Beyond Accommodations: Considerations for Supporting and Improving Academic Outcomes for Neurodivergent Students in Post-Secondary Education

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Beyond Accommodations: Considerations for Supporting and Improving Academic Outcomes for Neurodivergent Students in Post-Secondary Education

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by

Natasha K. Geyer

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Abstract

Neurodiversity is an emerging term to describe neurological diagnoses including Autism Spectrum Disorder, ADHD, and learning disabilities. Neurodivergent students are enrolling in post-secondary education at increasing rates. This paper examines the strengths of neurodivergent students in a post-secondary school setting. It examines the barriers faced by neurodivergent students in post-secondary education including: transition, mental health concerns, social and communication struggles, accommodation barriers, and academic concerns. Current literature related to strategies for supporting neurodivergent students is reviewed, including transition programs, mentor programs, accommodations, and skills training. Finally, recommendations are given for supporting neurodivergent students in the post-secondary educational environment.

Keywords: Autism Spectrum Disorder, postsecondary college students, accommodations, neurodivergent, academic, disabilities, outcomes
Neurodivergent individuals are people with atypical neurological development. The concept of neurodiversity in higher education has evolved to encompass many disabilities, including ADD/ADHD, autism spectrum disorder, specific learning disabilities, and other learning differences (Griffin & Pollak, 2009). Neurodivergent students have been increasing in number in higher education (Couzens et al., 2015). However, neurodivergent students have not seen the same success as their neurotypical peers. Thirty-seven percent of students with ADHD and/or learning disabilities completed their degrees while 51.2% of their neurotypical peers completed their degree (Farmer et al., 2015). Only 38% of first-time, full-time students with learning disabilities earned a bachelor’s degree; while the national average has been 50% (Showers & Kinsman, 2017). Only 38.8% of students on the autism spectrum graduated from college (Cox et al., 2017).

**Statement of the Problem**

As the number of neurodivergent students who pursue post-secondary education continues to increase, how can university faculty and staff help neurodivergent students address the challenges these students face and provide supports to improve academic success to a level on par with their neurotypical peers? What changes will faculty, academic staff, and other professionals who work with neurodivergent students need to make to meet the diverse needs of neurodivergent students?

**Significance of the Study**

The number of children identified as neurodivergent has increased significantly in the past several decades (Maenner, et al., 2020). The number of children aged eight years diagnosed with Autism Spectrum Disorder (ASD) increased from one in 150 in the year 2000, to one in 59 in 2016 (Maenner et al., 2020). As the numbers of individuals diagnosed with ASD have
increased, intervention strategies have improved leading to more students with ASD enrolled in higher education (Van Hees et al., 2014). According to the Center for Disease Control (2020), 6.1 million children (9.4%) in 2020 had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) compared to 4.4 million in 2003. Of the 6.7 million students who received special education in 2004-05, 2.2 million, or 33% had been diagnosed with a learning disability (National Center for Education Statistics, 2020). Students with learning disabilities enrolled in post-secondary institutions at the same rate as their neurotypical peers (Showers & Kinsman, 2017). The national average for first-time full-time college students who completed a bachelor’s degree was reported at 59% (Showers & Kinsman, 2017), while only about 38% of neurodivergent students with learning disabilities completed their degrees (Cox et al., 2017; Farmer et al., 2015; Showers & Kinsman, 2017).

**Purpose of the Study**

Faculty, advisors, disability student services professionals, and other student services staff working in post-secondary education can expect to encounter an increasing number of neurodivergent students. To provide more effective services to neurodivergent students, post-secondary professionals need to develop an understanding of the barriers neurodivergent students face in higher education. To close the degree completion gap between neurotypical and neurodivergent students, campuses will need to implement supports for neurodivergent students that lead to improved academic success and student satisfaction.

**Definition of Terms**

*Americans with Disabilities Act (ADA)*: civil rights law that prohibits discrimination against individuals with disabilities (American with Disabilities Act National Network, 2020)
Anxiety Disorder: any group of disorders that have as their central organizing theme the emotional state of fear, worry, or excessive apprehension (American Psychological Association APA, 2020)

Attention-Deficit/Hyperactivity Disorder (ADHD): disorder characterized by the presence of six or more symptoms involving inattention, impulsivity, or hyperactivity (APA, 2020)

Autism Spectrum Disorder (ASD): disorder whose onset typically occurs during the preschool years and is characterized by difficulties in communication and social interaction (APA, 2020)

Bipolar disorder: any of a group of mood disorders in which symptoms of mania and depression alternate (APA, 2020)

Depression: a negative affective state, ranging from unhappiness and discontent to an extreme feeling of sadness, pessimism, and despondency, that interferes with daily life (APA, 2020)

Diagnostic and Statistical Model of Mental Disorders (DSM): the handbook used by health care professionals in the United States and much of the world as the authoritative guide to the diagnosis of mental disorders (APA, 2021)

Dyscalculia: an impaired ability to perform simple arithmetic operations that results from a congenital deficit (APA, 2020)

Dyspraxia: an impaired ability to perform skilled, coordinated movements that are neurologically based and not due to any muscular or sensory defect. (APA, 2020)

Dyslexia: a neurologically based learning disability manifested as severe difficulties in reading, spelling, and writing words and sometimes in arithmetic (APA, 2020)

Executive Functioning: the ability to engage in goal-directed behavior (Elias & White, 2017)
Generalized Anxiety Disorder (GAD): excessive anxiety and worry about a range of concerns accompanied by such symptoms as restlessness, fatigue, impaired concentration, irritability, muscle tension, and disturbed sleep (APA, 2020)

Individualized Education Plan (IEP): written plan for a student with a disability that outlines an education plan for the student (Wisconsin Department of Public Instruction, 2018)

Individuals with Disabilities Education Act (IDEA): law that makes a free and appropriate public education available to children with disabilities and ensures special education-related services (U.S. Department of Education, n.d.)

Intellectual Disability: a developmental disability characterized by mild to profound limitations in cognitive function and adaptive behavior, impairing one's ability to acquire skills typical for one’s age group as a child or necessary for one’s later independent functioning as an adult (APA, 2020)

Neurodiversity: concept where neurological differences are recognized and respected as any other human variation. Differences can include Autism Spectrum Disorder, ADHD, specific learning disabilities, and many others (Murdock, 2020)

Obsessive-Compulsive Disorder (ODC): a disorder characterized by recurrent intrusive thoughts or obsessions that prompt the performance of neutralizing rituals or compulsions (APA, 2020)

Panic disorder: an anxiety disorder characterized by recurrent, unexpected panic attacks that are associated with (a) persistent concern about having another attack, (b) worry about the possible consequences of the attacks, (c) significant change in behavior related to the attacks, or (d) a combination of any or all of these (APA, 2020)

Post-Secondary Education: of or relating to education beyond high school (Wisconsin Department of Public Instruction, 2021)
Self-determination: the ability to identify and achieve one's identified goals (White et al. 2017)

Self-regulation: the ability to monitor, oversee, and modulate behavior, emotion, and cognition (White et al., 2017)

Specific Learning Disability (SLD): substantial deficit in scholastic or academic skills that does not include all areas of learning but is limited to a particular aspect such as reading or math. (APA, 2020)

Social Anxiety: fear of social situations in which embarrassment may occur or there is a risk of being negatively evaluated by others (APA, 2020)

**Delimitations of Research**

Research for this paper was conducted between September 2020 and March 2021 with the University of Wisconsin – Platteville’s Karmann Library search engine. Resources were limited to scholarly, peer-reviewed articles published primarily within the last seven years. A few older references were cited to provide context.

**Method of Approach**

A brief review of the development of the neurodiversity movement was researched. A review of literature related to research, studies, and anecdotal evidence of the experiences and barriers faced by neurodiverse college students was conducted. In addition, accommodations, services, and programs that improved outcomes in higher education were reviewed. Search terms included: “neurodiverse + college” “neurodiversity + post-secondary,” “neurodiversity + post-secondary education”, “neurodiverse + higher education,” “neurodiversity”, and “students with disabilities + college + improved outcomes.” Various diagnoses that are a part of the neurodiversity movement were also searched including: “ADD ADHD + improved outcomes,” “ADHD + post-secondary,” “learning disability + post-secondary,” “autism + college,” “autism
+ post-secondary,” and “autism + higher ed.” The findings were summarized and synthesized in Chapter 2 of this paper. Conclusions and recommendations are included in Chapter 3.
Chapter Two: Review of Literature

Neurodiversity

The term neurodiversity was coined in the late 1990s by sociologist, Judy Singer to describe conditions like Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), and dyslexia (Murdock, 2020). Singer, who has identified herself as on the Autism Spectrum, shifted the discussion from deficits, disorders, and impairments to considering a person as unique and not damaged. Singer’s approach to learning and disability argued that various neurological conditions resulted from normal variations in human genetics (Murdock, 2020). Since then, the term neurodiversity has been defined in various ways, encompassing several diagnoses.

Neurodiversity, as a concept, recognized and respected neurological differences like any other human variation (Murdock, 2020). Neurodiverse traits were not seen as being on the extreme end of a normal distribution curve, but instead part of a normal distribution for those individuals that then overlapped the normal distribution of neurotypical traits (Ekblad, 2013). In terms of neurological disorders, including ASD, ADHD, dyslexia, intellectual disabilities, and even emotional and behavioral disorders, there has been uncertainty about when a neurological behavior crosses from typical human variation to pathology (Armstrong, 2015). While autism has been the most prominent focus of the neurodiversity movement (Murdock, 2020), the concept of neurodiversity primarily has also been connected to ASD, ADHD, dyslexia, dyscalculia, and dyspraxia (Ekblad, 2013). However, in much of peer-reviewed literature, the concept of neurodiversity has seldom been used. Rather, academic literature typically uses disorders as they are listed in the Diagnostic and Statistical Model of Mental Disorders-DSM (Ekblad, 2013).
The neurodiversity movement has been a departure from the medical model of disability, often associated with deficits and disadvantages (Hatfield et al., 2016) to a difference model in which neurodiversity has been viewed as a difference that included both strengths and weaknesses (Griffin & Pollak, 2009). Neurodiversity recognized that, to date, what have been considered neurological disorders may have just been forms of human difference (Murdock, 2020). Boyd et al., (2018) defined neurodiversity as a term that encapsulated the diverse expression of human neurological development, that resulted in a wide variety of sensory-perceptual abilities. Proponents of the concept of neurodiversity call us to celebrate the diverse brains of individuals who think, learn, and behave differently, just as we celebrate diversity among cultures (Murdock, 2020).

In the past two decades of studies, the suggestion that neurological disorders brought strengths, as well as weaknesses, has emerged. The effect of decades of studies has resulted in an approach that replaced a disability perspective with a diversity perspective that has included both strengths and weaknesses (Armstrong, 2015). The strengths of neurodivergent individuals have been viewed as an evolutionary reason why neurodivergent disorders have persisted in the gene pool. An increasing number of scientists have suggested that neurodivergence individuals have been given specific evolutionary advantages in the past (Armstrong, 2015). Journalist Harvey Blume noted that neurodiversity has been shown as just as critical for the human race as biodiversity has been shown as essential for life in general. He stated that we cannot know what form of wiring will have proven best at any given moment (Armstrong, 2015).

**Neurodivergent Strengths**

Neurodivergent students have brought many strengths to the post-secondary learning environment. Individuals with dyslexia have been found to have global visual-spatial abilities,
including the capacity to identify impossible objects, process low-resolution or blurry scenes, and perceive peripherals of diffused information more quickly and effectively than neurotypical individuals. The visual-spatial skills of individuals with dyslexia have been found to put people with dyslexia at an advantage in careers that required three-dimensional thinking, such as: astrophysics, molecular biology, genetics, engineering, and computer graphics. In studies, researchers have found that participants with ADHD and bipolar disorder show greater levels of novelty-seeking and creativity than control subjects (Armstrong, 2015).

Individuals with ASD often have strengths related to working with systems (computer language, math, machines). In addition, individuals with ASD were found to be better than control subjects at identifying details within complex patterns (Armstrong, 2015). Researchers have found that neurodivergent individuals’ strengths, including research skills, writing ability, analytical thinking, ability to understand complex ideas, and ambition to learn about, and ability to focus on subjects of interest also reflect advanced neurodiversity (Gurbuz et al., 2019). In a survey of 59 Australian university students on the Autism Spectrum, 85% of participants listed attention to detail as a strength, 78.1% listed ability to use technology, 61% indicated creativity and strong memory, and 58.6% listed consistency as a strength (Anderson et al., 2017). Gurbuz et al., (2019) surveyed 26 students with ASD and 158 neurotypical college students located in the United Kingdom. The researchers found that neurodivergent students indicated many academic strengths, including the ability to study for long periods (12%), detailed focus on one subject (15%), critical thinking, the ability to understand complex ideas (15%), and research and writing skills (35%). Van Hees et al., (2014) interviewed 23 young adults on the Autism Spectrum in the Netherlands who were attending or had attended higher education for at least a year. The students self-reported their strengths as memory, focus, precision, attention to detail,
dedication, analytical skills, observation, sincerity, impartiality, and willingness to listen to others.

**Barriers and Experiences of Neurodivergent Students in Post-Secondary Education**

Despite the many strengths that neurodivergent individuals bring to post-secondary education, researchers found they often lagged behind their neurotypical peers in achievement. Individuals with ASD had one of the lowest rates of college enrollment (Cai & Richdale, 2015). Over 50% of young adults with ASD were neither employed nor enrolled in higher education within the years following secondary school (Cai & Richdale, 2015). In addition, after leaving the public school system, 80% of young adults on the Autism Spectrum continued to live at home and only 32% enrolled in post-secondary education (Cai & Richdale, 2015). Individuals with ASD who came from economically disadvantaged families had particularly low enrollment rates in post-secondary education (Gillespie-Linch et al., 2017). According to the National Longitudinal Study-2, of the 47% of individuals with ASD who enrolled in postsecondary education within six years of graduating high school, only 35% earned a degree or completed a program compared with 51% of their neurotypical peers (Jackson et al., 2017).

While students with learning disabilities (LD) enrolled in post-secondary institutions at the same rate (67%) as their neurotypical peers, only 41% completed a degree compared to 52% of neurotypical students (Showers & Kinsman, 2017). Students with disabilities were less likely to persist than non-disabled students. This was evidenced by only 24.7% of students with disabilities continuing after their first year in college, while 50.6% drop out by their third year (Showers & Kinsman, 2017). When compared with neurotypical peers, students with ADHD tended to have lower GPAs, took longer to complete their degrees, and had lower graduation rates (Elias & White, 2018). As neurodivergent students have entered higher-education at
increasing rates, what barriers are preventing them from achieving the same success rates as their neurotypical peers?

*Transitions*

In order to be successful in higher education, students need to transition from secondary education to post-secondary education. However, neurodivergent students often struggled with the transition from a structured high school environment to a less structured, more socially complex post-secondary environment. Factors that contributed to poor outcomes for adults with ASD included the fact that services readily available to K-12 students are often no longer available post-graduation. As a result, many capable adults with ASD spend time in solitary unstructured activities while in college (Gillespie-Lynch et al. 2017). High school special education programs have typically focused on academic skills not on transition challenges associated with ASD, including self-advocacy and social difficulties. In addition, students on the Autism Spectrum are less likely to be involved in transition planning than students with other disabilities. In a survey, just 2.6% of students with ASD played a leadership role in their own transition planning (Hotez et al., 2018). Consequently, college has frequently been the first-time students on the Autism Spectrum have been accountable for knowing their rights, requesting accommodations, educating others about their disability, and communicating their needs to others (Hotez et al. 2018).

Independent living and managing new routines while adapting to the rigors and challenges of being a college student have been shown to exacerbate the struggles of students with ASD (Gurbuz et al. 2019). In their survey of neurodiverse and neurotypical college students, Gurbuz et al. (2019) found that while students on the Autism Spectrum reported enjoying their academics, received good grades, and believed they had the necessary academic
skills to succeed on par with their neurotypical peers, they also reported more problems with adjusting to college and more struggles with motivation. Fifty-six percent of students on the Autism Spectrum said they thought about withdrawing or taking a break from school. These struggles could be related to the lack of confidence students felt in dealing with future challenges and motivational struggles. Additionally, 35% of students with ASD reported they did not feel confident coping with future challenges, where only 7% of neurotypical students indicated a lack of confidence in their ability to cope with future challenges (Gurbuz et al., 2019).

The Van Hees et al., (2014) study of Dutch neurodiverse students transitioning to postsecondary education indicated the students had difficulty with managing the amount of change and struggled to determine the potential consequences of their options. Students also reported they were afraid of leaving familiar routines, locations, and people and they tried to create new routines immediately. However, the lack of structure and unpredictability of higher education compounded difficulties in time management and organization and slowed the development of new routines. The frequent, unexpected changes in college posed major difficulties and required a significant amount of time and energy. The newness and volume of new activities caused many participants to feel overwhelmed and caused some students to struggle with activity management. Additionally, students in the study indicated that they were already as worried about transitioning to employment as they were about transitioning to post-secondary education. They expressed doubt about their ability to immediately create new structure and routines in their future workplace and were concerned about social rules and expectations.

**Self-Determination.** As neurodiverse students often do not actively participate in transition planning, they are more likely to struggle with self-determination. Self-determination
components included independence, self-advocacy, self-efficacy, and self-management. Research has shown self-determination as a key predictor for successfully transitioning to adulthood in both neurotypical and neurodivergent students (Hotez et al., 2018). Understanding one’s disability, including strengths and weaknesses, has been found to be critical to self-determination (White et al., 2017). Students who did not exhibit self-determination behaviors, also frequently overestimated their abilities due to poor self-realization. These students, therefore had not requested accommodations or used their self-advocacy skills until they experienced failure in college (Farmer et al., 2014).

Self-Advocacy & Self-Disclosure. Post-secondary students in the United States are protected by the Americans with Disabilities Act (ADA) which has relied, in large part, on self-advocacy and demonstration of need provided by the individual with disabilities. Academic services for college students with disabilities are usually limited to accommodations that do not alter the curriculum. However, many services under an IEP in K-12 are not covered by the ADA (Elias & White, 2018). Under the Individuals with Disabilities Education Act (IDEA), students in K-12 do not need to self-advocate to receive services and accommodations. Students in the post-secondary environment, however, under the ADA, must self-disclose, provide documentation, and request services and accommodations. Students who disclose their disability during their freshman year of college are more likely to graduate than those who do not disclose until later in their college career (White et al., 2017).

Researchers have found many neurodivergent college students delay self-disclosing and requesting services and accommodations. Thirty-seven percent of college students who were identified on the Autism Spectrum in high school did not disclose their disability to their college (Gillespie-Lynch et al. 2017). Neurodivergent students have not reached out for help unless a
major problem happened (Gillespie-Lynch et al. 2017). In a study interviewing 118 adults with ASD who were attending, had attended, or were eligible for post-secondary education, participants typically disclosed their ASD diagnosis in an academic setting only as necessary to receive formal accommodations from their school (Cox et al., 2017). Most participants waited to disclose their ASD diagnosis until circumstances brought the issue to the surface. The participants tended to be guarded with their professors, typically revealing only as much information as necessary to receive specific accommodations. Several of the participants indicated the only person who knew their diagnosis was the disability student services (DSS) staff who coordinated their accommodations (Cox et al., 2017).

Anderson et al., (2018) conducted a study surveying 48 university students with ASD. Twenty-five percent of the students delayed disclosing their diagnosis to disability services because they wanted to avoid the stigma associated with ASD. The most commonly cited reason (55.6%) was wanting to try it on their own. Another 33% believed disclosure was unnecessary. Twenty-two percent stated they did not know how to disclose. Van Hees et al., (2014) found interviewed students tended to only disclose their ASD to Disability Services Staff (DSS) when the student could no longer cope, or when they had a specific support need. Students who disclosed to DSS often did not disclose to faculty and peers due to negative past experiences, negative recommendations from others, or fear of stigmatization, rejection, or prejudice. Many students were resistant to disclose their ASD to social contacts due to ignorance and generalizations about ASD, privacy concerns, lack of supportive policies, and a desire to make a fresh start. For students who were able to hide their ASD and could compensate for their disorder, it was more difficult to discuss (Van Hees et al. 2014). The fear of the stigma associated with neurodivergence affected students in other areas as well.
Disability Identity, Stigma, and Lack of Awareness

Disability identity development has paralleled theories of sexual identity development, as both are aspects of identity that can remain hidden from the outside world. Individuals have found they can choose to conceal this part of their identity and pass as members of the dominant group (Cox et al., 2017). Comments from participants in this study showed an internal tension related to how ASD impacted their sense of identity. Decisions about whether to disclose their neurodivergence or seek accommodations were manifestations of internal identity development. Students who received an ASD diagnosis early in life and who incorporated autism in their identity, showed greater comfort with themselves and a more positive sense of identity. Students who had not yet incorporated autism into their identity, were much more negative and routinely used negative language such as “cross-wired”, “something wrong with me”, or “abnormal” when describing themselves. Negative language has been reflective of the deficit-based model of autism, where individuals on the Autism Spectrum are viewed as flawed or deficient. It also reflects the assumption that disability has been binary in which an individual is either disabled or normal. Cox et al., (2017) saw that participants in the study showed a noticeable tension between their efforts to publicly pass as neurotypical and privately embrace neurodivergence as part of their identities. When asked if he had been trained to hide signs of ASD, one participant noted:

“As a child, yeah. … No one ever told me not to do that. I mean no one ever explicitly, but in terms of learning what are proper social skills, … all of what are proper social skills are that things that are not Asperger’s. So when I’m told to, you know: Sit up straight. Don’t fidget. Don’t gesture. Make eye contact. Let the other person talk [or] finish talking before you talk. When you’re told all of those things accumulatively over time, you get a sense of what normal is or what you’re supposed to be doing and how
your, like, base self is not necessarily abnormal but you have to, … because society expects certain things, you have to do those things or else you will not go as far in life as you could. I’m very proud of the fact that I’m able to fake out as many people as I do, honestly.” (Cox et al., 2017, p. 80).

Could students attempting to pass as neurotypical out of fear of stigma or lack of understanding perpetuate a lack of understanding amongst post-secondary faculty and staff?

Neurodivergence is invisible and neurodivergent students, as a group, are diverse, making it challenging to determine what specific challenges students will face and which supports and accommodations are beneficial. Students reported that a lack of understanding about ASD among faculty and staff made support services unlikely to be successful (Van Hees et al., 2014). Gurbuz et al., (2019) found that 46% of students reported that society needed to better understand the challenges faced by students with ASD. They indicated that this was especially important in social situations when students wanted to be approached without stigmatization or patronization. The students indicated that they did not want to be perceived or treated as different, particularly by their peers. Many students with ASD reported that their professors and peers did not understand or accept student’s ASD and this led to social isolation for them. Adults with ASD who reported that others did not accept their ASD, also reported high rates of depression and increased likelihood to display camouflaging behavior. The struggle to appear “normal” can lead to increased anxiety and social isolation for neurodivergent individuals. A small number of neurodivergent students mentioned that due to high academic grades their difficulties and social challenges were underestimated or overlooked.
**Mental Health**

College students with ASD frequently reported mental health issues including anxiety, depression, and loneliness. Additionally, studies have noted elevated rates of suicidal ideation and suicide plans and attempts in adults with ASD (Jackson et al., 2017). Gurbuz et al., (2019) found 54% of neurodivergent participants in their study reported a mental health diagnosis, most commonly, anxiety and depression (46%) compared with just 17% of their neurotypical peers. Students with ASD report heightened social isolation, loneliness, bullying, and stigmatization. Van Hees et al., (2014) also reported that ASD students indicated feeling overwhelmed, isolated, tired, stressed, depressed, and anxious. In addition, because of their anxiety, students reported the balance between academics, student life, and daily living were disrupted leading to more depression, and reduced self-care (Van Hees et al., 2014).

Anderson et al., (2018) found similar results. Participants with ASD diagnoses reported anxiety (65.2%), depression (47.8%), ADHD or ADD (30.4%), and epilepsy (4.3%). In addition to anxiety, a majority of students identified issues with poor sleep quality, depression, lack of structure, and loneliness (Anderson et al., 2018).

Jackson and colleagues (2017) conducted a study surveying 56 adults with a formal ASD diagnosis enrolled in a post-secondary institution on ASD symptom severity, loneliness, suicidal behavior, and symptoms of depression, anxiety, and stress. Fifty-seven percent of participants indicated a co-occurring psychiatric diagnosis while at school. The most common diagnosis was depression (35.7%), followed by Generalized Anxiety Disorder (GAD) (26.8%), social anxiety disorder (26.8%), ADHD (23.2%), Obsessive-Compulsive Disorder (ODC) (7.1%), bipolar disorder (5.4%), specific phobia (3.6%), and panic disorder (1.8%). The study sample consistently averaged extremely severe levels of depression and anxiety and severe levels of
stress on the Depression Anxiety and Stress Scale (DASS-21). The majority of students reported experiencing some type of suicidal behavior in their lifetime. Of those students, 56.3% indicated they had thought about suicide in the past 12 months. Of the total sample, 17.9% said it was likely to very likely they would attempt suicide someday (Jackson et al., 2017). When stress and anxiety levels are extremely elevated, students reacted with unpredictable behaviors on campus that led to additional academic or behavioral consequences (Cai & Richdale, 2015).

**Social and Communication Issues**

Neurodivergent individuals could have trouble with communication and socialization (Jackson et al., 2018). People with ASD often hyper-focused on specific topics or interests to the exclusion of other areas. These struggles lead to issues that affected opportunities for socialization, education, and employment (Jackson et al., 2018). Challenges faced by students with ASD were exacerbated by social communication difficulties, such as inability to adapt language use to different settings (e.g., professors vs. peers), difficulty picking up on non-verbal communication, and non-literal language such as sarcasm, inference, humor, irony, or metaphor (Lucas & James, 2018). The tendency of individuals with ASD to interpret conversation literally has led to misunderstandings. These could negatively impact relationships and learning outcomes and prevent students from participating effectively in group assignments (Cai & Richdale, 2015).

Young adults with ADHD could have deficits in social skills and thus lower quality of life compared with neurotypical peers (Elias & White, 2018). The researchers sampled 99 parents who had children between the ages of 16 and 25 with ADHD and/or ASD on three domains: difficulties in a college setting, need for postsecondary-based support services, and strengths and assets. Parents of students with ASD identified social difficulties as the primary issue for their children. Parents identified the ability and desire to form friendships and enduring...
relationships as the second-highest area of difficulty for their students. Parents of students with ASD reported their children experienced greater struggles with social interactions, social support, and living arrangements compared to parents of students with ADHD. They also reported their children appeared to have higher rates of difficulties with self-advocacy, managing intense emotions, and managing personal adaptive skills (Elias & White, 2018).

Jackson et al., (2017) found 75% of surveyed college students with ASD responded they felt left out, isolated, or lacking companionship often or some of the time. Fifty-eight percent of participants disclosed they hadn’t had a romantic relationship while at school. Over one-third of students indicated that they were slightly to very dissatisfied with the number of close friends they had. Students interviewed by Van Hees and colleagues (2014) indicated students were aware of their social problems. The students reported fear of saying the wrong thing caused them anxiety and strain, which, in turn, negatively impacted their confidence to engage socially and invest in maintaining friendships. Social contact was often limited to a few on-campus meetings. Students indicated that they were lonely, but struggled with ending social isolation. Additionally, students reported that they struggled with reading social cues. They mentioned not knowing: when it was acceptable to ask questions in class, how to talk to their professors after class, and how to start and maintain conversations.

Gurbuz et al., (2019) found that neurodivergent students reported more difficulties with socialization and developing friendships. Seventy-two percent of students on the Autism Spectrum indicated their current relationships were not meaningful and 50% said they did not have any friends, however, their motivation to form friendships was similar to their neurotypical peers. Forty-two percent of the students with ASD who participated in the study reported experiencing social isolation and loneliness while at university. Thirty-one percent of the
students with ASD indicated that social activities were too unpredictable for them, seemed forced, and did not offer much diversity for people with different interests.

**Academic Barriers**

Essential life skills for college students include time management, strategic organization, stress management, and emotional health. These skills can pose significant challenges for neurodivergent students (Kreider et al., 2018). Academic challenges reported by neurodivergent students included: complete absorption in one class at the expense of the others (31%), inability to self-pace (8%), and frustration with faculty lack of clear instructions and expectations (27%). Twelve percent of students on the Autism spectrum reported struggling with perfectionism. Therefore, students often vacillated from feelings of success to failure and reported struggling to know whether their work was good enough. Additional challenges reported by neurodivergent students included struggling with group work, time management, organization processing speed, inattention, and motivation (Gurbuz et al., 2019).

In a survey with open-ended questions, Anderson et al. (2018) students indicated several academic-related concerns. Students with ASD reported they did not like being forced to answer questions in class. They indicated that their needs weren’t taken seriously because they didn’t appear autistic and described academic staff as mostly unhelpful. Students in the survey reported they had difficulty asking for help and experienced difficulties in clinical placements.

Students interviewed by Van Hees et al., (2014) indicated they believed their academic struggles stemmed from their different ways of processing information, time management issues, and sensory overload. The participants said they tended to focus on the many small details and consequently needed more time to process information. Students indicated that they were
overwhelmed by the demands and large amounts of information in college and reported they often lacked flexible problem-solving skills.

**Executive Function.** Some students with ASD struggle with executive functioning skills such as goal setting, sequencing, organizing, prioritizing, and self-monitoring (Jackson et al., 2018). Students, and parents of students with ASD, both indicated student’s poor organizational skills negatively impacted academics (Cai & Richdale, 2015). Parents of students with ADHD noted the main difficulty for their children was instrumental independence including organization, problem-solving, and time management (Elias & White, 2018). Additionally, neurodivergent individuals experienced self-regulation deficits which can contribute to inflexibility, poor impulse control, poor time management, lack of motivation, or impaired goal-directed behavior (White et al., 2017).

**Structure & Sensory Issues.** Both parents of, and students with ASD, reported that the student preferred structure and routine. In comparison to secondary school, lack of structure at university created problems for students (Cai & Richdale, 2015). In addition to sensitivity to routine changes, neurodivergent students also experienced struggles with sensory issues, including sensory overload which affected academics as well as motivation to participate in social events (Gubuz et al., 2019). Over half (51.2%) of students surveyed by Anderson and colleagues (2018) indicated that sensitivity to noises, lights, or odors on campus sometimes interfered with the ability to cope or study on campus. Students reported sensory overload stemming from flickering lights, keyboard clacking, and other disturbances, often led to avoidance of noisy places such as the cafeteria, pubs, and the library (Van Hees et al., 2014). Sensitivity to sensory input could impact a student’s ability to cope in education settings. Furthermore, coping behavior may be misinterpreted by staff or peers (Cai & Richadale, 2015).
**Writing Struggles.** Individuals with ASD can experience difficulty with self-regulation skills which can affect writing ability. Additionally, students with ASD can have difficulty with theory of mind, which impacts the ability to generate relevant information while writing, including considering the perspective of the reader. Compared to neurotypical adults, adults with high-functioning autism spectrum disorder wrote lower quality narrative and expository pieces (Jackson et al., 2018).

**Accommodation Barriers**

While some neurodivergent students did not seek academic accommodations because they did not want to disclose their disability or did not know how to request accommodations, participants in many studies who sought accommodations experienced issues. Students often reported that the majority of available supports are academic while non-academic supports are often needed more (Anderson et al., 2018). In the study by Anderson et al., (2018), 34% of students indicated they had to withdraw from a class due to lack of support. Twenty-two percent indicated that not all requested supports were provided, primarily due to a lack of follow-up by disability services or lack of resources. In the study by Jackson et al., (2017), 30% of participants indicated a need for improvement that included: social support groups, peer-mentorship programs, career planning and counseling, more flexible housing options, and improved counseling services. Nineteen percent of students surveyed by Gurbuz and colleagues (2019) recounted they did not receive supports when requested. When students received appropriate supports in a timely manner, they less anxious (Cai & Richdale, 2015).

Couzens et al., (2015) conducted a case study in a medium-sized Australian University with 350 students with disabilities. Students in the Couzens et al., (2015) study indicated a perception by faculty that disability services were for students with greater needs. Disability
Services Staff (DSS) at the same time, expressed frustration that students would not seek help from their office even after being referred by a faculty member. Students reported frustration about the inability to get adequate support for specific issues and described poor dissemination of information about available supports. Both faculty and students reported frustration at the inconsistency of responses from DSS to students with disabilities. DSS staff reported that although students are provided with access to assistive technology, the students are expected to come to the university already prepared to use the technology. None of the students interviewed used assistive technology (Couzens et al., 2015)

**Accessing Campus Supports/Resources**

Due to the range of supports needed by neurodivergent students and the fact that campus-based resources are not usually provided in a coordinated fashion, neurodivergent students often reported that they had to navigate vital supports and resources on their own (Kreider et al., 2018). Autism symptoms are holistic and therefore students with ASD had to cross many different departments within an institution such as housing, counseling, and academics. In a university where the primary responsibility for supporting neurodivergent students was the DSS office, a comprehensive coordinated support system was not developed (Cox et al., 2017).

**Supports for Neurodivergent Students**

Neurodivergent students have faced many barriers in post-secondary education. Many post-secondary institutions have implemented various supports and programs aimed at decreasing or eliminating barriers and mitigating the struggles neurodivergent students face. There has been an increase in the emergence of programs to support college students with ASD, however, they are not often well informed by student skills and perspectives (Hotez et al., 2018).
Disability Support Services

Where accommodations are effective for students with disabilities, students are more likely to achieve a degree and receive the accompanying benefits of financial security and better employment opportunities and outcomes (Reinschmeidt et al., 2013). Reinschmeidt and colleagues (2013) surveyed 116 students receiving disability-related services at a midwestern university in the United States. Students rated the following accommodations the highest including: assistive technology, testing accommodations, text conversion services, reader/scribe/interpreter, and assistive listening technology with the highest satisfaction scores. The following accommodations received the lowest satisfaction scores: academic advising and counseling, assignment extensions or modifications, taped lectures, academic accommodation planning, tutorial support/one-on-one assistance, and classroom accommodations. Many of these accommodations actually occurred outside the DSS office and were referrals to a third party who administered the services to the students with disabilities.

Van Hees et al., (2014) found that students commonly requested additional time for exams, extra preparation time for oral exams, exams spread over a wider time frame, a separate room for exams, and alternative assignments to group work. Sixty-two percent of students with ASD who participated in a survey by Gurbuz et al., (2019) indicated they received services and support from their university. The most commonly reported services students received were mentoring (23%), disability support services (15%), and tutoring (8%). Accommodations included testing accommodations, notetaking accommodations, alternative assessment methods, and specialized rooms.
Transition Supports & Programs

There are many differences between secondary and post-secondary education, making it challenging for neurodivergent students to transition from the more structured environment of K12 to the unstructured and independent life of post-secondary education. Participation in transition planning and identifying transition goals before graduating high school has been associated with increased odds of attending a post-secondary institution (White et al., 2017). When college students with disabilities were interviewed, they reported they should have had more voice in the transition process and staff should have taken student’s personal preferences into account when setting goals for transition (Van Hees et al., 2014). A variety of transition supports, and programs have been put into practice for students with ASD with varying degrees of success.

Better Outcomes and Successful Transitions for Autism (BOOST-A™) An online transition program, tBOOST-A™ was developed for adolescents with ASD. This program was developed so students planned their own transition from high school to post-secondary education, training, or employment (Hatfield et al., 2017). This Australian program was developed with three main frameworks chosen based on a needs-assessment: self-determination model, strengths-based approach, and technology-based approach. Features included a clear process that supported a preference for structure and routine, consideration of sensory preferences and learning styles, and inclusion of animated videos to help students understand the purpose of each module (Hatfield et al., 2017).

Hatfield et al., (2017) conducted a quasi-random trial of 94 students with ASD enrolled in years 8-11 in Australian schools. The intervention group used BOOST-A™ for a year while the control group participated in regular practice. Members of the BOOST-A™ group logged in an
average of five times, completed an average of three modules, and reported an average of two
team meetings. Participants were scored in domain-specific as well as overall self-determination
components. Participants were also measured in career planning and exploration, and quality of
life. Environmental supports were measured post-study. There were no significant differences
between the control and intervention groups in overall self-determination, or among the scores of
the BOOST-A™ group pre-and post-intervention. A possible explanation for the lack of change
in the self-determination score could have been that not all participants adhered consistently to
the program. Another reason could have been a lack of in-person training on how to use
BOOST-A™. Generally, technology-based, entirely self-directed by participants programs, have
smaller effects than programs administered by a professional (Hatfield et al., 2017).

There were, however, significant differences between the control and intervention groups
in three areas: career exploration for parents and adolescents, the self-determination of home for
parents, and transition-specific self-determination for parents. The significant difference between
the home subscale could suggest that BOOST-A™ helped parents in providing more
opportunities for their children to practice decision-making, goal setting, and problem-solving in
the home environment. There was also a significant increase in transition-specific self-
determination favoring the intervention group. (Hatfield et al., 2017).

**Summer Transition Program.** Hotez and colleagues (2018) developed a no-cost
summer transition program for incoming and current college students using a participatory
process. The program consisted of five hours of instruction over five days structured similarly to
college. The focus was on skill-building, mentorship and peer support. The curriculum covered
social skills, self-advocacy, executive function and self-regulation, interview and employment
readiness skills, and writing skills. Students were encouraged to utilize their new skills with
peers, mentors, and facilitators. This provided a safe environment to practice skills with constructive feedback. Participants played games to help facilitate interaction and engagement and to help students learn more about campus resources. The program then carried over into the school year with weekly one-on-one or group mentorship meetings. Students could return to the program as mentors the following year, after completing the entire program.

Eight of the ten participants in STP2 reported that they learned general skills, four participants indicated that they learned college-specific skills, and four said they learned about self-advocacy. The results of the study showed that neurodivergent students improved self-advocacy skills and engaged more effectively with a diverse range of peers after completing the short intense summer program (Hotez et al., 2018).

**Stepped Transition in Education Program for Students with ASD (STEPS).**

The STEPS program was designed as a two-step program, with Step 1 designed for students still in high school and Step 2 designed for current college students as well as incoming new college students (White et al., 2017). STEPS used a cognitive-behavioral approach to help students develop self-determination and self-regulation skills, expected to contribute to better college adjustment, positive academic performance, and healthy independent living. The program focused on building self-knowledge, self-advocacy, and goal-directed behavior and also targeted self-regulation by teaching stress management techniques, problem-solving, and goal-setting.

Step 1 was geared for students age 16 or older. The program was developed with six counseling sessions, focused on transition goals, and held every other week. Students then completed an immersion experience at a two or four-year post-secondary institution.
In Step 2, college students received 12, one-on-one counseling sessions, participated in community-based outings, and completed online content for a 12 to 16-week period. Parents were involved in Step 1, but by design, not highly involved in Step 2 (White et al., 2017).

The STEPS program focused on self-determination and self-regulation. Twenty-six participants (Step 1: 12, Step 2: 14) scored the program on a five-point scale (1 = not helpful, 5 = very helpful). Participants rated STEPS as helpful with a mean score of 4.31. They were also likely to recommend the program to others with a mean score of 4.38. Parents also indicated they found the program helpful (m= 4.39) and were likely to recommend the program to others (m=4.78) (White et al., 2017).

**Mentor Programs**

Social factors were more related to persistence in college than academic performance for most students with disability. Students with learning disabilities tended to rely more on social supports than their peers (Showers & Kinsman, 2017). College students with ASD who participated in in-person mentoring had a higher GPA and retention rate (Cai & Richdale, 2015). Students interviewed by Van Hees et al., (2014) indicated they were less interested in group training but preferred to share experiences in peer support groups.

**Project Reach.** Project Reach was created as a mentorship program at York University for students with ASD (Gillespie-Lynch et al., 2017). Project Reach included weekly mentor-led group meetings as well as one-to-one mentorship. Mentors were undergraduates, graduate students, and Ph.D. students. Topics for group sessions included reading body language, conversation skills, electronic communication, respecting boundaries, resolving disputes, self-advocacy, interview skills, and reflection on mentorship. Students were also invited, but not required, to participate in group social activities and workshops (Gillespie-Lynch et al., 2017).
Students who participated in Project Reach expressed high satisfaction but indicated they would like to have more group events. Specifically, they requested discussions about disabilities, communication skills, and transition out of college. Many students stated their favorite aspect of the program was the opportunity to socialize with their peers in an inclusive environment. Pre- and post-tests conducted for Project Reach suggested that social skills training was associated with decreases in autism symptoms and trait anxiety. Students’ ability to define self-advocacy improved significantly pre- and post-program. Students who participated in the self-advocacy training demonstrated an increase in perceived social support from friends and improved academic self-efficacy (Gillespie-Lynch et al., 2017).

The Comprehensive Support for STEM Students with Learning Disabilities (CS³LD). The (CS³LD) was developed at the University of Florida as a holistic, multi-level support for students with learning disabilities in STEM majors (Kreider et al., 2018). The campus-based system of interventions included components at the personal, interpersonal and institutional levels. Person level supports focused on self-awareness, understanding about Learning Disabilities, and identifying and advocating for disability-related strengths. Interpersonal supports included a mentorship program by graduate students with supplemental mentorship by STEM faculty aimed at professional enculturation in the student’s field of study. At the institutional level, a network of knowledgeable personnel was created to facilitate changes for the entire university (Kreider et al., 2018). Students participated in monthly group meetings where topical content was provided followed by focused discussion. The overall attendance rate was 85%. Mentors provided social support and encouragement and most students expressed a desire to continue a relationship with their mentor. Sixty-seven percent of participants reported
improved self-efficacy, self-advocacy, and communication and an improved connection to the campus community (Kreider et al., 2018).

Positive changes in measures on self-efficacy, campus integration, and self-advocacy were also found among the participants. A statistically significant increase in confidence in performing academically-related behaviors and academic and social integration was found after participating in CS$^3$LD for four semesters. There was not a significant increase in scores assessing active and intentional engagement in the process of personal growth during a transition period. The study provided evidence that holistic campus-based supports improved self-efficacy and promoted connections with supportive disability staff on campus (Kreider et al., 2018).

**Specialist Mentoring.** Lucas and James (2018) evaluated the effectiveness of a university specialist mentoring service in the United Kingdom, collecting data across three semesters through surveys and interviews. Specialist mentoring consisted of a one-on-one supportive mentoring relationship between a professional mentor and a student with ASD or mental health concern (MHC). There were no group differences in expectations between students diagnosed with ASD and students diagnosed with MHC.

Mentoring was designed to provide both prevention and intervention. Mentors often acted as bridges in supporting transition to university and as transition from parental support to independence. Mentors helped connect students to wider university services and helped students learn strategies to adapt within the college environment (Lucas & James, 2018).

All of the mentees with ASD reported overall satisfaction with the mentoring program. Students with ASD indicated that mentoring was especially beneficial in increasing confidence in their studies. Students reported: course selection assistance, preparation for exams and time
management strategies were most beneficial. Students with ASD also reported that mentoring helped them with coping skills, problem-solving skills, and feeling positive about the future.

Students with MHC were significantly less positive about the experience than students with ASD. Both groups had high reports of receiving accommodation arrangement support and both groups indicated that they valued personal relationships with their mentors. Mentees reported feeling valued as a whole person and not as a diagnosis, however students with MHC requested additional specific mental health services (Lucas & James, 2018).

**Skill Supports**

Secondary and post-secondary educators identified competence, autonomy, independence, and development of interpersonal relationships as primary areas of difficulties faced by neurodivergent students in transition from high school to college (White et al., 2017). Parents of students with ASD indicated that their children would benefit from speech/language services, social interaction training, independent living training, and modified living arrangements; while parents of students with ADHD indicated that supports for inattention and emotional independence were most desired (Elias & White, 2018). In addition to accommodations, students indicated they needed coaching for transitioning to college and employment. Students indicated that coaching was needed for improving study skills, daily and vocational organizational skills, clarifying ambiguities, and providing feedback (Van Hees et al., 2014).

**Personal Strengths Program (PSP).** Farmer et al., (2014) found that students with ADHD and LD who were successful in college tended to show self-knowledge, self-awareness, and self-regulation. Students used their strengths, were persistent, and set reasonable goals. They also sought help, when needed and self-advocated. In addition, successful students with ADHD
or LD consistently demonstrated the use of strategies such as mnemonics and graphic organizers. Successful students monitored their own learning and used reading strategies at similar levels to neurotypical college students. Students who received instruction in learning strategies had increased self-efficacy, academic resourcefulness, and internal locus of control. Farmer and colleagues developed the Personal Strengths Program (PSP) at a large southeastern university in the U.S, specifically to meet the skill needs of college students with ADHD and LD. PSP was developed as an eight-week program to teach participants to identify and utilize their strengths to achieve weekly academic goals. Students participated in weekly one-hour sessions as well as goal-related activities throughout the week. Session topics included: self-awareness, character strengths, learning strengths, assertive communication and negotiation skills, using feedback appropriately, generalizing and maintenance. In addition, each student worked one-on-one with a Personal Strengths Coach (PSC) to set goals.

Eleven participants completed the PSP. At the completion of the program, participants indicated their self-determination skills had improved. The researchers found a statistically significant increase in self-determination levels from baseline to the end of the program (Farmer et al., 2014).

**Learning Strategy Training.** Evidence has suggested that deficits in study skills and strategies among neurodivergent students negatively impact performance in post-secondary education due to struggles with executive function skills, social communication, and understanding abstract concepts. Research indicated that neurodivergent students needed explicit, not implied instruction. Students also benefited from instruction that offered cues and supported memory skills. Specifically-taught writing strategies provided a format for
neurodivergent students to plan and organize written work while learning strategies provided structure for writing, task cues, and generalizability (Jackson et al., 2018).

Jackson et al., (2018) conducted a study of three college students with an ASD diagnosis attending a higher educational institution in the southeastern U.S. Participants attended one-hour sessions twice weekly to receive the intervention. Participants were taught the DATE: (Developing the thesis statement, Adding supporting details, Tying it together, and Editing and revising) strategy. The results of the study showed that neurodivergent students benefited from instruction on strategies and skills focused on improving writing. Students who participated in the study learned and used the DATE strategy effectively and were able to generalize the strategy to content-specific writing tasks. Students spent more time planning their writing using graphic organizers resulting in more organized and better-developed essays. Each student increased their writing scores throughout the intervention and subsequent follow-up phases (Jackson et al., 2018).

**Other Supports and Strategies**

Students with ASD reported that structure, concrete instructions, and smaller sequenced assignments were beneficial to their academic success (Gurbuz et al., 2019). Many students with ASD reported that they attempted to get rid of structure in their personal life, to train themselves to handle unexpected events (Van Hees et al., 2014) however this was not particularly effective for them.

Neurodivergent students often relied on the informal support of their peer group and friends to ask questions and receive explanations while others utilized informal study groups. Students reported that informal support networks were the most effective means of support (Couzens et al., 2015). Neurodivergent students indicated a need for friendship and relationships.
They stated that it was important to have a social network to feel as though they belonged. They reported they often developed scripts from observations of social interactions and employed them to react appropriately in various situations. Students used distractions, leisure activities, and exploring interests as strategies for managing anxiety and stress.

A supportive campus environment was also reported as a positive for neurodivergent students. Informed caring and clear professors and tutors were reported as the second most useful support for college students, after peer support (Couzens et al., 2015). Some students took reduced course loads to manage stress in college and to help them with their social interactions. Some students expressed that support from a long-time psychologist or psychiatrist was also vital to help them while they were in college. Many students, however, reported struggling with limited therapy options on campus.

Many students chose to live at home during their first year of college to reduce the number of changes and better cope with the transition (Van Hees et al., 2014). Other students preferred to attend colleges near home to take advantage of continued family support (Van Hees et al., 2014). Due to gaps in services during the transition to adulthood, parents reported that they frequently helped their children in college. Parental involvement in transitioning from high school to college has been reported as a positive factor in favorable outcomes in post-secondary education (Elias & White, 2018). Parents who held high expectations for adolescents with ASD improved self-determination behavior and therefore improved post-school outcomes. As expected, there was a positive correlation between frequent at-home discussions about post-school plans and increased participation for students with ASD in transition planning meetings at school (Hatfield et al., 2017).
Summary

As more neurodivergent students enroll in post-secondary educational institutions; the neurodiversity movement has changed the focus from student’s disability to student’s abilities. While neurodivergent students bring many strengths and contribute greatly to the post-secondary educational environment, students still face many challenges. Some students struggle with integrating neurodiversity into their identity and do not seek out services, accommodations, and support. Those students who do choose to seek out services are then sometimes met with barriers in receiving accommodations and bias surrounding their disability. Neurodivergent students tend to experience mental health concerns at a higher rate than their neurotypical peers. They tend to struggle with social skills and communication issues which can lead to isolation and exacerbate mental health concerns. Additionally, communication struggles along with deficits in executive functioning, and sensory issues could contribute to academic struggles. Many institutions have attempted to eliminate or greatly mitigate the barriers faced by neurodivergent students. Academic accommodations are the most common support offered to neurodivergent individuals. However, many institutions have gone beyond accommodations to offer additional supports, including transition programs, mentors, and skills training.
Chapter Three: Conclusions and Recommendations

In summary, post-secondary institutions have been enrolling increasing numbers of neurodivergent students. Researchers have documented that neurodivergent students struggle more with transitioning to post-secondary education and face more barriers once at college than their neurotypical peers. As a result, neurodivergent students graduate at lower rates than their neurotypical peers. To improve academic outcomes for neurodivergent students, post-secondary institutions need to continue to look for innovative ways to provide access and inclusion for neurodivergent students. Unfortunately, research into post-secondary educational experiences has been limited, with most studies focused on neurodiversity as a whole rather than specific diagnoses. Much of the information about working with neurodivergent students stems from professionals' knowledge and experiences working with neurodivergent students (Cai & Richdale, 2015). Further study on not only student experiences, but effective supports, accommodations, and programs are needed.

Based on the existing literature, making the transition from secondary to post-secondary education remains a significant struggle. The literature suggests that lack of participation in high school transition planning, among neurodivergent students, has been a contributing factor to this struggle. Lack of individual, focused participation in transition planning can contribute to poor self-advocacy skills which can then lead to neurodivergent students not seeking appropriate support. Additionally, neurodivergent students indicated that they struggled with self-identifying as disabled. Some students were concerned about a lack of understanding or stigma associated with neurodivergence. Other students indicated that previous negative experiences affected their decision to self-disclose. Unclear and confusing processes to request support coupled with a lack of understanding between laws that apply to K-12 and post-secondary contributed to transition
struggles. These combined factors often led to a delay in seeking support or seeking support too late. Neurodivergent students need to learn how to self-advocate for services and accommodations in addition to navigating the typical demands faced by students transitioning to college. Programming that integrates developing independence with identity development to promote a smooth transition from high school to college may prevent adverse outcomes and increase student success (Van Hees et al., 2014).

Furthermore, the literature indicated that while academic accommodations are helpful to some neurodivergent students, many need further support beyond accommodations. A prominent theme throughout the literature was the need for social supports. Many neurodivergent students indicated struggling with communicating with peers and professors, making friendships, and socializing. Neurodivergent students noted a lack of awareness among faculty and staff and reported stigma associated with neurodiversity. Social isolation, struggles to make meaningful connections, and a general lack of understanding among the campus community could potentially exacerbate already existing mental health conditions. Neurodivergent students reported mental health concerns at higher rates than their peers, therefore, a clear need for additional supports has been shown as essential.

Existing literature also suggests that while neurodivergent students exhibit many strengths and are often academically very capable, other factors interfere with academic success. Neurodivergent students often struggled with executive functioning skills including time management, organization, and planning. Additionally, communication deficits contributed to struggles in both reading and writing. Neurodivergent students often experienced sensory issues which could also contribute to a negative classroom experience. Addressing deficits and building
executive functioning and coping skills could lead to improved academic performance among neurodivergent students.

Based on these conclusions, post-secondary institutions need to develop student-focused transition programs to help improve self-advocacy skills, identify resources, make social connections, and improve overall social skills. In addition, high school programs need to develop specific individualized programs for each identified student to involve them in their own transition planning and to also include their parents. Transition programs should include monitoring and follow-up to provide on-going support and reinforce skills and concepts (Cai & Richdale, 2015). When provided with proactive planning tools, clear communication, and concrete information, students are better able to understand expectations and therefore more likely to succeed (Van Hees et al., 2014). Transition programs need to be effective, accessible, affordable, and user-friendly (Hatfield et al., 2017). However, technology should not be a substitute for in-person support. Given the poor results of the BOOST-A online transition planning program (Hatfield et al., 2017), transition programs should be carefully structured and include an in-person component

Students reported the need for a clear and simplified process for requesting services and accommodations. An easily navigable process could bolster a student’s self-advocacy skills and make it more likely that they seek support (Anderson et al., 2018). Since many neurodivergent students found it difficult to ask for help, DSS professionals should be understanding of the difficulties neurodivergent students have with self-identifying and self-advocating. Having a proactive and easily accessible support system would make seeking services and accommodations more accessible (Gurbuz et al., 2019). The use of standardized measures to evaluate how satisfied students are with specific accommodations might provide data helpful for
DSS offices to more effectively deliver accommodations as well as make modifications to improve existing accommodations for neurodivergent students (Reinschmiedt et al., 2013).

As neurodivergent students indicated a wide range of challenges and needs, a personalized support system could be beneficial to track and intervene as needed (Gurbuz et al., 2019). An advisor familiar with neurodiversity whom students could help students feel safe and more likely to seek support (Van Hees et al., 2014). In addition, supports should be individualized and comprehensive (Van Hees et al., 2014). Executive functioning skills, social competence, and other targeted skills training may also be beneficial to neurodivergent students (Elias & White, 2018). Coaching and or counseling related to student life and daily living, as well as access to psychological support and mental health counseling would benefit neurodivergent students as well (Van Hees et al., 2014).

It is recommended that comprehensive support should also include a peer mentor program. Neurodivergent students, students with other disabilities, and neurotypical, non-disabled students may share similar challenges. Universally designed support groups could also help students with a range of skills, strengths, and weaknesses in addition to providing an opportunity to learn from one another (Gillespie-Linch et al., 2017). Additionally, peer support groups would provide neurodivergent students with an opportunity to socialize in a safe environment and make social connections. Peer mentor programs could provide an opportunity for neurodivergent students to develop their disability identity by interacting with other members of the disabled community and then ultimately transitioning to leadership roles within the program.

Finally, to improve outcomes for neurodivergent students, post-secondary institutions need to develop campus climates of inclusion. Disability should be viewed as a component of
diversity. The use of the universal design principle, flexible, simple, intuitive, perceptible information, tolerance for error, and low physical effort in post-secondary education can effectively support neurodivergent students as well as meet the needs of a diverse student population (Cox et al., 2017). Institutions of higher education should foster an environment where neurodivergent students can explore their identity and disclose their diagnoses without fear of stigma (Cox et al., 2017).
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