	.825
Never	2	1.8		
Not Often	28	20.4		
Often	33	33.6		
Very Often	50	44.2		

Include Disability Services statement in syllabus			2.92	.318
Never	1	0.9		
Not Often	1	0.9		
Often	4	3.5		
Very Often	107	94.7		

Research Question 3

What is the willingness of faculty to engage in professional development and what professional development/training opportunities do faculty feel would be beneficial to improved support of students with ASD?

Descriptive statistics were the appropriate analysis to discover the willingness of faculty to participate in professional development and the topics of the professional development opportunities they desired to enhance their ability to support students with ASD. Results revealed that 89.4% of faculty agreed that they were willing to participate in training and professional development on ASD. Classroom instructional strategies to aid students with ASD was a highly preferred topic for training ($M = 3.58$, $SD = .692$). Professional development in classroom management strategies to aid students with ASD was also highly preferred ($M = 3.58$, $SD = 0.594$). The topic of least interest was federal law requirements that mandate professors to provide academic support for students with disabilities ($M = 2.86$, $SD = .844$). Table 4 provides the descriptive statistics related to professional development topics and faculty preferences for participation. Participant responses provided insight into the types of training they perceived beneficial to improving their abilities to appropriately support students with ASD in their community college classrooms and indicate a willingness and desire to participate in professional development on ASD.

Table 5

Professional Development Topics

	n	%	*M*	*SD*
How accommodations students have in K-12 school change when transitioning to college			3.06	0.805
Strongly Disagree	5	4.4		
Disagree	18	15.9		
Agree	55	48.7		
Strongly Agree	35	38.1		
How to recognize communication patterns			3.31	0.656
Strongly Disagree	1	0.9		
Disagree	9	8		
Agree	57	50.4		
Strongly Agree	46	40.7		
How to recognize non-verbal behaviors			3.27	0.627
Strongly Disagree	0	0		
Disagree	11	9.7		
Agree	61	54		
Strongly Agree	41	36.3		
Where to refer for support			3.23	0.779
Strongly Disagree	4	3.5		
Disagree	12	10.6		
Agree	51	45.1		
Strongly Agree	46	40.7		
Federal law requirements that mandate professors provide academic support for students with disabilities			2.86	0.844
Strongly Disagree	4	3.5		
Disagree	37	32.7		
Agree	43	38.1		
Strongly Agree	29	25.7		

Classroom instructional strategies to aid students with ASD			3.58	0.692
Strongly Disagree	4	3.5		
Disagree	1	0.9		
Agree	34	30.1		
Strongly Agree	74	65.5		
Classroom management strategies to aid students with ASD			3.58	0.594
Strongly Disagree	1	0.9		
Disagree	3	2.7		
Agree	38	33.6		
Strongly Agree	71	62.8		
Physical arrangement of the classroom environment			3.1	0.731
Strongly Disagree	3	2.7		
Disagree	16	14.2		
Agree	61	54		
Strongly Agree	33	29.2		
Best use of language during instruction			3.35	0.719
Strongly Disagree	3	2.7		
Disagree	7	6.2		
Agree	50	44.2		
Strongly Agree	53	46.9		
Delivery of feedback			3.38	0.672
Strongly Disagree	3	2.7		
Disagree	3	2.7		
Agree	55	48.7		
Strongly Agree	52	46		

Conclusion

In summary, both the number of years of teaching experience and teaching status as either full-time or part-time teaching faculty did not have a significant effect on autism knowledge and awareness. Similarly, neither academic area of instruction nor gender had a significant effect on autism awareness. Related to pedagogical practices, the Education

and Human Services area of instruction and faculty having an ASD diagnosis personally were significantly correlated to the use of best practices; however, the independent variables teaching experience, teaching status, area of instruction, gender, and prior autism experience did not significantly predict pedagogical practices. Still, most faculty indicated a willingness to engage in professional development and training on ASD, particularly classroom instructional and management strategies.

CHAPTER 5

Discussion

This study investigated the autism knowledge and awareness of community college faculty as well as their implementation of pedagogical practices in teaching students with ASD. First, it considered the influence of teaching experience, teaching status, area of instruction, gender, and prior autism experience on autism knowledge and awareness. Secondly, it examined the role of teaching experience, teaching status, area of instruction, gender, and prior autism experience on the use of best pedagogical practices. Lastly, the willingness to engage in professional development for improved support of students with ASD were also examined, including the professional development topics desired. The researcher sought to add to the limited research and literature on faculty support of students with ASD to inform practice, particularly regarding faculty development in supporting this population. This chapter will present conclusions, implications, and recommendations for future research and practice.

Implications of Findings

Autism Knowledge and Awareness

Teaching experience was quantified by the number of years a faculty member had been teaching. Faculty members were found to have very similar levels of autism knowledge and awareness. Whether a faculty member had been teaching for two years or more than 15 years did not translate to differences in Autism Knowledge and Awareness scores, suggesting that length of teaching experience did not lead to a greater understanding of the characteristics and needs of individuals with autism. Similar levels of autism knowledge were also noted between faculty who taught full-time and faculty

who taught part-time. Such results indicated that teaching status did not contribute to greater autism knowledge than a part-time teaching commitment.

In the investigation of the extent to which faculty area of instruction and gender affected Autism Knowledge and Awareness scale scores, results indicated that neither area of instruction (Arts, Humanities & Communication; Business Management, Mathematics, Marketing & Finance; Education & Human Services; Health Sciences; Science Information Technology, Engineering & Business Technologies; or Social Sciences) nor gender had an effect on autism knowledge and awareness. Faculty members' area of expertise did not provide differences in classroom experience which resulted in differences in comprehension of the challenges faced by students with ASD. The gender with which an instructor identifies, male, female, or third gender similarly did not influence recognition of characteristics of individuals with ASD.

Critical Disability Theory (CDT) and Critical Autism Studies (CAS) comprised the theoretical framework for the study. Both place focus on the social construct of disability, the biases and stigma associated with disability, and the oppression of individuals with disabilities (Hosking, 2008; Woods et al., 2018). As a result of societal implications, many individuals with ASD choose not to disclose their diagnosis. CAS asserts the notion that the voices of individuals with autism need to be heard to cultivate understanding and CAS is positioning individuals with ASD to reclaim autism narratives and co-produce knowledge about autism (Woods et al., 2018, O'Dell, 2016). The findings that differences in teaching experience, teaching status, area of instruction, and gender did not have an effect on autism knowledge and awareness indicates a need for greater support for faculty through training. Simply teaching on a community college

campus does not provide faculty with the knowledge they need to support students with ASD without training. Community colleges should provide faculty with training necessary to understand the needs of students with ASD, as meeting the needs of all students is a critical component of the open access mission of such institutions. Professional development should be informational and resource rich to position faculty to critically analyze practices which disproportionately impact students with ASD and advocate for fair and appropriate educational experiences. The ability to do so is imperative for creating campus environments which support equity, diversity, and inclusion.

Pedagogical Practices

Results of the exploration of the implementation of pedagogical practices by community college faculty revealed that teaching status, teaching experience, gender, area of instruction, and prior autism experience were not significant predictors of Pedagogical Practices scale scores. There was a slight positive correlation, however, between both teaching in the area of Education and Human Services and pedagogical practices and faculty members having personal experience as individuals with ASD themselves and pedagogical practices. Interestingly, there was also a slight negative correlation between suspecting having had a student with ASD in the classroom who did not disclose having had the diagnosis and pedagogical practices. Given the fact that none of the variables could significantly predict the pedagogical practices employed it can be ascertained that community college faculty may require support from their institutions in understanding best practices to be implemented to create welcoming and encouraging classrooms that support students with ASD. Results indicated that 94.7% of faculty report including a Disability Services statement in their course syllabi very often, which

is a good first step in showing support. Other practices were not as commonly implemented, however. For example, only 34.5% of faculty reported providing multiple formats for students to demonstrate understanding including written tests, verbal tests, papers or projects and 50% reported providing multiple formats for engagement in the classroom, such as project-based, group work, or individual work very often.

The conceptual framework for this study indicates that faculty prepared to work with students with ASD will implement appropriate pedagogical practices. Faculty who are adept at working with students with ASD will be more likely to positively impact a students' college experiences which impact motivation, satisfaction, persistence, and academic success. The findings suggest that faculty could be better prepared to be flexible and inclusive in their teaching styles as 22.2% of faculty reported providing multiple formats for engagement either never or not often. Institutions of higher education, and specifically community colleges, may consider these findings when developing systemic changes that provide faculty with the tools they need to understand needs and amend teaching techniques for improved classroom experiences. Providing faculty with training in pedagogical practices that support diverse learners would benefit not only students with ASD, but students with varying learning needs. This would provide instruction that affords equity and inclusion consistent with the objectives of CDT and CAS.

Professional Development

Results revealed that 89.4% of faculty agreed that they were willing to participate in training and professional development on ASD. Of the ten professional development topics included in the Professional Development scale, nine of them were associated with a mean score higher than 3.0, indicating that faculty agreed that these were topics they

perceived to be helpful to improving their abilities to effectively work with students with ASD. These topics were:

- How accommodations students have in K-12 school change when transitioning to college
- How to recognize communication patterns
- How to recognize non-verbal behaviors
- Where to refer for support
- Classroom instructional strategies to aid students with ASD
- Classroom management strategies to aid students with ASD
- Physical arrangement of the classroom environment
- Best use of language during instruction
- Delivery of feedback.

The notion that faculty are willing to participate in professional development and training opportunities suggests that they would be accepting of occasions provided by their institutions for growth and development. This idea is in alignment with the theoretical and conceptual frameworks of this study. Faculty who engage in professional development would gain knowledge that would allow them to make changes that work for students with ASD. It would empower faculty to initiate meaningful interactions, listen to the voices of students with ASD, demonstrate feelings of support, and begin the work towards creating community college environments which systematically create fair and socially just authentic education experiences. Institutions providing professional development and training to their faculty could see the elements of the conceptual framework in action. Faculty could demonstrate a greater understanding of the

characteristics and needs of individuals with ASD which in turn could lead to consistent use of best pedagogical practice. With experience, the shift in culture would allow faculty to confidently implement supports that best support students with ASD.

Relationship to Prior Research

As the literature review articulated, awareness and understanding of the characteristics and needs of students with ASD is critical to creating meaningful interactions with these students to promote their success. The findings of the current study that differences in teaching experience, teaching status, area of instruction, and gender do not produce significant differences in autism knowledge and awareness are similar to findings of a previous study conducted at rural community college in Virginia. Hanks (2020) also found that gender, years of experiences as a college instructor, and academic disciplines did not lead to differences in autism knowledge. The findings indicate that community college faculty may need more support from their institutions in preparation for working with community college students with ASD. This notion is supported by Zhang et al. (2010) who surveyed faculty members from nine institutions and found that scores in the area of perceived institutional support suggested that faculty feel institutional support may be inadequate for aiding them in supporting students with ASD. The current study suggests institutions need to provide quality opportunities for faculty to learn more about ASD so that they have the knowledge to apply to their teaching. Dymond et al. (2017) examined the experiences of individuals who provide support to students with ASD enrolled in postsecondary degree programs and participants expressed that opportunities for training for faculty and staff relating to the characteristics and needs of students with ASD were lacking. There is a need for greater knowledge and

understanding amongst faculty and the college community aligning with the work of Zeedyk et al. (2019) who found in their survey of faculty members that 88% of faculty were willing to engage in training to better understand and accommodate students with ASD. In a study of student concerns, Sarrett (2017) identified the need for better awareness and accommodation provisions by faculty. In their study, students who self-identified as having ASD responded to questioning about how their colleges could be more autism friendly by indicating the need for staff and faculty training and ASD Awareness programs. The current study similarly reveals the need for improved faculty awareness. Likewise, a study which included the perspectives of college students with ASD also noted the student concerns included limited knowledge of ASD by faculty and inability to provide appropriate support (Cai & Richdale, 2015), echoing indications of the current study that faculty could have better ASD knowledge.

Regarding best practices, the literature promotes inclusive practices reflective of the principles of Universal Design for Learning. The four core principles of UDL include multiple means of representation, multiple means for engagement, multiple means for action and expression, and multiple means for assessment (Trostle Brand et al., 2012). These tenets were reflected in the pedagogical practices included in the current study. Instruction following these principles is proactive by design in the use of instructional strategies that benefit all learners (Cook et al., 2009). The findings of the current study that teaching experience, teaching status, area of instruction, gender, and prior autism experience did not significantly predict the use of the best pedagogical practices suggests the need for focus on training of faculty in teaching approaches which demonstrate their knowledge of the needs of students with autism and support effective engagement for

student success. Training opportunities will assist faculty in changing behaviors and priorities as necessary (Zhang et al., 2010). Gibbons et al. (2015) found that only 64.7% of faculty from a large public university agreed with changing teaching style to allow for equal opportunities of for all students. Brown & Coomes (2016) noted that one cannot assume that all students with ASD function at the same level and need the same supports. The same strategies do not work for all students and accommodations should consider students' unique strengths and challenges. The findings of the current study indicate that faculty do not consistently provide multiple formats of engagement which would allow students with varying needs to engage in ways that meet their learning needs. Students have also provided suggestions for strategies they could benefit from that were not provided, including flexibility and alternate assessments (Accardo, 2019). The current study found that faculty could more consistently allow students to demonstrate understanding in a variety of ways. Cook et al. (2009) found that student success is to some extent impacted by the quality of interactions with faculty and the ways in which faculty approach such interactions influence their higher education experiences. Applying pedagogical practices consistently which allow for learners with varying learning styles and educational needs to engage in ways that are meaningful to them provides for improved learning experiences.

Overall, the findings of this study and the literature are consistent in the assertion that professional development is instrumental in preparing faculty to meet the needs of students with ASD. In interviews with faculty who work with students with ASD, Dymond et al. (2017) found that opportunities for training for faculty and staff were lacking. As a result of their survey of disability services professionals, Brown and

Coomes (2016) recommended that faculty receive education on what to expect when working with students with ASD. Training focusing on disability characteristics, disability law, and instructional techniques can improve faculty understanding of disability and priorities in instructing students with varying needs (Cook et al., 2009). While the current study found that many faculty members have limited interest in professional development on federal law requirements, most faculty have intertest in opportunities to learn more about ASD and how to design instruction that supports the varied needs of students with ASD. Training opportunities will assist faculty in changing behaviors and priorities as necessary (Zhang et al., 2010). Zeedyk et al. (2019) found in their survey of faculty members that 88% of faculty were willing to engage in training to better understand and accommodate students with ASD. This finding is in line with the finding of the current study that 89.4% of faculty were willing to participate in training and professional development on ASD. Some colleges have recognized a need to develop training programs for their faculty as evidenced by programs such as Disability Awareness, Training, and Empowerment (DATE) at an institution in the Northeast and the Accommodation of Students with Disabilities training curriculum created at Utah State University. These programs address working with students with disabilities, but not specifically with ASD. Such training opportunities would aid faculty in placing focus on proactive supports and services for students with autism that provide the opportunity for a successful college experience (Accardo et al., 2019). The current study supports the need and faculty desire for training provided by their institutions.

Limitations of the Study

A limitation of the current study was the sample size (n = 113). The researcher cast a wide net to obtain a large national sample of participants; however, challenges with response rates even with nationwide recruitment efforts presented limitations. Surveys were completed by 121 participants, and after screening for missing responses and outliers, the final sample size was 113. With a larger sample size, more robust statistical analyses could be performed.

Conducting survey research during the global COVID-19 pandemic was also a limitation. Higher education has had to make tremendous shifts to regular operation, and faculty have felt great pressure to adapt in a quickly changing situation to provide students with the highest level of education possible with restrictions to some standard modes of teaching. Continued pressure may have resulted in fewer willing survey participants as many faculty are feeling overwhelmed by their regular workloads and mental load.

Students with ASD may choose not to disclose their diagnosis to their college or professors. Though faculty were asked to report their prior autism experience, it is possible that they may not have been aware of students in their classes that may have had an ASD diagnosis. It is also possible that limited student self-disclosure of ASD could have impacted faculty implementation of certain practices. Findings can only be interpreted based on the responses reported by faculty based upon the information to which they are privy, and therefore, there are limitations to the assumptions that can be made.

A possible threat to internal validity is within the instrumentation. All participants completed the *Faculty Awareness and Preparedness for Working with*

Students with ASD survey instrument online. However, equivalent levels of technological competency among participants could not be guaranteed. Additionally, the researcher cannot be certain that participants checked their responses for completeness and accuracy prior to submitting them. To minimize this threat, the researcher attempted to standardize conditions by requiring all surveys to be completed online in the same format via Qualtrics. The survey instrument was adapted from a previous study which evaluated faculty autism knowledge, pedagogical practices, and professional development. The questions were important to gaining information to understand faculty preparedness but did limit the statistical analyses that could be conducted. Additionally, survey research limits the type of responses provided by participants and therefore the assumptions that can be made.

A possible threat to external validity could include reactive effects. Participants were aware that they were participating in the study on autism knowledge and awareness and their pedagogical practices, which may have impacted their responses. There is no guarantee that participants answered survey items honestly. To minimize this potential threat to external validity, participants were informed prior to consenting to the survey that their IP addresses would not be collected, nor would the names of the institutions at which they were employed.

Recommendations for Future Research

Additional studies are needed that build on the findings described in this study. Replicating the study with a larger sample size would further validate the findings and add credibility. Additionally, future research should include other institutions of higher education. For example, it would be interesting to know if faculty autism knowledge and

practices utilized in teaching students with ASD are similar or different among faculty at 4-year institutions, technical colleges, and Ivy League institutions. One additional recommendation for future research is to conduct qualitative research considering faculty experiences. An example of this research could include a case study that follows faculty to determine implemented pedagogy. Finally, a qualitative study on faculty perspectives of professional development received to evaluate the impact of such training would be interesting as limited research on professional development and training programs exists. Such research would provide valuable information for institutions of higher education.

Recommendations for Future Practice

This study suggests that community college faculty may need opportunities to gain greater knowledge and understanding of the characteristics and needs of individuals with ASD. Colleges should consider ways to support faculty growth in this area. Providing professional development for faculty and other college staff on recognizing the varied needs of learners with ASD and providing support is critical for advancing the goal of successful completion for these students. Training should be provided to all faculty members and may occur during the orientation process for new instructors as well as annually during college-wide Professional Development days. Specifically, training topics should include recognizing communication patterns and non-verbal behaviors, best use of language in instruction, and providing effective feedback. Colleges need to provide training on instructional strategies which allow for more inclusive engagement and provision of appropriate supports. Training in the principles of UDL and the design of instruction that supports the needs of learners with ASD would support community college missions of promoting equity, diversity, and inclusion. Even with training to

improve ASD knowledge and awareness, there is the possibility that faculty will have students who choose not to disclose their ASD diagnosis. Faculty need to be prepared to implement UDL strategies consistently to meet student needs even when they do not share their diagnosis. Faculty need to allow flexibility for students to engage and demonstrate understanding in a variety of ways.

Opportunities for collaboration with faculty and staff across college campuses are necessary for changes to a campus climate that result in socially just experiences for all students with ASD, whether they disclose their diagnosis or not. Professional development and training should include training of other staff with whom faculty may collaborate, including Disability Services personnel, mental health counselors, academic advisors, academic tutoring staff, and even personnel in offices such as Registrar and Student Services, would provide a more comprehensive approach to supporting students with ASD. It would also allow faculty to feel better prepared to know that there are partners on campus to refer students or work with themselves to determine the best approaches for assisting students. Additionally, incorporating the voices and perspectives of students with ASD in trainings would provide insight for faculty and staff as well as an invaluable experience which may influence their own perspectives and attitudes. Action to accomplish this includes inviting students with ASD to meet with faculty to share their experiences and desires for improvement. Such opportunities should include small group discussions, panel discussions, individual interviews, and written responses to allow students a variety of formats for engagement to meet varying levels of comfort and communication abilities.

Conclusion

This non-experimental research aimed to better understand community college faculty preparedness for working with students with ASD. The findings that the number of years of teaching experience, full-time versus part-time teaching status, academic area of instruction, and gender did not result in a significant difference in autism knowledge and awareness suggests the need for quality opportunities for training provided by institutions. Similarly, the finding that teaching experience, teaching status, area of instruction, gender, or prior autism experience could not predict pedagogical practices further supports the call for professional development. The researcher found that most faculty are willing to engage in professional development opportunities that are promising for future practice. Institutions should develop training opportunities that provide faculty with significant, meaningful experiences to improve knowledge, teaching strategies, and ultimately, comfort and preparedness for instructing students with ASD. Future research on faculty knowledge, pedagogy, and professional development will add to this discourse and aid institutions in improving supports leading to retention and successful completion of the students with ASD in their college communities.

APPENDIX A

DSM-5 Autism Diagnostic Criteria

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive, see text):

1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity: Severity is based on social communication impairments and restricted repetitive patterns of behavior. (See table below.)

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat food every day).
3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interest).
4. Hyper- or hypo reactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

Specify current severity: Severity is based on social communication impairments and restricted, repetitive patterns of behavior. (See table below.)

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Table: Severity levels for autism spectrum disorder

Severity level	**Social communication**	**Restricted, repetitive behaviors**
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between

	social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to- and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	activities. Problems of organization and planning hamper independence.

Note: www.autismspeaks.org/autism-diagnosis-criteria-dsm-5

APPENDIX B

ST. JOHN'S UNIVERSITY
Federal Wide Assurance: FWA00009066

Jun 17, 2021 3:47:33 PM EDT

PI: Kristyn Sacrestano
CO-PI: Ceceilia Parnther
Dept: Ed Admin & Instruc Leadership

Re: Initial - IRB-FY2021-488 *Autism Spectrum Disorder: Community College Faculty Awareness, Practices, and Professional Development*

Dear Kristyn Sacrestano:

The St John's University Institutional Review Board has rendered the decision below for *Autism Spectrum Disorder: Community College Faculty Awareness, Practices, and Professional Development*.

Decision: Exempt

PLEASE NOTE: If you have collected any data prior to this approval date, the data must be discarded.

Selected Category: Category 2.(ii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation.

Sincerely,

Raymond DiGiuseppe, PhD, ABPP
Chair, Institutional Review Board
Professor of Psychology
Marie Nitopi, Ed.D.
IRB Coordinator

APPENDIX C

Faculty Awareness and Preparedness for Working with Students with ASD Instrument

Question 1: Please read the statements of consent and indicate your consent to participate in the research study.
I voluntarily agree to participate in this research study. I understand that I can withdraw my consent to participate at any time without consequence. I understand that participation involves the honest completion of the following questionnaire. I understand that I will not benefit directly from participating in this research. I understand that all information I provide will be treated confidentially.

- I understand the statements of consent and agree to participate in the research study.
- I do not agree to participate in the research study.

Question 2: Please select your primary area of instruction.

- Arts, Humanities, and Communication – Fine Arts (Art, Music, Theater), Graphic Design, and Liberal Arts.
- Business, Management, Marketing, Mathematics and Finances – Accounting, Administrative Support, Business Administration, and Management
- Education and Human Services – Criminal Justice, Early Childhood Development, Education, General Studies, and Police Science
- Health Sciences – Health Information Management, Health Science Preparation, Nursing, Nursing Assistant, Pharmacy Technician, Veterinary Sciences, Agriculture, Dental, and Radiology
- Science, Information Technology, Engineering, and Business Technologies – Automotive, Advanced Manufacturing, Computer and Network Support, Computer Science, Cybersecurity, Electronics and Computer Technology, Electronics Technology, Engineering, Information Systems Technology, and Science

Questions 3-5: Please select the option that best describes you:
3. Number of years as a community college faculty member.

- 0 – 5 years
- 6 – 10 years
- 11 -15 years
- Over 15 years

4. Gender:

- Male
- Female
- Non-binary/third gender
- Prefer not to say

5. Are you employed as a full-time or part-time professor?

- Full-time

- Part-time

6. Please select the options which indicate your experience with autism.
Autism Experience
- I have an ASD diagnosis
- I have a family member with an ASD diagnosis
- I have prior experience with students with ASD in the classroom
- I suspect that I have had students with ASD in the classroom who did no disclose having had the diagnosis
- I do not have prior autism experience

Questions 7-17: Please select a response that best describes your knowledge of Autism Spectrum Disorder (ASD) characteristics.
Students with Autism Spectrum Disorder (ASD):

	Agree	Not Sure	Disagree
7. have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor			
8. display poor executive functioning behaviors (planning, organization, follow through on tasks)			
9. enjoy flexibility and have no issue with changes in their schedules			
10. prefer group work affording personal interactions			
11. are consistently organized			
12. have difficulty answering questions in the classroom			

Students with Autism Spectrum Disorder (ASD) often:

	Agree	Not Sure	Disagree
13. display anxious behaviors			
14. make no or limited eye contact when speaking			
15. employ unusual facial expressions			
16. employ repetitious body gestures such as hand flapping, snapping, or clapping			
17. behave in ways that are indistinguishable from other students			

You are not alone if you do not know much about the characteristics of Autism Spectrum Disorder (ASD). Although individuals with ASD who attend community college often have average to above average intelligence, they may experience social deficits, communication deficits, and behavioral deficits. Because autism is a spectrum, students diagnosed with ASD may display a range of abilities and impairments.
Questions 18-22: Please select the response that describes your pedagogical practices for the following statements.

	Never	Not Often	Often	Very Often
18. I notify students in advance of a schedule change				
19. I provide multiple formats for delivery of new content (lecture, electronic documents, videos)				
20. I provide multiple formats for students to demonstrate understanding (written test, verbal test, paper, or project)				
21. I provide multiple formats for engagement in the classroom (project-based, group work, individual work)				
22. I include a Disability Services statement in my syllabus				

Question 23: Please select the response which best describes you.

	Disagree	Not Sure	Agree
23. I am willing to engage in training and professional development on ASD			

Questions 24-33: Please select your preferences for perceived professional development to best support students with ASD by responding to the following statements.
I would prefer professional development related to ASD to focus on:

	Strongly Disagree	Disagree	Agree	Strongly Agree
24. How accommodations students have in K-12 school change when transitioning to college				
25. How to recognize communication patterns				
26. How to recognize non-verbal behaviors				
27. Where to refer for support				
28. Federal law requirements that mandate professors provide academic support for students with disabilities				
29. Classroom instructional strategies to aid students with ASD				
30. Classroom management strategies to aid students with ASD				
31. Physical arrangement of the classroom environment				
32. Best use of language during instruction				

33. Delivery of feedback				

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Vita

Name	*Kristyn L. Sacrestano*
Current Professional Occupation	*Director, NYT Kids Sensory Gym & Speech Language Center* *Adjunct Instructor, Suffolk County Community College*
Baccalaureate Degree	*Bachelor of Arts, St. Joseph's College, Patchogue, NY* *Major: Child Study*
Date Graduated	*May, 2007*
Other Degrees and Certificates	*Master of Science, Long Island University/CW Post, Brentwood, NY* *Major: Literacy*
Date Graduated	*May, 2009*