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Factors that Influence the Success in Higher Education for Students with Autism

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Factors that Influence the Success in Higher Education for Students with Autism

A Thesis Presented to
The Graduate Faculty of
Minnesota State University Moorhead

By
Elizabeth O'Neil Gardner

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in
Speech-Language Pathology

April 2020

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ANNOUNCEMENT OF ORAL EXAMINATION

Name of Candidate:	Elizabeth Gardner
Degree Program and Major:	Master of Science in Speech-Language Pathology
Thesis Title:	Factors that Influence the Success in Higher Education for Students with Autism
Date and Time:	April 24, 2020, 10:00 AM
Location:	Zoom Video Conference
Examining Committee:	Kris Vossler, Ph.D., M.S. CCC-SLP, Chairperson Rachel Stotts, M.S., CCC-SLP MariBeth Plankers, M.S., CCC-SLP Keri DeSutter, Ph.D

THESIS ABSTRACT

The purpose of this study was to determine factors that influence the success in college for students with autism. To meet this purpose, four upperclassmen college students with ASD were recruited for semi-structured interviews on their college experience. The interviews were transcribed and coded which led to the uncovering of three categories and three themes. The data from this study suggest that success in college for students with autism is influenced by an integration of multiple factors working together which include personal, macro educational, and micro educational. Many general themes uncovered in this study were mirrored by the current literature (e.g. interpersonal relationships, accommodations, etc.) while some themes that were prominent in the literature were not found to be salient in the present study (e.g. transition, self-advocacy, etc.)

ACKNOWLEDGEMENTS

As I arrive at the end of this journey, I am reflecting on each step I took along the way and am thinking about the people who were truly the ones who made this possible.

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I further would like to thank the American Speech-Language Hearing Association for allowing me to present this research at the 2019 convention in Orlando, Florida. It was a pleasure to talk about this passion with other individuals who shared it.

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Chapter I

Introduction

For as long as I can remember, autism has been a part of my life. I grew up with two younger brothers with autism who both experienced the disorder very differently. The first brother, who is two years younger than me, received in-home applied behavioral analysis (ABA) therapy for about four years, which I remember very much enjoying being a part of as much as I could. He is now attending college to become an art teacher and is one of my biggest inspirations. My youngest brother, who is twelve years younger than me, is now the same age I was in when he was born. I remember reading my step mother's developmental milestones books and observing my brother as he grew, becoming increasingly concerned as more and more milestones were not met. When he finally received an ASD diagnosis and began therapy, I enjoyed watching but yearned to help more than I could. He is in sixth grade now and recently received his first augmentative and alternative communication (AAC) device, with which I am ecstatic to help him.

As a Speech-Language Pathology graduate student now, I am proud to have chosen a field where I can work with other individuals with ASD who have varying levels of needs across many environments and continue to develop my knowledge on the disorder for years to come. As for my where my interest in higher education emerged from, it was halfway through my own college experience when I became an Orientation Assistant for incoming freshmen at my undergraduate university. I was exposed to the eagerness, determination, and nervousness of the incoming class and adored helping these students and getting to know their unique motivations for attending college. I continued my work as an Orientation Assistant throughout the rest of my undergraduate time but realized how much I would miss working with that population after I left.

Fortunately, I received a graduate assistant position in the Academic Support Center at my graduate university where I advised undeclared students, provided academic coaching, and assisted students with major exploration. This position furthered my interest in the college population and my appreciation for the many personnel involved in student affairs and higher education.

This chapter will discuss the problem, the purpose and significance of the present study, and the delimitations of the study. It will also pose the research question and provide definitions for terms that are used in the following chapters.

Statement of the Problem

With the prevalence of individuals with Autism Spectrum Disorder (ASD) more than doubling in the past ten years (U.S. Centers for Disease Control and Prevention [CDC], 2014), an increase in the number of individuals belonging to this population attending higher education institutions has been seen. University students are exposed to many new ideas, relationships, and expectations, some or all of which may contribute to their academic success. Individuals with autism who choose to attend university are not exempt from being exposed to these new experiences, so it would be beneficial for professionals in many fields to understand how these experiences influence academic success in college students with autism.

Purpose of the Study

The purpose of this study was to identify and describe the factors that influence academic success in individuals with autism in higher education. Further, the goal of this study was to conduct qualitative research through interviews with college students that fall on the autism spectrum attending Minnesota State University Moorhead who receive accessibility resources.

Research Question

To meet the stated purpose, the researcher conducted a qualitative research study in an attempt to answer the following question:

- What factors influence academic success in adults with autism in higher education?

Significance of the Study

The significance that this study will have on the field of speech-language pathology is that it will add to the field's current understanding of how adults with autism in higher education can have a successful college experience. Much of the current research on ASD is centered around children with the diagnosis, leaving the current information on adults with autism much slimmer. This study will also provide professionals in the field of speech-language pathology with the potential to create functional goals for their clients on the spectrum who attend or are thinking about attending higher education to encourage their success.

Delimitations

Data were collected by conducting interviews with four participants with autism who were all attending the same higher education institution in the upper Midwest.

Definitions

Autism/Autism Spectrum Disorder (ASD): A developmental disorder that includes difficulties in communication, socialization, thinking, cognitive skills, interests, activities, and motor skills. (Goldstein & Ozonoff, 2018)

Academic Coaching: The one-on-one process of helping a student examine academic concerns and perceived barriers to success. (Iowa State University) Academic Coaches can assist [students] in personal/educational issues, study skills, time management, test anxiety, selecting

classes to take, deciding on a major, getting help for academic problems, and locating additional help for other concerns. (Minnesota State University Moorhead)

Individualized Education Plan (IEP): Each public school child who receives special education and related services must have an Individualized Education Program (IEP). Each IEP must be designed for one student and must be a truly individualized document. The IEP creates an opportunity for teachers, parents, school administrators, related services personnel, and students (when appropriate) to work together to improve educational results for children with disabilities. (U.S. Department of Education, 2019)

Chapter II

Literature Review

The purpose of this review is to determine the existing literature on the experiences of adults with ASD in higher education. This literature review investigates the existing literature on adults with ASD, reports on what is known about adults with ASD who attend college, explores the experiences of college students with ASD in terms of transitioning to higher education, challenges, interpersonal relationships, and mental health, and discusses the supports in place for college students with ASD, their needs, their experiences with self-advocating and disclosing their diagnosis, and accommodations in higher education.

Adults with Autism

Goldstein and Ozonoff, authors of *Assessment of Autism Spectrum Disorders*, defined ASD as a developmental disorder that includes difficulties in communication, socialization, thinking, cognitive skills, interests, activities, and motor skills (2018). ASD does not disappear in adulthood. In 2018, Siebes, Muntjewerff, and Staal assessed symptom (e.g., social skills, attention to detail, attention switching, etc.) distribution across the adult age span for high functioning adults with ASD in a large-pool study and found no significant difference in results between the assessed adult age groups, suggesting that symptoms remain stable through adult life. “However this does not mean the problems experienced by these symptoms are equal per age group” (Siebes, Muntjewerff, & Staal, 2018, p. 3942).

Services after high school. The National Autism Indicators Report of 2015 indicated that about 50,000 students with ASD graduate from high school each year (Roux et al.). Many of these young adults will still require or benefit from services throughout their lifetime. Additionally, the Interagency Autism Coordinating Committee (IACC) reported an increasing

number of adults receiving first-time ASD diagnoses and called for continued research to fill the gaps in the knowledge regarding the process for adult diagnosis (2016-2017). The IACC also noted the need for an increase in funding for adult disability services, as adults with ASD “rarely receive the range and extent of services that would allow them to reach their potential” (p. 80) due to long waiting lists across the country (2016-2017).

Coexisting diagnoses. The National Autism Indicators Report of 2015 reported that 60% of adults with ASD had two or more physical or mental health diagnoses in addition to ASD (Roux et al.), furthering the need for continued services after high school. Despite this already apparent high need for services in adulthood, eligibility for supports for adults with ASD tends to require a coexisting intellectual disability (Roux et al., 2015). The National Autism Indicators Report of 2015 further reported that while most of the current population of young adults with ASD do not have coexisting intellectual disabilities, their communication and social impairments tend to negatively impact their ability to gain employment or receive higher education (Roux et al.). Unfortunately, although it is clear that the need for continued services is high, only 58% of young adults with ASD had a transition plan in place by the federally required age, leading to parents and siblings often providing support to their family members with ASD after they leave the school system and becoming responsible for the coordination of services (IACC, 2016-2017; Roux et al., 2015).

Living arrangements and social life. Adults with ASD tend to continue to live with their parents upon leaving the school system in many cases (IACC, 2016-2017; Roux et al., 2015). The frequency at which adults with ASD continue to live with their parents following high school is the highest across disability categories (Anderson et al., 2014; Roux et al., 2015). The National Autism Indicators Report of 2015 reported that only 19% of adults with ASD had

lived independently from their parents without supervision (Roux et al.). Anderson et al.'s 2014 study explored the living arrangements of young adults with ASD following high school and found that higher socioeconomic status, higher functional and social skills, and being Caucasian correlated with independent living for adults with ASD. In terms of interpersonal relationships, only 76% of adults with ASD had socialized with friends in any way and only 46% participated in the community in the past year at the time of the 2015 National Autism Indicators Report (Roux et al.).

Employment and higher education. A nationally representative survey conducted in 2012 found that within six years following high school, 55.1% of adults with ASD had held employment and 34.7% had attended higher education (Shattuck et al.). Across disability categories, adults with ASD had the lowest rate of employment within six years following high school (Shattuck, 2012; Roux et al., 2015) and were identified as being at the highest risk for being completely uninvolved in both employment and higher education following high school (Shattuck, 2012). This risk is much higher for adults with ASD who come from lower-income homes (Shattuck 2012; Roux et al., 2015) and who are not white (Roux et al., 2015). Furthermore, Lounds Taylor and Smith DaWalt examined employment and educational disruptions of 36 young adults with ASD found that the post-secondary employment and education involvement for adults with ASD was highly unstable and that half of their sample experienced post-secondary employment or education disruption within less than three years following high school (2017). Generally, outcomes for adults with ASD were quite variable. They were greatly dependent on the severity of the ASD diagnosis, cognitive and language abilities, psychological factors, and behaviors, as found in a 2011 systematic review of the literature on the outcomes of adults with ASD (Levy & Perry, 2011).

College Students with Autism

In an attempt to determine the prevalence of students with ASD in higher education, White et al. (2011) gave the Autism Quotient (AQ), a screener for ASD, to 667 undergraduate university students and found the estimated prevalence of adults with high functioning ASD in higher education to be between 0.7% to 1.9% depending on the definitions used for high functioning ASD criteria. It should be noted that some of the students identified as having met diagnostic criteria in this study did not have an ASD diagnosis prior to college (White et al., 2011). Of strictly young adults with ASD, 36% attended some type of post-secondary education and the majority attended full time (Roux et al., 2015). Both higher levels of conversation ability and higher household incomes correlated positively with the percentage of young adults who had ever pursued higher education, and having parents who have attended higher education correlated with positive outcomes (Roux et al., 2015). Wei et al. analyzed data from the National Longitudinal Transition Study-2, a nationally representative study that reported on the experiences of students with ASD in higher education, and found that 81% of college students with ASD were enrolled in a 2-year institution at some point (2014). This statistic was updated in 2015 when the National Autism Indicators Report found it to be at 70% (Roux et al.). In regards to those that persisted towards a degree, Wei et al. found that 57.5% of students with an ASD diagnosis who attended only a 2-year institution persisted, 69.54% who attended both a 2-year and a 4-year institution persisted, and 69.55% who attended only a 4-year institution persisted (2014). Wei et al. also found various gaps in college persistence between demographic categories of students with ASD. These gaps included a gender gap favoring the persistence of males, a racial gap favoring the persistence of minorities, and a gap favoring the persistence of students whose parents had attended a post-secondary institution (Wei et al., 2014).

In 2019, McLeod, Meanwell, and Hawbaker conducted a large-population study (n=3073) to compare the college experiences of students with ASD to neurotypical students and found differences in the areas of academic, social, and health outcomes. White et al. (2011) identified that it is likely that the college experience of students with ASD is more than their performance academically and considers factors such as their social life and extracurricular participation. Gelbar, Shefcyk, and Reichow surveyed 35 current and former college students with ASD in 2015 and identified a theme which emphasized that college students with ASD do not fit the stereotypes society typically gives them, such as majoring in technological fields. In reality, the interests of college students with ASD as a population are widespread (Gelbar, Shefcyk, & Reichow, 2015; Roux et al., 2015). Cai and Richdale (2016) conducted a study that involved semi-structured focused groups with 23 post-secondary students with ASD and 15 family members and identified five themes that affect the progression through college: core features of ASD, co-morbid conditions, transition preparation, disclosure of diagnosis, and services and support. Many of these themes were found in the literature and are discussed in greater depth throughout this chapter.

Transition

It appears in the literature that the promotion of success in higher education for students with ASD begins even before graduating from high school. One of the five main themes that Cai and Richdale identified as affecting the progression through college for students with ASD was transitional preparation from high school to post-secondary school (2016). Many of the students in this study did not experience formal transitional planning, which resulted in the students feeling anxious due to lack of preparedness (Cai & Richdale, 2016). Further, Anderson and Butt (2017) concluded from interviews with 18 families of college students who had ASD that

“pushing [students with ASD] to graduate with their typical peers [at 18] may be doing them a disservice” (p. 3037) as many may not be fully prepared for college at that time. Van Hees, Moyson, and Roeyers conducted a grounded theory study by interviewing 23 college students with ASD on challenges, supports, and needs and identified that this transitional period is one of heightened vulnerability for this population (2015).

Because this is such a vulnerable period for students with ASD, it is important to identify methods to increase positive outcomes during this time. Adjustment to the demands of higher education and the achievement of post-secondary goals were reported by parents in multiple studies involving the parents of students with ASD as having increased success rates due to a high quality transitional/preparation period (Dymond, Meadan, & Pickens, 2017; Ruble et al., 2019). Alverson, Lindstrom, and Hirano’s 2019 cross-case study on the transitional period for 27 young adults with high functioning ASD uncovered five recurring themes that influenced a positive transition into college for young adults with ASD: internal motivation to attend college, high levels of disability awareness, intentional family supports, coordinated transitional planning, and clear post-secondary goals. Bolourian, Zeedyk, and Blacher interviewed 13 college students with ASD in 2018 and from their findings suggested that, while academic preparation should be a component of preparation for higher education, non-academic preparation should also be a component for students with ASD, as many social/emotional challenges were uncovered in the study. More specifically, transitional outcomes were much more positive when challenges like executive functioning, social skills, and other ASD-associated challenges were addressed (Anderson & Butt, 2017) and when skills were developed in the areas of social needs, self-determination needs, and self-regulation needs (White et al., 2016) long before exiting high school. Van Hees, Roeyers, and De Mol explored the experiences

of 34 college students with ASD and their parents during their post-secondary transitional period to college reported that students with ASD actively ask their parents for assistance during this transitional process and suggested that post-secondary institutions be more welcoming to parents of individuals with ASD because of this (2018). Wei et al. suggested that 2-year community colleges may be an ideal post-secondary educational setting for individuals with ASD due location convenience or a helpful first step prior to attending a 4-year institution assist in the transition (2014).

Challenges

In addition to the challenges that exist for students with ASD during the transitional period, there are many challenges identified by the literature that this population faces during post-secondary school. The literature has mixed findings on academic-related success for this population. In 2011, White et al. found that students with higher AQs had higher (self-reported) GPAs, and in 2015, Gelbar, Shefcyk, and Reichow found that 80% of their sample of college students with ASD had GPAs over 3.0, indicating high levels of academic success. This is contradicted by McLeod, Meanwell, and Hawbaker's 2019 study, which found that students with ASD reported significantly lower GPAs than neurotypical students along with more remedial coursework, leading them to suggest that students with ASD may have more challenges academically than neurotypical students. This study further found that students with ASD have similar levels of academic engagement as their neurotypical peers, implying that other factors are attributed to the academic success of students with ASD (McLeod, Meanwell, and Hawbaker, 2019). Glancing at specific academic challenges that were discovered in the literature, Gelbar, Shefcyk, and Reichow found that a mere 38% of their sample of college students with ASD felt that lectures were easy to follow and 36% felt that they had effective time management skills

(2015). Weiss and Robland developed a communication coaching program at the University of Rhode Island for students with ASD and reported on insights from the implementation of the program across five years of it being active in 2015. They noticed that college students with ASD tended to find note-taking to be challenging, as they reported that this population often was not able to pick out seemingly important parts of lectures to take notes on and study from later (Weiss & Robland, 2015).

Many studies found that college students with ASD themselves had higher levels of concern with social/emotional challenges than with academic challenges (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015). Despite this feeling from the students themselves, Van Hees, Moyson, and Roeyers found that students with ASD face both social and academic challenges as well as experience sensory overloads and difficulties with time management skills (2015). Alverson, Lindstrom, and Hirano's study expanded on this and found that the common struggles associated with ASD, such as social skills and executive functioning, that created challenges for students with ASD in high school continued to provide them with challenges in higher education (2019). Many studies found that one of the biggest challenges that college students with ASD face is disclosing their diagnosis which, in some cases, prevents them from the opportunity to receive accessibility services (Bolourian, Zeedyk, & Blacher, 2018; Van Hees, Moyson, & Roeyers, 2015; Van Hees, Roeyers, & De Mol, 2018). Weiss and Robland identified another challenge that college students with ASD face is with understanding the "hidden curriculum" or "unwritten rules" that come with being a college student, such as referring to syllabi for assignment questions, expected behavior during lectures, etc. (2015). Additionally, when students with ASD have gaps between classes in their schedule, it was identified by Weiss and Robland that this

population tended not to use that time as would be expected (e.g., studying, completing assignments, eating lunch, etc.) and would often return home or to their dorms to sleep (2015). Gelbar, Shefcyk, and Reichow uncovered a unique challenge that this population faces: balancing the identity of being both a college student and a person with ASD (2015).

Interpersonal experiences. As mentioned in the previous section, it appears in the literature that college students with ASD typically feel that the social/emotional aspects of higher education are much more of a challenge than the academic aspects of higher education (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015). For example, in Gelbar, Shefcyk, & Reichow's study, it was found that only 41% of the students with ASD in their sample felt that they had the social skills necessary for college success, while 80% felt that they had the academic skills necessary for college success (2015). Furthermore, 56% of the sample indicated feeling lonely on campus, 43% reported it being easy to get along with roommates, and 50% indicated enjoying living on campus (Gelbar, Shefcyk, & Reichow, 2015). An interesting finding from McLeod, Meanwell, and Hawbaker was that students with ASD attending 2-year institutions reported overall higher levels of belonging than their neurotypical counterparts. However, this was not the same for students with ASD attending 4-year institutions (2019).

Jackson et al. surveyed 56 college students with ASD and found that there was a common challenge between the individuals within this population of integrating with the campus community/environment (2018). Van Hees, Moyson, and Roeyers stated, "the awareness of their social difficulties, the fear of saying the wrong things, and the need to recover from additional stressors and distress all had a negative impact on students' confidence to engage with others socially and to invest further in maintaining contacts and friendships" (2015, p. 1684). In terms

of making friends, it was reported by the students with ASD in Weiss and Robland's 2015 communication coaching program that it was challenging to identify accessible conversation partners and thus go forth with making friends. McLeod, Meanwell, and Hawbaker further found that students with ASD reported having "lower-quality social relationships and higher levels of bullying victimization than neurotypical students" (p. 2330) and were less likely than neurotypical students to have a confidant (2019).

As for specific interpersonal communication challenges college students with ASD face, Weiss and Robland (2015) found understanding the social parameters centered around participating in classroom discussions (e.g., intonation, formalities, sequencing, and other pragmatic aspects of language) and understanding figurative and abstract language to be difficult for students with ASD. Weiss and Robland also observed that when students with ASD were engaged in conversation, many were more interested in discussing topics of their personal interests in which their conversational partners were clearly uninterested (2015). Due to a lack of understanding of subtle social cues that neurotypical students would typically pick up, the students with ASD tended to be labeled as "blunt and insensitive" (p. 356) by communication partners, as reported by Weiss & Robland. All of these communication difficulties likely contribute to furthering the social barrier between students with ASD and neurotypical students and increasing feelings of isolation for this population.

Mental health. Many studies have found mental health issues to be a prominent battle for college students with ASD and will be explored in this section. The most common mental health symptoms reported in the literature for college students with ASD are anxiety and stress along with reports of feelings of depression, isolation, loneliness, and fatigue (Gelbar, Shefcyk, & Reichow, 2015; Jackson et al., 2018; McLeod, Meanwell, & Hawbaker, 2019; Van Hees,

Moyson, & Roeyers, 2015). Gelbar, Shefcyk, and Reichow found that only 31% of the college students with ASD they sampled reported feeling as though they were able to cope with stress and anxiety (2015). White et al. (2011) found that higher AQ scores correlated with mental health symptoms such as depression and social anxiety in university students. McLeod, Meanwell, and Hawbaker's study confirmed this finding and reported that students with ASD indicated higher levels of physical and mental health challenges the sampled neurotypical students (2019). Jackson et al. found that college students with ASD averaged at the "severe" level for stress, and at the "extremely severe" level for anxiety (2018). In the same study, 40% of respondents indicated that they had made suicide plans at some point in their life, with 14.6% of the population having previously attempted suicide (2017). This finding can be compared to the 10.3% of the general college population surveyed by the American College Health Association (ACHA) in 2017 that had seriously considered suicide. However, the ACHA percentage takes into account serious thoughts of suicide over the past 12 months from the time the participants had been surveyed, unlike the Jackson et al. 's study that accounted for thoughts across the participants' lifetime.

Based on the literature, it is clear that mental health is a serious issue within the population of college students with ASD. Because of this, the IACC stated that, for students with ASD who deal with significant mental health challenges, intensive services addressing these challenges might be necessary for success in college in addition to academic and social skills services (2016-2017).

Needs and Supports

Revisiting the five main themes Cai and Richdale identified in their study, one of the themes that affected the progression through college for students with ASD was supports and

services (2016). College support programs specifically designed for students with ASD are continuing to develop across the country, with many institutions requesting the means for more supports (IACC, 2016-2017). As mentioned previously, many studies have found that college students with ASD appear to be generally more confident with the academic aspects of higher education than other aspects (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015). Kuder and Accardo conducted a systematic review on supports for students with ASD in higher education and claimed that supports outside of academics are likely to be the most effective (2018). However, Jackson et al. (2018) emphasized that academic-related challenges for students with ASD should not be overlooked. The need for more supports for college students with ASD, specifically in both academic and social/emotional areas, has been confirmed by multiple studies (Jackson et al., 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015). Van Hees, Moyson, and Roeyers (2015) came up with six themes regarding recommendations for post-secondary supports: (1) an individualized approach to supports, (2) a safe with sufficient planning and transparent communication, (3) academic accommodations, (4) coaching, (5) psychosocial support, and (6) time for leisure and rest. White et al. 's 2016 mixed methods study which explored the experiences of current and soon-to-be college students with ASD uncovered three main themes associated with the support needs of this population: social needs (e.g., independent and appropriate social interactions), self-determination needs (e.g., self-advocacy, independent living), and self-regulation needs (e.g., time management, emotional regulation). The students in Van Hees, Moyson, and Roeyers' study reported struggling without supports (2015) and Gelbar, Shefcyk, and Reichow noted that the academic success of the participants in their study may have been directly related to academic supports being provided to them (2015).

Many studies have found individualized supports for students with ASD to be highly valuable in terms of success in higher education (Gelbar, Shefcyk, & Reichow, 2015; Kuder & Accardo, 2018; Van Hees, Moyson, & Roeyers, 2015). Kuder and Accardo (2018) concluded that supports for college students with ASD must be individualized in order to target each student's unique needs. Gelbar, Shefcyk, and Reichow also emphasized the importance of understanding the individual when advising students with ASD, as this population has found success in many different areas of interest and it would be doing them an injustice to assume their best fit would be within a technology field like common stereotypes suggest (2015). In regards to career services within higher education institutions, McLeod, Meanwell, and Hawbaker concluded that students with ASD might find more benefits from "flexible and targeted" assistance, as opposed to a self-directed approach (2019, p. 2330).

Roberts and Birmingham explored a mentee-centered approach to mentoring college students with ASD by conducting interviews with the mentors and mentees within the program and did not find any themes regarding academic content support given by the mentors (2017). Instead, supports from the mentors were centered around time management skills, balancing and prioritizing, and communicating with faculty (Roberts & Birmingham, 2017). In another study that evaluated a college mentorship program for students with ASD in higher education, it was determined that mentorship programs could be a highly effective option for supporting the needs of this population, however, the relationship between the mentor and the mentee was found to be very important in terms of program effectiveness (Lucas & James, 2018). Mentees involved in this program reported high levels of satisfaction across academic, social, and well-being issues (Lucas & James, 2018). Lucas and James further explained that the mentors within this program acted as guides to help their mentees navigate the university and build strategies to find success

within it, which led to higher levels of success than directing mentees, as it promoted self-confidence (2018).

In Anderson et al. 's 2019 systematic review of the literature surrounding interventions for college students with ASD, it was found that, due to the insufficiency of experimental and quasi-experimental studies, no interventions have been identified as evidence-based practice. These findings are similar to Kuder and Accardo's 2018 systematic review, which stated that, "while there is a growing research base on effective methods for meeting the challenges of college students with ASD, the results of the research thus far have been mixed and, in some cases, based on limited data" (p. 729). However, in Anderson et al. 's study, across each of the reviewed experimental and quasi-experimental studies, some participants displayed improvements, indicating that these supports may be effective (2019).

Weiss and Robland noted that, while it may be best to have as many supports as possible, there are challenges that come with having increased supports such as the time-consuming efforts of coordinating various personnel and educating faculty and staff on students with ASD (2015). Glennon surveyed 315 college personnel from many higher education institutions who were responsible for designing supports for students with ASD and found that 63% of the respondents indicated that they wished they had received greater levels of information on how to support students in this population (2016). White et al. (2019) gave a questionnaire to two cohorts of university students five years apart to learn about their perceptions of students with ASD and made a statement in their conclusion regarding universities' roles in supporting students with ASD: "While students on the autism spectrum need to engage in college preparation through transition planning, university institutions also have a responsibility to prepare for students with autism" (p. 2704).

Self-advocacy and disclosure of diagnosis. Many studies have discussed and confirmed the existence of a reluctance for college students with ASD to disclose their diagnosis and advocate for themselves (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015). Another one of the five main themes that affect progression through college for students with ASD that Cai and Richdale uncovered was disclosure of diagnosis (2016). This theme was mirrored by one of the themes that Gelbar, Shefcyk, and Reichow uncovered in their study, which was “the importance of self-advocacy and comprehensive support services” (2015, p. 50).

Gelbar, Shefcyk, and Reichow found that 80% of their sample indicated comfortability with advocating for themselves (2015). Slightly contradictory to this finding, White et al. (2016) found that school personnel identified “self-advocacy” as one of their top three perceived greatest needs for students with ASD, suggesting that either college students with ASD might not actually be that comfortable self-advocating, or that they may be comfortable in doing so but might be doing it poorly. Self-advocacy was not ranked within either the parents’ or the students’ top three perceived greatest needs in White et al.’s 2016 study, suggesting that students with ASD and their parents may not know the importance of this skill or that there are needs that are more important to them. Gelbar, Shefcyk, and Reichow’s study highlighted the importance of students with ASD self-advocating in order to successfully navigate the campus environment (2015). Students with ASD were found to be less likely to participate in internships or field experiences, as these career experiences tend to be self-directed (McLeod, Meanwell, & Hawbaker, 2019). In Roberts and Birmingham’s exploration of a mentee-centered approach to supporting college students with ASD, a reciprocal relationship was found: “Just as self-

advocacy was needed for a Mentee-centered Approach to emerge, a Mentee-centered Approach was essential for promoting self-advocacy in the mentee” (2017, p. 1048).

While 80% of their sample indicated comfortability with advocating for themselves, only 50% of Gelbar, Shefcyk, and Reichow’s sample indicated comfortability with disclosing their diagnosis (2015). They found that 84% of their sample reported disclosing their diagnosis to someone at their institution, most of which were to disability services, and of those that disclosed their disability, 69% did so within their first semester of college (Gelbar, Shefcyk, & Reichow 2015). Bolourian, Zeedyk, and Blacher (2018) identified two methods of disclosure that the students in their sample utilized: (1) disclosing to the university’s disability services in order to receive accommodations, and (2) disclosing to faculty in order to obtain signatures on required documentation to receive accommodations. Van Hees, Roeyers, and De Mol (2018) expanded on the topic of disclosure of diagnosis by reporting that students with ASD tend to only disclose their diagnosis as needed (e.g., in order to receive accommodations). Despite this, according to the National Autism Indicators Report of 2015, only 42% of students with ASD who disclosed their disability to university disability services received any kind of accommodations (Roux et al., 2015).

Accommodations. Title II, Subtitle A of the Americans with Disabilities Act (ADA) protects individuals with disabilities from discrimination in government services, programs, and activities (2010). In addition to Title II, public universities that receive Federal financial assistance are also subject to section 504 (Department of Justice, 2010). According to the U.S. Department of Health and Human Services (DHHS), section 504 “protects qualified individuals from discrimination based on their disability” (p. 1) and “defines the rights of individuals with disabilities to participate in, and have access to, program benefits and services” (2006, p. 1).

These two statutes require publicly-funded higher education institutions to be accessible to students with disabilities (ADA National Network, n.d.). One way that universities can make themselves more accessible that best applies to students with ASD would be through modifying policies and procedures (ADA National Network, n.d.). This can include testing accommodations, human aides, assignment modifications, materials/technical adaptations, and physical adaptations, which are the top five most common adaptations in higher education (Roux et al., 2015). Also in 2015, Gelbar, Shefcyk, and Reichow found that 63% of their sample received extended time on tests, 49% had regular meetings with disability services, 43% received a distraction-free test-taking environment, and 43% received note-taking accommodations. Other, less common accommodations included ones such as preferential seating, priority registration, extended assignment time, housing accommodations, etc. (Gelbar, Shefcyk, & Reichow, 2015). The authors from this study further identified that some accommodations might have paradoxical effects, such as living accommodations to support sensory/anxiety challenges but cause feelings of isolation. To combat this effect, the authors suggested the importance of providing “semi-structured social opportunities” (p. 49) for students with ASD.

Chapter III

Methodology and Procedures

The purpose of this chapter is to provide the rationale for using the phenomenological format, a qualitative research design, in this study, describe the plan for data collection, validation, and analysis, and provide a description of the participants.

Qualitative Research

One goal of qualitative research is to obtain authentic information about the group or experience to be studied (Munhall & Chenail, 2008). Qualitative research encompasses a range of research designs that share similar characteristics related to recording and reporting data, one of the most common of these characteristics is data that is represented in verbal form (Nelson, 2017). Taylor and Bogdan (1998) stated that this representation of verbal data in qualitative research is gathered through observations of individuals' behavior and the words they speak.

Qualitative researchers look to explore and report on how people “interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (Merriam, 2009, p. 23). Nelson (2017) added that qualitative researchers are typically more “responsive” to their participants and can be flexible with the initial research approach depending on the given situation (p. 99).

This study used qualitative research to study factors that influence success in higher education for individuals with autism. A qualitative research method was deemed most appropriate for addressing this phenomenon because the researcher needed to examine the experiences of other individuals through verbal interactions with them to obtain subjective, descriptive data. This study followed the framework of a phenomenological qualitative research approach.

Phenomenology

Merriam (2009) stated, “a phenomenological study seeks understanding about the essence and the underlying structure of the phenomenon.” (p. 23) These studies attempt to describe an event or experience, often through analyzed interviews (Nelson, 2017). Morse (1994) described the phenomenological approach as being philosophical while attempting to explain the human experience. Essentially, phenomenology attempts to explain others’ experiences.

Researchers who use a phenomenological approach look at “how people define their world” (Taylor & Bogdan, 1998, p.10) and recognize that “people are constantly interpreting and defining things as they move through different situations.” (Taylor & Bogdan, 1998, p. 11-12)

A phenomenological approach was deemed most suited for the present study because the goal of this study was to identify key influences on the success of individuals with autism in higher education. To meet this goal, the researcher conducted and analyzed interviews in an attempt to describe the personal experiences of this population.

Participants

Creswell (2005) explained that the participants of a phenomenological study must have experienced the phenomenon sought to be researched and must describe their experience of the phenomenon. Criterion sampling was used to identify four participants. Creswell (2015) stated that in criterion sampling, “all individuals studied represent people who have experienced the phenomenon.” (p. 118) The four participants in this study were all adult females diagnosed with ASD attending Minnesota State University Moorhead. One participant was a sophomore, two were juniors, and one was a senior. A letter of consent was given to each participant before the

interviews were conducted. The participants were all informed that they could discontinue participation at any time.

Negotiating Entry

The researcher emailed the director of Accessibility Resources on campus with a description of the study and an invitation for qualifying students to participate. The director was asked to forward the invitation directly to students receiving services through Accessibility Resources with an ASD diagnosis. Students were offered a \$10 Starbucks gift card as an incentive for participation in the study. Interested students were asked to email the researcher and schedule an interview time.

Data Collection

The primary method of data collection used in this study was in-depth, semi-structured interviews, which were conducted with each of the participants on an individual basis. In-depth interviews were defined by Taylor and Bogdan (1998) as being a qualitative interview type that attempts to achieve a deep understanding of how an individual's situation or experiences are translated in their mind, using the individual's own words. In this type of interviewing, it is important that the researcher builds a rapport with each participant and gathers initial thoughts from them before asking the more directive research questions in an attempt to learn what is most salient to them. Semi-structured interviews were described by Merriam (2009) as being interviews that contain either semi-flexible questions or a mixture of open-ended (unstructured) and close-ended (structured) questions.

Methods of Validation

Triangulation using multiple sources of data was used to validate the data. Merriam (2009) described multiple types of triangulation. One way triangulation can be completed is

when the data from multiple interviews with the same participant is the same. Another way it can occur is when data from multiple sources (participants) matches or matches what is found in the literature as well as in data collected from another participant. The latter method of triangulation was the method of validation that was used in this study.

Data Analysis

Creswell (2015) described a six-step process for analyzing and interpreting qualitative data. The key elements from this process are as followed:

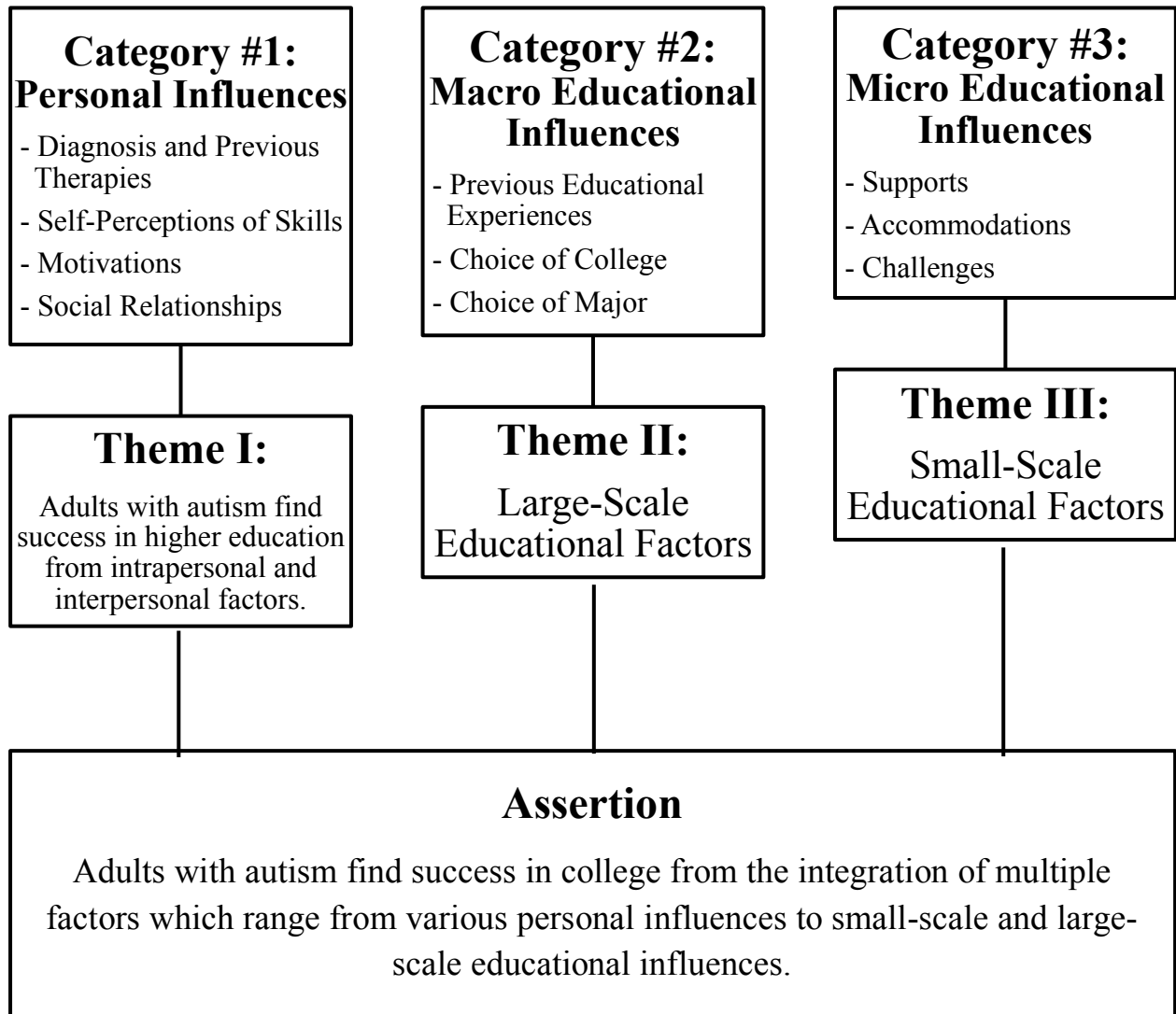
Prepare and organize. The first step involved transcribing the verbal information taken from the interviews verbatim and planning out the mode in which the data will be analyzed (e.g., by hand or by computer).

Explore and code. In the second step, the transcriptions were explored prior to any coding to find any general themes. The transcriptions were then coded, which Creswell (2015) defined as describing segments of text a word label. Lean coding was used to develop broad themes of the transcription. When coding was finished, the codes were then gathered together and grouped by similarities. This list was then reduced even further to uncover a list of three themes.

Interpret findings. Finally, the findings were interpreted. The significant findings were reviewed and compared back to the initial research question, the researcher personally reflected on what he or she believed the data to mean, and the findings were compared and contrasted with the current literature (Creswell, 2015).

Data from the present study has been visually represented on the following page, beginning with the three categories and their associated codes, leading into the three overarching themes, and ending with the study's final assertion.

Figure 1. Flowchart of Categories, Themes, and Assertion



Chapter IV

Results

The present study's research question, *What factors influence the success in higher education for adults with autism*, was answered following the completion of semi-structured interviews with Sophomores, Juniors, and Seniors in college who have an ASD diagnosis. Completion of the coding process of the interview transcriptions revealed three categories, three themes, and one assertion which attempted to answer the present question. The following sections within this chapter individually explore the aforementioned categories and themes using excerpts from each of the interviews to support the presented data. This chapter concludes with a statement and discussion of the study's final assertion, *Adults with autism find success from the integration of multiple factors which range from various personal influences to large-scale and small-scale educational influences*.

Category 1: Personal Influences

The first category, "personal influences," refers to all codes related to intrapersonal or interpersonal factors associated with the individual's higher education experience. These factors included stories on their diagnosis, previous therapies, self-perceptions of skills, motivators, and social relationships.

Theme I: Adults with autism find success in higher education from intrapersonal and interpersonal factors.

The participants in this study shared many factors regarding their success that were personal in nature—unrelated to the educational system. This chapter will explore those responses to uncover the specifics of the personal factors that were an important contribution to their success and retention in college.

Diagnosis and previous therapies. Though each participant's diagnosis and treatment experiences were different, all participants discussed topics that were associated with this code. Two of the participants were diagnosed at relatively younger ages: four and six, whereas the other two participants were diagnosed at the age of fourteen. Melanie, who was diagnosed at the age of four brought up that she felt lucky being diagnosed young because, *"having accommodations in elementary school and high school was really important."*

Kathy, who was diagnosed at the age of six, reported that her father did not believe she had ASD initially, which was disappointing to her. She further explained that she recognized her difference around the time of her diagnosis, saying, *"even when I was six, I was realizing, 'something's wrong with me. I'm different.'"*

Angela, who was diagnosed at the age of fourteen, reported feeling slightly upset when receiving her diagnosis, due to the fact that they had known about her biological brother's ASD diagnosis for so long. She reported a positive connection with her brother and her cousins who also had an ASD diagnosis, for example:

"We had parties, like blanket tent parties with my brother, me, and two of my cousins who also have ASD and the only person who was not allowed in the tent was their neurotypical sister."

Two of the participants discussed previous therapies they had received. Melanie reported having an occupational therapist growing up, as well as a "regular" therapist when she got to high school due to depression and anxiety. Angela also reported receiving occupational therapy which involved a lot of theoretical situation planning, for example:

"It was like, 'Well, what are you gonna do if your roommate is loud?' 'What are you gonna do if someone is drinking? (because I don't like the smell of alcohol.'" 'What are

you going to do if this happens? And this happens?’... I had one roommate drop on me and I had to find a new one. So it was like, ‘Well, how are we going to work from here to here?’ Like, ‘You don’t know this new person as much, but we don’t really have any other choice, so we have to move forward.’ Stuff like that.”

Self-perceptions of skills. This code involved topics that the participants discussed involving their own thoughts on their strengths and weaknesses as well as notes on self-esteem and self-efficacy. Overall, there were more excerpts that fell under this code that discussed perceived strengths than there were that discussed perceived weaknesses.

Most of the strengths reported were different from one another, other than two participants having brought up strengths that were related to building social relationships. For example, Erica stated, *“So, I like to talk. That’s a strength. I will not back down from a conversation with anybody and I’ll talk someone’s ear off all day.”* Melanie first brought up her strength of being observant of people, something she reported developing over time, and related it to her ability to develop social relationships by stating, *“Just being able to perceive what people were doing was really helpful to me to interact, because like, you know, social skills aren’t always the best with people with autism, but like, you can learn that.”*

Two of the participants’ perceived strengths were skills that they had to develop over time. Like mentioned above, Melanie’s biggest perceived strength is being observant of people, something she had to learn. She stated:

“I’m very glad that I learned that skill, because like, when I was little, I was very much not [observant of people]. I was very much a powerhouse that did not care about anything except me. And then so I guess I grew older and really started to look at what people were doing and like how their reactions were.”

Angela's biggest perceived strength is also a skill she developed with hard work. She stated:

"I'm flexible. And that sounds like a silly thing. Like, I didn't used to be flexible. I used to be very, like, firm-thinking, and we worked on that a lot. And I think it's because I'm just like, 'Well, sometimes things are going to happen, and that's just going to be how it goes.' I feel like flexibility is a strength."

The other strengths that were discussed do not fall into any specific category. Kathy's biggest perceived strength is her constant questioning, which she believes led her to majoring in STEM. She also reported that having hope, even when times are tough, is another strength she holds. Erica discussed another strength which was the ability to keep herself in check. She reported feeling that she knows herself and can recognize when she is "feeling down," and is able to analyze what she needs to do to feel better.

As for the weaknesses that were discussed, there were not any clear commonalities between them other than most of the stated weaknesses having personal ties to them rather than ties directly related to academics. Erica's biggest perceived weakness is having a lack of self-confidence, while Melanie's biggest perceived weakness is being egotistical. When asked to talk about her strengths, Kathy began by saying, *"I'm very down on myself so I'm not going to state a lot of obvious ones. My mom could tell you more, and my step mom because she and my mom are the only ones that really believe in me."* For her reported weaknesses, she tends to panic and get overwhelmed on tests, even when she knows the right answer. She described this as second guessing what she believes to be the correct answer, and switching between answers frequently. Another perceived weakness Kathy brought up was the fact that she doesn't listen when she should be listening. Angela's biggest perceived weakness was related to her coexisting physical

disability. She stated that she is a very physically weak person and that she wished she was stronger.

Motivations. The third code falling under Category 1 involves statements made by the participants that were about their motivations to attend college and stay in college. There were many commonalities between motivators for each participant, with the most common motivator being that three of the four participants felt they would be more successful in life with a college degree. For example, Erica stated, *“I guess what really also motivated me to go to college is you can’t really do much without a degree anymore. And with a bachelor’s degree, you still really can’t do much.”* Regarding this type of motivator, Melanie stated:

“Nothing I wanted to do would mean I wouldn’t go to college...I couldn’t even imagine a job that I would actually want to do long term that wouldn’t involve going to college. In fact, most of the jobs I’ve considered would include at least graduate school. So my decision to go to college was based on like, ‘What kind of life do I want to live and what do I need to do to achieve that?’”

Angela also discussed a motivator along the lines of having a better chance at success with a college degree, but related it to her specific major, art. She reported having done research to determine how necessary college would be in order for her to find success as an artist and determined that due to her location, independent apprenticeships would be more difficult to find and that college would provide her with the experience she needed.

Another motivator that two participants discussed involved having family that had experience in higher education. Erica explained that her parents attended college and that she wanted to be like them because *“they did something with their lives,”* and that she overall wanted to follow in her mother’s footsteps in pursuing a college degree. When asked if she has

always known that she wanted to go to college, Melanie stated that she received influence from her parents growing up, encouraging her to go to college. She felt she benefited from coming from a very “education-focused family” who knew the value of education.

Another common motivator was expressed by two of the participants which was a love for learning. Angela stated *“and I just like learning, so I wanted to come and learn and then hope I could do something.”* Kathy described an innate love for learning. She stated that she has always loved going to museums and aquariums, even as a child, because she was able to learn.

Kathy described her motivation to attend college in the first place as wanting to prove that she could do it. She stated: *“I don’t know what my purpose really is and what I’m going to do after college. I don’t know if I’m going to go into software engineering, if I’m going to go into teaching. I don’t know. All I know is that I wanted to go to college. I wanted to pursue something useful.”*

Many of the motivators that were discussed were directly related to retention rather than the initial act of going to college. Angela stated that her motivation for staying in college was that she was almost halfway done and can’t quit now. Melanie described her motivation for staying in college is the pressure of how expensive it is, as well as high expectations from graduate school programs of interest. Kathy uses visualization to help her keep going. For example, she talked about what her graduation ceremony is going to look like: she will get to shake hands with the University President, she will hold her degree, and she will be able to say that she did it. Erica’s passion for her major has been her motivation throughout college to finish. She stated, *“I’m honestly proud to be one of the first few people to major in this.”*

Social relationships. The final code under the category of Personal Influences encompasses statements which include the participants' experiences with building and maintaining social relationships, mostly in college, and some throughout their lives.

The participants were asked to describe how challenging building and maintaining social relationships have been in college. Two participants described this as being very hard. Kathy explained this by stating, *"I'm not very social. I don't like talking to people all that much...I don't like talking to random people or just carrying on a conversation that I find irrelevant. I like talking about things that are relevant and will actually go somewhere."* Angela stated that building and maintaining social relationships has always been hard. She explained, *"I've never been good at it. I'm bad at retention. Like, if people don't start the conversation, I don't know how to continue it."* She followed this up by explaining that social relationships are even harder to maintain due to the fact that she doesn't live on campus which makes it more difficult for her to come back to campus to do extracurriculars.

Melanie described the experience of building maintaining social relationships as being somewhat difficult for her. She stated, *"It's been difficult because of the school work, but that's the number one priority keeping me sane and having friends."* Erica stated that her ability to build and maintain social relationships has come a long way, as it was very hard for her to make friends growing up. She explained that she considers herself lucky to have two best friends.

Despite social relationships being mostly difficult to build and maintain in college, all four of the participants stated that social relationships are important to them. Angela said that she would like to be better at social relationships overall and that they are important to her. Melanie stated that social relationships are important to her because, as mentioned earlier, she said that having friends has been the number one thing "keeping her sane" in college. Kathy

stated that she would have failed her first semester of college if she didn't have any type of social or academic support. Erica explained that she doesn't mind having a smaller number of friends because that allows her to become closer to them. She also stated, *"having a relationship in general is just important to human nature because we're very social creatures."*

Two participants described how negative past experiences with social relationships have influenced their current social relationships. Angela described a negative experience in middle school when her friends told her that she was bothering them too much, which has led her to always having the same concern even into the present. She stated, *"It's never something that I have known how to do."* Melanie described having learned from a negative past experience:

"It was really hard. But it was either I don't have any friends and struggle with that and be horribly lonely and like, through a lot of high school, I had friends that, like, in school, I would talk to people but we didn't hang out after school. Like, I was alone for like three months of the summer just stuck in the house. And I hated that experience. It was so lonely. And in college, I knew I did not want to do that, so I just was like, 'Well, time to find really good friends.'"

Three of the participants brought up how they felt social relationships have affected their retention in college. Like stated earlier, Kathy feels that she would have failed her first semester of college if it were not for the academic and social supports. Melanie stated, *"I found very supportive friends that just were very good people and I was very lucky to have that, because if I didn't, I probably wouldn't be here by now. I probably would have tried to go home or something."* Angela explained that she felt her academics would actually be worse if she had more social relationships. She stated, *"I went to one get-together last year and I didn't do my homework because I made my friends calzones instead."*

The participants also described how they have attempted to build social relationships. Erica met many of her current friends through her sorority. Angela described having gone to play Dungeons and Dragons with other goers at a local shop every now and then. However, she stated, *“We know the names of the characters, [but] we don’t know each other’s names. Like, I sat and I played a game for like, a month and a half, with these two guys, and I didn’t learn their names until, like, a month in.”* Kathy explained that she tends to find mutually beneficial social relationships, explaining, *“For example, I try and organize a group study with one or two other peers in my classes, so that way, if I have problems with something, I can ask for help from them. If they have problems, I can help them, and we just figure things out together.”* Melanie explained that she met many of her friends through her biology program and described how she has inserted herself into conversations with people in her classes. For example, she explained, *“I butted into the conversation because, like, there’s no way for me to make friends if I don’t talk to people, so I was just like ‘I know about that!’”*

Category 2: Macro Educational Influences

The second category, “macro educational influences,” refers to all codes related to large-scale educational factors that contributed to the participants’ success in higher education. The codes that were assigned to this category include previous educational experiences, choice of college, transition, and coursework/major.

Theme II: Adults with autism find success in higher education from large-scale educational factors.

The participants in this study shared many topics related to educational influences on a macro level. This chapter will explore those responses to uncover the specifics of the personal factors that were an important contribution to their success and retention in college.

Previous educational experiences. Each of the participants shared their unique educational experiences prior to attending their current institution. Three of the four participants had a non-traditional high school experience. Melanie attended a college preparatory school which incorporated college-readiness into the curriculum. Kathy attended at therapeutic boarding school for the last half of her junior year and for all of her senior year of high school. Angela had been homeschooled since the age of eight due to intense bullying and anxiety. She was then enrolled back into public school at the age of fourteen, around the time she would be receiving her ASD diagnosis for the first time. She described the experience as so:

“I tried to go back [to public school] at fourteen, and I had a mental breakdown. Because I went into a high school, we hadn’t done any sort of preparation. I didn’t have any safe places to go. My anxiety was through the roof. I was being bullied again. I was sexually harassed. It was awful. So, I freaked out. It really didn’t go well.”

After this experience and receiving her ASD diagnosis, Angela began receiving services like occupational therapy which helped prepare her to ultimately go back to public school her junior year of high school. When asked about her success in high school, Angela stated that she did very well academically, but did not make any lasting social connections.

All of the participants talked about the specific benefits they reaped from their previous educational experiences. Angela brought up the help she received from a Resource Strategist in high school, whom she worked with on college preparation and scholarship preparation. Kathy reported feeling that therapeutic boarding school was highly beneficial to her and would have been even more beneficial if she were to have been enrolled there for all four years of high school. At the therapeutic boarding school, she was met with highly supportive teachers across many of her classes, stating, *“[My teachers] were very helpful, and I want to go back to the*

school to thank them.” Melanie talked about the direct college preparation supports she received through her IEP program. For example, “[My case manager] set up a company that helped look out, like, career goals, and what majors you would have to do, and what skills you need for that.” Melanie stated that this process helped her narrow down her options for a potential major in college. Though she said this aspect was beneficial, Melanie stated that she actually didn’t feel prepared for the academic side of college. She explained, “I just didn’t have the motivation to do the homework and I was already paying attention in the classes, so when I was in high school, I didn’t really feel the need to do the homework. I could pass the test because I already knew the information.” Erica stated that she definitely felt prepared for college and discussed many benefits and supports she received from her high school experience. One support she mentioned was that she felt her high school did an excellent job explaining the differences between high school and college. She talked about how, in high school, when she received accommodations for tests that would not be allowed in college, the school made sure to explain that to her so she would have accurate expectations. Erica also discussed how the personal supports she had in high school helped her talk through her decision of a college major.

Two of the four participants talked about previous college experiences prior to attending their current institution. Kathy attended a private school out of state for one semester before transferring to her current institution due to high expenses. Erica attended a community college for two years to complete her general coursework prior to transferring to her current institution. This is what Erica stated regarding her community college experience:

“I loved it. Just for the first two years, but like, it’s a lot like high school, not gonna lie. And I mean, it was beneficial, though. It’s cheaper.”

Choice of school. This code encompasses all topics discussed that were related to the participants' process of deciding where they would attend college. All participants discussed how they chose their current school, however, some expanded on this topic more than others.

Erica chose Minnesota State University Moorhead (MSUM) based on her very niche major of interest. MSUM was the only school out of North Dakota, South Dakota, Minnesota, and Wisconsin that offered an undergraduate degree in her desired major.

Angela's decision to attend MSUM was also partly related to her major of interest. She began her decision by evaluating the three colleges in close proximity to home and decided on the one that was most reputable in her area of interest for her major. She expressed that she wanted to choose a school close to home due to health issues along with anxiety and executive functioning difficulties. Another factor that assisted in her decision to attend her current institution was that she had been to the campus before and felt more comfortable with it. She then expressed that she also received scholarships for the school which further confirmed her choice.

Melanie's decision fell between MSUM and another state college. She expressed knowing she wanted to attend a state school because, *"not only is it more affordable, but also it's larger and they have more accessibility resources and they're liable, because they're a state school, so they have to really abide by those standards."* She ended up choosing MSUM because she received a high score on the ACT and was accepted. Another large factor in her decision was that during her campus visits to both schools, the Accessibility Resources representative was not present at the other school and was present at MSUM. Melanie stated that she felt welcomed by this and that it was comforting to see the person who is running the program.

As mentioned in the previous section, Kathy initially attended an out-of-state private school in an attempt to be independent. She stated:

“[My parents said], ‘Just go to MSUM,’ and I said, ‘I don’t want to be watched by you all the time,’ and they say, ‘we’re not gonna watch you all the time, we just want to give you something and have you be surrounded by people we trust.’ The way I thought about it was, ‘No, I need to be away from parents.’”

After a semester at the out-of-state private college, Kathy said that she needed to stop going due to high expenses and decided to transfer to MSUM because of her parents’ recommendation and because of its positive reputation.

Major. The third set of codes belonging to Category 2 involve the participants’ discussions on how they came about choosing their major, thoughts and feelings associated with their current major, and some experiences with switching majors. To start, three out of the four participants went through the process of changing their major at some point during their college careers. Angela knew her passion fell somewhere in the arts, so her major change was one from one art major to another: Graphic Design to Illustration. She stated that the reason for this change was due to the restrictiveness of the type of work that is done in Graphic Design. Melanie also remained under a common area, science, when changing her major. She changed from Genetics to Pre-Optometry in Health and Medical Sciences. Melanie made this change due to the very limited number of Geneticist job opportunities in the United States.

Kathy, on the other hand, made a much more drastic change in major. She began college majoring in Animation and later switched to Engineering Physics. She explained her decision to do this by stating that she felt her original major, Animation, felt like more of a hobby to her and that she wanted to major in something that would have a greater impact on society. During this

process, she reported asking herself, “*What am I doing?*” and “*How can I help society?*” Before deciding on Engineering Physics specifically, Kathy considered other STEM majors, but ultimately arrived at Engineering Physics due to the fact that other majors of interest within that area would have taken much longer to complete.

All of the participants presented as very passionate about their majors and none of them chose their current major based on the sole reason that they were successful with the type of work involved in the major. For example, Melanie stated that she has very strong skills in liberal arts, but loves science, which led her to choosing a science-based major. Angela made a very similar statement, saying, “*I can do other subjects. I’m good at English, but I like art.*” Kathy realized her love for STEM through conversations with her parents during the time in which she was questioning her path. She explained that her parents reminded her about how she had always very much enjoyed places like science museums where she was able to learn and that she felt her desire to learn more would be better fulfilled by a major in a STEM area. Erica’s major was Gerontology, and she stated that she has been passionate about working with that specific population since her first time being exposed to it.

Being exposed to their current major prior to coming to college was a topic that was discussed by three of the participants. Erica had an early experience working with the geriatric population when on a mission trip in middle school. She stated, “*I stepped foot into a retirement home [and] I knew exactly what I wanted to do because, at the end of the second day that our group was at the retirement home, they had to legit peel me away out the door from a guy with Parkinson’s disease.*” Angela expressed that her interest in art has always been present in her life and that she has been collecting sketchbooks from a young age. Melanie talked about how

she has grown up wearing glasses and has always enjoyed the calm environment of the eye doctor's office which influenced her decision to go the Pre-Optometry path.

Category 3: Micro Educational Influences

The final category, "micro educational influences" encompasses all codes related to small-scale educational factors that influenced the participants' experiences in higher education. These factors included discussion on supports, challenges, and accommodations the participants had during college.

Theme III: Adults with autism find success in higher education from small-scale educational factors.

Supports. The first code associated with Category 3 involves the participants' expressions on the supports they have had in place in college, excluding accommodations, as those were assigned their own code. The participants elaborated quite a bit on the many supports they recognized having throughout college. There were several similar types of supports shared between two or more participants, however, many of the supports that were discussed were unique.

The first and most commonly discussed support was one brought up by three of the four participants: supports from family. Angela stated, "*My mom did a lot of work [in regards to college preparation help]. Like, my dad did work too, but my mom did a lot.*" Erica also revealed the high levels of support she had received from her throughout her college experience. Erica stated, "*My mom is the biggest support system...she really wants me to, as long as I work hard, and as long as I put my full throttle into college, she's going to be there for me. And she's so hard on me, in a good way. Like, honestly, she's just like one of the biggest support systems.*"

Kathy also brought up supports related to family. She explained how, if she is ever feeling unwell, she can call her grandmother.

Another support, which was common between two of the participants, was related to faculty and staff on campus. Melanie stated that most of her professors have been very supportive, with the exception of one, which will be discussed further in the *challenges* section. When asked what she believed to be the most helpful to her success in college, Erica stated, *“The professors, and especially my advisor.”*

The final common support between two of the participants was receiving services like tutoring or academic coaching on campus. Erica reported having attended academic coaching to help ease the challenges of an especially hard class. Kathy also reported receiving academic coaching, of which she spoke very highly. In addition to academic coaching, Kathy also stated that she finds tutoring to be very helpful and finds great benefit in talking out problems with another person.

Though there were several commonalities in supports during college between participants, each participant also brought up supports that were unique from the other participants. Angela talked about how she has “safe spots” on campus where she is familiar and can feel comfortable with going to during heightened moments of anxiety. She also explained how she recognizes that she does best when she has planned out what she needs to do to prepare for situations ahead of time. Angela also explained that she uses her Kindle to read her textbooks to her to help combat her reading difficulties.

Melanie discussed how having an emotional support animal aided her transition to college and continues to support her in college. She stated, *“Having him up here really smoothed out the transition, like, I had a piece of home.”*

Erica brought up how supportive her sorority sisters have been. She explained, *“When I’m down or something like that, I just tell them, ‘Hey, I need a little love right now, kind of down,’ and then they’re just like, ‘We love you!’ you know, like, ‘Hey, you’re important.’”*

Kathy talked about how she has found high levels of support from connecting with her best friend who also has an ASD diagnosis and that they are both able to relate to each other based on the struggles that come with having the disorder and being in college. Kathy also made a final statement regarding supports, explaining that she believes her success in college has been a factor of multiple supports working together.

Accommodations. Very similar to the previous code but pertaining specifically to formal supports provided by the institution is the second code falling under Category 3: accommodations. Each of the participants discussed their specific accommodations and shared their perceptions on whether or not they believe the accommodations to be appropriate.

All participants reported receiving extended time on tests, two of which received time and a half and two of which who received double time. When talking about this accommodation, Melanie explained that she needed this accommodation due to having slightly lower processing speeds. She stated, *“I’m always going to need more time on things. Not because I’m bad at things, but just because I’m slow. And that’s helped a lot, being able to actually do my exams.”* In addition to extended time on tests, Kathy and Erica are both allowed a quiet, distraction-free space for taking tests. Kathy and Melanie also mentioned received note-taking accommodations, which means a student volunteer takes notes during class and gives them to the professor to then give to the student(s) who have that accommodation. Similar to this accommodation, Angela receives accommodations addressing clarification of material. She is allowed to request PowerPoints from professors as well as record in class. Despite having this accommodation,

Angela explained that both of these supports require many steps to complete prior to her being allowed to utilize them and because of this, she reported having not been using them this semester. Angela also mentioned that she receives some other accommodations that are unrelated to her ASD diagnosis due to her coexisting physical disability.

Three of the four participants also discussed whether they felt their accommodations were suitable for them as well as their thoughts on whether or not the institution offers enough accommodations for individuals on the spectrum to be successful in college. Each of the three participants who discussed this topic reported feeling that they are perfectly applicable to their needs. When asked if she felt that the school offers enough accommodations for someone on the spectrum in general to be successful in college, Melanie stated, *“I think so. For me, all of my accommodations are perfectly applicable. They’re very good. Of course, it’s a spectrum, so I can’t speak for everybody on it, but I think for my level, it’s perfect.”* When asked if she felt that there are enough supports in place in college for someone high functioning autism to be successful, Erica and Kathy both answered, *“yes,”* and Erica followed up by saying that she believes there will be even more coming in the future as we continue to learn more and more about autism. When asked if she could suggest any more supports, Erica suggested basic professor education on ASD to provide ideas and tips for teaching individuals on the spectrum. When asked if there was anything the school could do to improve their supports, Kathy said, *“Not really, because all I can think about is how much they’ve helped me.”*

Challenges. The final code belonging to Category 3 is the opposite of supports: challenges. Each of the participants discussed the challenges they have faced during their time in college. Three of the four participants brought up some challenges that were similar on the basis of mental skills. Angela stated, *“I’m good at school, but sometimes I have spells where I can’t*

pay attention to school.” Because of her difficulties with focus, Angela stated that reading is hard for her which causes classes that require higher quantities of reading assignments to be more difficult. She also expressed that another one of her challenges involves the retention of information. Above all, though, Angela stated that her biggest challenge has been accountability with her school work. She explained:

“In high school, the work was every day. [Now], I have half online [classes] and half in person, because I don’t live on campus. So, then I don’t have to come to campus as often. But then for those online classes, I don’t do the homework. I did two weeks of homework in two days this weekend.”

It should be noted that in addition to the challenge of self-guided school work with her online class, Angela reported that completing the work becomes increasingly difficult when obstacles from her heart condition impede on her ability to do so.

Melanie also expressed that her greatest challenge has been managing her coursework and, in some cases, understanding professors’ requirements when they are unclear. She stated, *“There’s so much to do and, again, it takes me so long to do things. I have a little bit of executive dysfunction so it’s hard for me to build up motivation to start something.”*

In regards to her mental obstacle, Kathy talked about how, yes, her ASD provides her with some extra challenges than a typical person, however, that does not mean that she cannot be successful. She stated, *“I probably will do as well as everybody else, I just have something in the way and I need to get around it.”*

In addition to these relatively similar challenges, three of the participants presented with unique challenges that were not discussed by anyone else. Melanie talked about a negative

experience she had with a professor who was not compliant with her given accommodations.

This is how Melanie described that experience:

“It was the first semester of college ever. I wanted to request a note-taker, and [the professor] said, ‘You don’t need notes. I post them,’ even though he talks about more things in class than he does in the slides. And he [assigned] a take-home final [which] was like a 10-page paper essentially due in three days. And I was like, ‘I can’t do that. I cannot do that.’ And he was like, ‘It doesn’t matter, your accommodations don’t cover it,’ even though I have double time for exams and then I have occasional assignment extension.”

During this situation, Melanie described how she had to advocate for herself by talking to the director of Accessibility Services who helped her determine how to approach the professor. In the end, Melanie did receive the accommodations she needed and passed the class, however, she reported that this experience has stuck with her in every following situation which she has had to talk to professors about her accommodations.

When asked to talk about the most difficult part of college for her, Erica discussed the challenge of making friends. She described how she is *“definitely a homebody,”* which can make participating in social events harder for her, however, she reported experiencing *“a lot of loneliness and isolation.”* She then expressed the unique challenges that come with having high-functioning autism. She quoted a saying she heard before which she felt applied very much to her feelings, *“Having high-functioning autism means you’re too normal to have autism, but you’re too weird to be normal.”*

Kathy, too, discussed a unique challenge directly related to autism in general. She expressed that she wished people wouldn't judge those with autism so quickly and that people wouldn't assume that individuals with ASD would not get into college or succeed in college.

Final Assertion

The research question, "What factors influence the success in college for individuals with autism?" was answered by the final assertion, *Adults with autism find success from the integration of multiple factors which range from various personal influences to large-scale and small-scale educational influences*. This assertion was developed from the three themes identified from the three categories that were supported by the data gathered in this study.

The next chapter attempts to compare the findings of the present study with the current literature. The chapter concludes with a discussion of the present study's limitations and directions for future research.

Chapter V

Discussion

The purpose of the present study was to determine factors that influenced the success in higher education for students with autism based on the experiences of upperclassmen college students with autism. The results of this study revealed that college students with ASD find success in college from the integration of multiple factors, which range from various personal influences to small-scale and large-scale educational influences. This chapter will interpret these results and compare them to the current literature as well as identify the limitations of the present study and provide suggestions for future research. This chapter concludes with implications for a variety of fields and populations and a summary of the present study.

Summary of Findings in Relation to Current Literature

Upon analysis of the transcribed interviews, the data revealed ten codes, three categories, three themes, and one final assertion to help answer the question, “*What factors influence the success in higher education for students with autism?*” These codes, categories, and themes are interpreted and compared to the current literature in the following sections.

Category 1: Personal Influences

Theme I: Adults with autism find success in higher education from intrapersonal and interpersonal factors.

This category encompasses experiences from the participants that were personal in nature and unrelated to the educational system that were attributed to their success in higher education.

Diagnosis and previous therapies. All four of the participants in the present study discussed topics related to their ASD diagnosis and two of them discussed experiences with past therapies. Two of the participants were diagnosed relatively young, four and six years old, and

the other two participants were diagnosed at age fourteen. This aligns with Gelbar, Shefcyk, and Reichow's study which found that 54% of their sample were diagnosed with ASD after middle school and 37% were diagnosed after high school (2015). Due to being diagnosed at four, Melanie reported receiving necessary accommodations from elementary school through high school which she stated was an important factor for her.

Two of the participants discussed receiving occupational therapy prior to exiting high school and one reported receiving mental health counseling in high school. The case of receiving supports outside of school-related services was also found in some participants' cases in Nuske et al.'s 2019 systematic review of the literature on the transition to college for students with ASD. Both of the participants reported positive experiences with previous therapies.

Self-perceptions of skills. The participants as a whole spent more time talking about their perceived strengths than their perceived weaknesses, which could indicate that they have more positive than negative perceptions of themselves.

Many of the specific strengths the participants discussed were different from the other participants' reported strengths, however, there was one commonality between two participants who both believed themselves to be strong within the area of building social relationships. As is seen repeatedly in the literature, college students with ASD experience greater levels of concern with the social/emotional aspects of college than with the academic aspects (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015). Because the two aforementioned participants believed they had strengths in the area of building social relationships, these participants may have been able to spend less time worrying about the social aspect of college and were able to put more of their focus on the academic side, influencing their success.

Two of the participants reported that their biggest strengths were ones that they had worked on developing in themselves over a long period of time. This can be interpreted as these participants not giving up when faced with challenges, a skill that likely positively influenced their success in college.

There were not any commonalities that emerged among the specific weaknesses between the participants, other than the fact that most of the weaknesses that were discussed were more personal in nature than related to academics. This could indicate that the participants were generally strong in the area of academics, leading to success, and/or that personal areas of weakness are of generally greater concern to them than academic skills. Though the majority of weaknesses listed by the participants in the present study were not academic-related, multiple studies have discussed the academic struggles of college students with ASD (Gelbar, Shefcyk, & Reichow, 2015; Weiss & Robland, 2015), though the present study's findings correlate with the literature in that social and emotional challenges are a larger concern to college students with ASD (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015).

Motivations. One of the components of Universal Design for Learning includes student motivation and engagement (CAST, 2018). The participants in this study discussed a variety of different motivators to attend and remain in college. The most common motivator for going to college was represented in three out of four of the participants' transcripts which was the common belief that it would have been much more difficult to find work without a college degree.

Another common motivator to go to college discussed by two of the participants was motivation from their family members who had attended college. In the National Autism

Indicator's Report of 2015, it was found that parent education was positively associated with college attendance for students with ASD, as over 75% of young adult college students with ASD came from a household where at least one parent had a college education.

The final common motivator to attend college which was discussed by two of the participants was a shared love for learning. It is quite possible that enjoying the act of learning as a whole contributes very positively to college success.

In the literature, Costley et al. stated that students with ASD strive for college success just as much as their neurotypical peers (2017). While there were multiple common motivators for attending college in the present study, the motivators related to retention in college that were discussed were all unique to each participant. These motivators included being already halfway done, cost, high expectations from graduate programs, visualizing the end, and passion for major.

Social relationships. The participants in the present study discussed many points that were related to the topic of social relationships during college and how they affected their college experiences. Three out of the four participants reported that building and maintaining social relationships on campus was either difficult or somewhat difficult, which is consistent with much of the literature which explored this topic (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015).

Despite most of the sample indicating social relationships to be difficult, all four participants identified social relationships as important to have. This is consistent with Van Hees, Moyson, and Roeyers who found that the college students with ASD in their sample had discovered the importance of having a social network in college in order to have a sense of belonging (2015). It appears that both the present study's sample and Van Hees, Moyson, and

Roeyers' sample demonstrate self-awareness in the importance of having social relationships in college.

Three of the participants discussed how having social relationships (or the lack thereof) had affected their retention in college. Two of the participants indicated that they would not have made it to the point they were at if it weren't for their social relationships. Since much of the literature surrounding supports for college students with ASD suggested implementation of social supports in some form (Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Kuder & Accardo, 2018; Van Hees, Moyson, & Roeyers, 2015), it can be suggested that having social relationships in college positively influences success. Angela, however, reported feeling as though her academic performance would have actually been worse had she had *more* social relationships. She determined this based on an experience she had where she went to a get-together instead of doing homework one night. It could be that the struggle in this scenario lies within time management or balancing skills, rather than having social relationships themselves, which was much more frequently found in the literature as impeding on college success for students with ASD (Cai & Richdale, 2016; Dymond, Meadan, & Pickens, 2017; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015; White et al., 2016).

All four participants discussed their methods for making friends or involving themselves in social activities, and all four methods discussed were different. One participant made friends through joining a sorority, one talked about going to play board games at a local shop every now and then with other shop regulars whom she did not know previously, one organized and attended study groups, and one placed herself into conversations that other students in her major were having when the topic was one she knew about or was interested in. Additionally, two of

the four participants discussed how past negative social experiences had influenced their current social relationships, whether it had been positively or negatively.

Category 2: Macro Educational Influences:

Theme II: Adults with autism find success in higher education from large-scale educational factors.

This category encompasses experiences from the participants that were related to large-scale educational factors, including past educational experiences, choice of school, and major.

Previous educational experiences. Three out of the four participants had a non-traditional high school experience: one was homeschooled for part of high school, one attended a college preparatory school, and one attended a therapeutic boarding school. Angela, who received homeschooling for part of high school, reported receiving it due to bullying. The presence of bullying of students with ASD in educational settings has been made clear by multiple sources (Costley et al., 2017; Van Hees, Moyson, & Roeyers, 2015). Erica, who attended a college preparatory school, and Kathy, who attended therapeutic boarding school, both spoke positively about their experiences and reported them as being beneficial. It could be interpreted that the extra/more streamlined supports these non-traditional schools offered positively affected these two participants' transitions to higher education. As has been recognized in the literature, a positive, well-prepared transition to college influences college success (Cai & Richdale, 2016; Dymond, Meadan, & Pickens, 2017; Ruble et al., 2019).

Despite attending a traditional high school, Erica reported a positive experience and feeling as though her high school prepared her well enough to be successful in college. The following is what Erica spoke about regarding her transition away from high school:

“So basically, my high school kind of set it up. So basically, they really prepared me for college, and they always said, like, well, this is not really, we're going to do this for you, but like, this is not going to happen in college. So like, for example, they let me use my notes on my test. And they let me use calculators when everybody else had to do it longhand.”

Even though Erica’s transition away from high school was a positive one, it should be noted that the National Autism Indicators Report of 2015 found that only 58% of young adults with ASD had a transition plan in place by the legally required age.

Two of the participants reported having previous college experience prior to attending their current university. Like 70% (Roux et al., 2015) to 81% (Wei et al., 2014) of other college students with ASD, Erica attended a 2-year community college. Erica reported choosing to attend a community college prior to transferring to a 4-year institution to minimize the cost of generals. She spoke positively about the experience and felt it was beneficial overall. Wei et al. (2014) also spoke about the benefits of the 2-year college experience for students with ASD, stating, “community colleges may be a particularly ideal setting for students with an ASD as they enable the student to receive a post-secondary education while often still remaining at home, thus providing the continuity of a supportive and consistent environment.” (p. 1165)

Kathy’s previous educational experience was at a private, out-of-state 4-year university. She made the decision to transfer from that university to her current institution after one semester due to high expenses and many discussions with her family on what is best for her education.

Choice of school. All participants discussed how they chose their current school, however, some expanded on this subject more than others, suggesting varying levels of importance regarding this topic among the participants. Two of the participants chose their

current institution based on their majors of interest. Angela, one of the participants who chose based on major, also made the decision to attend a school close to home because of co-occurring physical impairments. One participant knew she wanted to attend a state school due to the larger sizes and the disability services offered, and her choice came down to the representation of disability services when she toured both of her options. She chose her current institution because the representative for accessibility resources was present and welcoming. Kathy chose her original, out-of-state private school because she originally wanted to move away from her parents but then chose to transfer to her current institution after discussion with her parents, lower cost, and the school's positive reputation.

There is limited research on how students with ASD determine which post-secondary school to attend, however, the present study can be compared to the results from other studies that evaluated how the general population chooses between schools. For example, Skinner (2019) conducted a nationally-representative of students in the mid-2000's and found that the cost of the school and the distance from home were the top most important factors when it came to deciding between colleges.

Major. Three out of four of the participants discussed changing their major at some point throughout their college experience. Two of the participants made major changes within a similar category of their original major (e.g., Graphic Design to Illustration or Genetics to Health and Medical Sciences) while one of the participants made the switch from an artistic major (Animation) to a STEM major (Engineering Physics). Furthermore, three participants discussed prior exposure to their chosen major before college that had influenced their decision to major in their fields of study.

All four participants presented as passionate about their majors and, as found in the discussions, none of the participants chose their majors based only on the fact that they would be successful with it. Melanie stated: *“I have very strong Socratic debate skills and all that but like, so very strong liberal arts skills, but also, I just really love science. And it's, yeah, something I'd like to go into.”* It can be suggested that passion for one's major may influence overall success in higher education.

The literature on the major and minor choices of college students with ASD is limited. Current literature reported on the majors of college students with ASD differently than the present study. In Gelbar, Shefcyk, and Reichow's study, it was found that their sample majored in a variety of different areas: 29% Liberal Arts, 23% Social Science/Law, 14% Science and Medicine, 11% Undeclared, 9% Computers, 9% Education, and one participant majored in business (2015). Further, White et al. found that university students with higher AQ scores tended to major in STEM majors such as Engineering and Computer Science (2011). Wei et al. further found that the college persistence rates of students with ASD attending 2-year colleges who major in STEM were significantly higher than students with ASD who have non-STEM majors and reported that the persistence rates for only 4-year colleges and 2- and 4-year colleges were not significant between the two majors (2011).

Category 3: Micro Educational Influences

*Theme III: Adults with autism find success in higher education
from small-scale educational influences.*

Supports. The participants in this study discussed a variety of different supports they have had throughout college apart from accommodations, about half of which occurred in more than one participant. The most common support, which was identified by three out of the four

participants, was supports from family members. This finding was mirrored by the finding from Nuske et al.'s 2019 systematic review, which stated, "Support from family members, in particular parents, was by far the most common microsystem element described by participants within these studies" (2019, p. 291). This further aligns with the findings from Kuder and Accardo's 2018 systematic review, which claimed that supports outside of academics are likely to be the most effective for college students with ASD. This support is further validated as a large role in success for college students with ASD by one of the six themes that Van Hees, Moyson, and Roeyers identified as recommendations for post-secondary support: psychosocial support, which included support from parents (2015). Though not supports from family members, two of the participants brought up additional supports that were psychosocial in nature. Erica found support from her sorority sisters during times in which she was feeling "down" and Kathy found support from her best friend who also has ASD, with whom she was able to talk about ASD-specific struggles and stated, "*we can connect on the fact that we both suffer from this disorder but that we are trying our best to work with it and overcome it.*"

Another common support revealed by two of the participants was support from university faculty and staff, which was also found to be a common theme between participants in Nuske et al.'s 2019 systematic review. Looking into the future of this type of support, Cox et al.'s 2017 study evaluated the experiences of nine college students with ASD through interviews and made a conclusion that stated, "college educators will increasingly be charged with supporting the post-secondary success of this growing population." (p. 82)

The final common support, which was brought up by two of the participants, was receiving services like tutoring or academic coaching on campus. These types of supports were discussed frequently in the literature as being beneficial to the success of college students with

ASD (Anderson et al., 2019; Cai & Richdale, 2016; Lucas & James, 2018; Roberts & Birmingham, 2017; Van Hees, Moyson, & Roeyers, 2015). This is in line with another one of Van Hees, Moyson, and Roeyers' identified themes for recommendations for supports was "coaching," which referred to meeting with academic coaches or other students to discuss struggles and determine solutions (2015).

Accommodations. All four of the participants reported receiving formal accommodations during college and all four reported receiving extended time on tests, whether that be time and a half or double time. Angela identified this accommodation as being the biggest help to her of all of her accommodations. This correlates with Gelbar, Shefcyk, and Reichow's study which found that the most common accommodation received by their sample was extended time on tests (2015). Two of the four participants reported receiving a distraction-free test-taking environment and another two reported receiving note-taking accommodations, both of which also correlate with Gelbar, Shefcyk, and Reichow's study which found that 43% of their sample received a distraction-free space for taking tests and 43% of their sample received note-taking accommodations (2015). These two test-taking accommodations also correlate with Nuske et al.'s 2019 systematic review findings that they were the most common accommodations among participants. Only one participant brought up additional accommodations not mentioned by any of the other participants which included clarification of material (e.g., requesting lecture PowerPoints, recording in class) and accommodations relating to a coexisting physical disability.

Three out of the four participants discussed their thoughts on whether or not their specific accommodations are suitable for them and all three reported feeling that they were perfectly applicable for their own individual needs and two reported feeling that there are enough supports

in place in college for students with high-functioning ASD to be successful. Though the participants in the present study felt that their needs were met by their assigned accommodations, Nuske et al.'s systematic review suggested that universities, in regards to the common accommodations that students with ASD receive in college, "go beyond providing these traditional adjustments, and consider the needs of the individual" (p. 291) because these common accommodations may not automatically fit the needs of every student with ASD. Erica further stated that if she were to make any suggestions for improvements, it would be to increase professor education on students with ASD. Much of the literature agrees that university personnel education on students with ASD should either be put into place in not already or increased (Glennon, 2016; Mitchell & Beresford, 2014; White et al., 2019).

Challenges. The researcher felt that the participants' discussions on their biggest challenges in college and how they dealt with them contributed to their success in higher education which is why this code was included under micro educational influences. The majority of the challenges discussed by the participants were related to academics, suggesting academics to be of greatest concern to the participants. This is contradicted by much of the literature, which suggests that social/emotional challenges were of greater concern for college students with ASD (Bolourian, Zeedyk, & Blacher, 2018; Cai & Richdale, 2016; Gelbar, Shefcyk, & Reichow, 2015; Van Hees, Moyson, & Roeyers, 2015). The results from this section could indicate that college students with ASD who put greater concern into academics than other aspects of college may have higher rates of success. The academic-related challenges brought up by the participants included focusing, reading, accountability with completing schoolwork, managing schoolwork, understanding professor requirements, and task initiation. One participant did identify, however, that her biggest challenge during college was making friends

which led to feelings of loneliness and isolation, feelings that were seen in many other college students with ASD among various studies (Gelbar, Shefcyk, & Reichow, 2015; Jackson et al., 2018; McLeod, Meanwell, & Hawbaker, 2019; Van Hees, Moyson, & Roeyers, 2015).

Kathy expressed a unique challenge: wishing that others wouldn't judge individuals with ASD so quickly. A few articles discussed the negative attitudes society appears to have on students with ASD (Hendrickson et al., 2017; Thompson et al., 2018). Hendrickson et al. evaluated eight college students with ASD and their parents' perceptions of their college experiences and found that the students in their study reported not wanting to appear "different" to the rest of the university population (2017, p. 586). White et al. (2019) evaluated the neurotypical university students' perceptions of students with ASD and found that awareness of ASD and associated traits did not correlate with positive perceptions.

Erica expressed another unique, identity-based challenge by stating a quote about having high-functioning ASD, "*you're too normal to have autism, but you're too weird to be normal.*" This identity-related challenge was also found in Cox et al.'s 2017 study and is similar to one that was identified by Gelbar, Shefcyk, and Reichow, which was balancing the identity of both a college student and an individual with ASD (2015).

Themes from Literature Absent in Present Study

Many themes emerged from this study—some unique and some overlapping with the current literature surrounding adults with ASD in higher education. It should be noted that some themes that were gathered from the literature in Chapter II did not emerge from the present study. Those themes included Transition, Mental Health, and Disclosure of Diagnosis and Self-Advocacy. Though not discussed enough to be constituted as a theme in the present study, some participants touched on the above topics to an extent.

Transition. The amount of time which each participant spent discussing topics related to the transition from high school to college varied between participants, suggesting varying levels of importance of this topic in terms of their experience with success in higher education, despite much of the research finding that a positive transition influences success in higher education for students with ASD (Cai & Richdale, 2016; Dymond, Meadan, & Pickens, 2017; Ruble et al., 2019).

In regards to preparing to transition to college, Angela discussed working with a Resource Strategist in high school who helped her with a lot of college preparation and scholarships. She also discussed that the transitional period from being homeschooled, to going back to public high school, to college, all happened within three years, making it a hectic one for her. Angela reported having gone on three separate tours of the institution to ensure she knew how to navigate and could plan out safe spots. Also regarding her transitional planning, she stated:

“When we started preparing for like the things I was going to need, almost a full year in advance, and like, I hacked on my mom for it, because she had like, stacks of stuff, that were labeled [Angela] College. And I'm like, this is a lot of stuff. And she's like but, you're going to need it. And I didn't need all of it. But it was like they were really slowly, very, very slowly building things up. And were like, you're going to need this laundry detergent. I'm like that's a lot of laundry detergent.”

Melanie reported that her emotional support animal (ESA) helped to smooth out her transition to college. Kathy stated that she experienced a difficult transition to college due to her desire to attend a school away from her parents and not being 100% sure of what exactly she

wanted to major in. Erica reported that her high school had set up her transition to college and that they had prepared her well.

Mental health. Three of the four participants discussed topics that could fall under the category of mental health. Melanie reported receiving mental health counseling in high school for depression and anxiety, but did not discuss anything related to her mental health in college. Erica reported that she decided to withdraw from a course that had been taking a toll on her mental health at one point. When asked about her strengths, Erica stated:

A strength that I have, I guess, is just being able to hold myself and know myself. Like, I really know when I'm like, down in the, really down in the dumps and really blue, and if I need to go get myself checked out, or if I need to, like, you know, I mean, I might put it off for like, the first day and it's just like, well, maybe it's just like, you know, today might be the weather. And It's a lot of times it is, but like when, and lately I've been feeling really down, so like, I'm thinking about, I'm thinking about getting myself checked out, but.
 [Beth: "Have you done mental health therapy before?"] *No, I have not. So but I am gonna kind of just like, see how it goes this weekend. Feel it out first."*

It could be suggested that Erica's strength in self-awareness in terms of mental health may have been very important to her success in higher education.

Kathy discussed the most on the topic of mental health out of all of the participants. When asked about her strengths, she stated, "*I'm very down on myself so I'm not going to state a lot of obvious ones,*" answered that she believed her constant questioning to be a strength, the continued by saying the following:

"But I, one other one I have is that even though I, right now I'm very pessimistic and very nihilistic, and I just don't care anymore, I, I guess I still have this lingering hope that

things will be better than, things will get better and that I do believe in people and then, people, that there are good people. Even though right now I feel like I want to watch the world burn. That I just try to keep this positivity and try and keep this hope because if I don't then basically my, my depression gets the better of me and things will not go on."

Kathy's reported biggest challenges in college boiled down to her own self-perceptions and mental health issues. She reported that she has a diagnosis of clinical depression and that she sees someone regularly for it which she believes to have helped her a lot. One of Kathy's final statements was:

"And people, they don't really talk about mental illnesses, really. And I think that's a lot of, a big struggle for people with autism and others, other sort of mental disorders, because not only do I suffer from autism, I also suffer and depression, I also have bipolar type two around and I have ADD. So those are great. But, most of them I inherited from my mom, especially the bipolar. And It was very hard to come to terms with at first, but then after a while, I realized, it actually explains a lot of things."

This statement from Kathy suggests her desire for mental illness to be addressed more openly and that even though her diagnoses were hard to accept initially, she was able to reach the point of acceptance and understand them. It can be determined that having a diagnosis of any mental health disorders may be the first step towards achieving help towards the associated challenges.

Though not an outstanding theme in the present study, the literature has identified mental health to be a large challenge for college students with ASD (Gelbar, Shefcyk, & Reichow, 2015; Jackson et al., 2018; McLeod, Meanwell, & Hawbaker, 2019; Van Hees, Moyson, & Roeyers, 2015) and should not be overlooked. Because this theme was so infrequently brought up in this

study, it could be suggested that many of the participants didn't experience overwhelming mental health challenges or experienced them in ways that did not directly impede on their college success.

Disclosure of diagnosis and self-advocacy. The final theme from the literature that did not emerge in the present study includes topics related to the disclosure of diagnosis and self-advocacy. Two out of the four participants discussed topics related to self-advocacy, but there were no discussions related to disclosing their diagnoses. Angela reported not utilizing each accommodation offered to her because of the many steps required, an occurrence that Dymond, Meadan, and Pickens found to be frequent for college students with ASD (2017). Angela stated:

"I'm supposed to get PowerPoints and be able to record in class. But those things take a lot of steps. And professors also don't usually give out PowerPoints. So I don't usually get that one. And to record in my class right now, I need to sign an audio contract. And the professor and I have both been forgetting. So I just haven't been doing it."

Melanie described a time in her college career where she needed to self-advocate for her right to her given accommodations after a professor refused to honor them. This is how she reported on resolving the situation:

"...and I had to go to [Accessibility Resources] and like, talk it over and try to like tell him that 'Yeah, I need extension on this. You need to give me extensions. I cannot complete this in the time you've given me.'" [Beth: "Were you were able to?"] "I was. I was able to because I have, that I had to take like so much time out of my day to just be like, 'I need this accommodation, otherwise I won't pass this class.' and he's been very difficult about it. It was like, it's crazy because I have, I've had friends that were like

'Oh, he's such a good professor.' But like, he put me through that. I'm just like, 'Yeah, he's a relatively nice guy and all other aspects but like that was horrible.'"

The fact that disclosure of diagnosis and self-advocacy was discussed much less than any of the other themes discussed may suggest that this theme had much less of an impact on the participants' college experiences than the other topics discussed, thus did not directly impact their abilities to succeed in higher education.

Limitations

Several limitations exist in the present study. First, the study was based on only four participants' experiences, which greatly affects the ability to generalize the results of this study to a larger population. Additionally, all of the participants in this study were female, attended the same university, and were similar in age, making it even more difficult to generalize the results of this study to a larger population.

Second, though the researcher used semi-structured interviews to help guide the interviews with the participants, some participants may not have felt comfortable with or felt it necessary to go on a tangent outside of the general questions unless prompted by the researcher, potentially limiting the discussions on true personal experiences. Additionally, the participants may not have felt comfortable discussing negative experiences they have had with the university with the researcher who also belonged to the university.

Third, the participants were obtained through Accessibility Resources, which means they had to have already disclosed their diagnosis to the department, an issue that proved to be a challenge for this population in the literature.

Suggestions for Future Research

When conducting future research studies examining the experiences of college students with ASD, it would be beneficial to include a larger, more demographically diverse sample of students with ASD to increase the generalizability of the results. In future qualitative studies around this topic, it may be interesting to conduct completely unstructured interviews to obtain an understanding of the most salient college experiences to each participant and compare those experiences regardless of success.

Implications

The results from this study, while limited, provide implications for several fields and populations. First, speech-language pathologists who find themselves working with a client with ASD attending post-secondary school may consider incorporating functional communication into their interventions, as the results from this study and the literature suggest that strong interpersonal skills may increase overall success in higher education or at least remove one of the hardships of college for this population.

Second, post-secondary institutions and university personnel would likely benefit from an increased understanding of this population and their experiences which led to their success as described in this study. As was widely suggested in the literature and by one of the present study's participants, an increase in professor education on students with ASD is highly recommended. Professor training/education would benefit both the professors themselves and students with ASD, creating a more positive university experience for both.

Lastly, individuals with ASD who currently attend college or who aspire to attend college and their parents may find benefits from reading about the experiences of other students with ASD who found success in higher education. The present study may provide this population

with ideas which they can incorporate into their college transition and/or overall experience to make it a more positive one.

Summary

The results from the present study suggest that students with ASD find success in higher education from a multitude of factors including personal, macro educational, and micro educational. Many of these influential factors were supported by the literature as contributing to the success of this population such as social relationships, supports, and accommodations. Much of the literature additionally found that a positive transition to college and strong self-advocacy skills also contribute to the success in college for students with ASD. The information presented in this study could likely benefit a variety of populations including but not limited to speech-language pathologists, higher education institutions, and students with ASD.

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APPENDIX A

Research Participant Consent Letter

You are invited to participate in a study on college success in students with autism. I hope to learn about the various types of factors that influence retention and success in college students with autism. You were selected as a possible participant in this study because you have an ASD diagnosis and receive Accessibility Resources on campus.

If you decide to participate, I will interview you on topics including: preparation for college, supports during college, your major/minor, your self-perceptions, your motivations, and your challenges. The interview will be recorded and transcribed by me after the interview. The interview will take no longer than 45-55 minutes. You are at no more than minimal risk by participating in this study. The most risk you can expect to have by participating in this study would be feelings of uncomfot when discussing certain academic topics with me. Benefits include helping expand the body of knowledge on adults with autism.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed.

If you choose to participate in this study, you will be compensated with a \$10 Starbucks gift card.

Your decision whether or not to participate will not affect your future relationships with Minnesota State University Moorhead. If you decide to participate, you are free to discontinue participation at any time.

Please feel free to ask questions regarding this study. You may contact the Primary Investigator of this study, Kris Vossler, in the SLHS Department at kris.vossler@mnstate.edu or 218-477-4200. Any questions about your rights may be directed to Dr. Lisa I. Karch, Chair of the MSUM Institutional Review Board, at 218-477-2699 or by email at: irb@mnstate.edu.

You will be offered a copy of this form to keep.

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. You may withdraw at any time after signing this form should you choose to discontinue participation in this study.

 Signature of Participant

 Date

 Signature of Investigator

 Date

APPENDIX B

Interview Items**Preparation**

Describe how you prepared to transition out of high school.

Tell me about how your teachers or parents helped you get ready for college. (e.g. personal surveys, learning preference checklists, etc.)

Tell me about how you decided that MSUM would be where you go to college.

Supports

What types of supports have been in place for you during college? Please include specific examples.

Tell me about what you believe has been the most helpful to your success in college.

Major

Tell me about how you came to choosing your major.

Is your current major the same as it was when you came into college?

How many times have you changed your major?

Tell me how you knew your major was right for you.

Self-Perceptions

Tell me about your strengths. (*strengths*)

Are there things that you wish you were better at? (*weakness*)

Motivations

Tell me about what motivated you to go to college.

Tell me about what has been motivating you to stay in college.

Tell me about what motivates you to graduate from college.

Challenges

Tell me about what has been the most challenging part of college for you.

On a scale of 1-10, how challenging has college coursework been for you? Why did you choose that rating?

On a scale of 1-10, how challenging has building and maintaining social relationships been for you?

Why did you choose that rating?