EFFECTS ON THE SOCIAL-EMOTIONAL LEARNING OF STUDENTS IDENTIFIED AS TWICE-EXCEPTIONAL: A PHENOMENOLOGICAL STUDY

by

Heather A. Bernau

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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APPROVED BY:

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Abstract

The purpose of this qualitative transcendental phenomenological study was to describe the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. The study was conducted in participants' homes or other neutral locations of the participants' preference. The theory guiding this study was Bandura's social cognitive theory. The social cognitive theory explains the relationship between personal factors, environmental factors, and behavior. Specifically, the study used multiple sources of data collection including a parent or adult-student questionnaire, self-portrait, three reflection items, and semi-structured interviews to study how learning interventions for students' learning challenges (autism) affect the self-concept of twice-exceptional students. Data analysis was conducted utilizing epoché, phenomenological reduction, imaginative variation, and meaning synthesizing. Twice-exceptional students' lived-experiences are informed by their self-concepts, academic experiences, and social experiences. The most significant finding from the data is that students are receiving delayed diagnoses, which means delayed or absent services for their second, less evident, exceptionality. There are many potential implications for research and practice from this study, particularly, determining the incidence and prevalence of delayed diagnoses as well as gender-bias in diagnosing autism spectrum disorder.

Keywords: Asperger's syndrome, intellectually gifted, twice-exceptional, autism, high-functioning autism, self-concept

Copyright Page

Dedication

I dedicate this dissertation to God the father, from whom all blessings flow (James 1:17) and to his son, the Word of God—revealed in person (John 1:1), the personification of wisdom in word and truth (Matthew 4:4).

I dedicate this "paper" to my husband, Aaron, who has been a cheerleader, a critic, a time-keeper, a supporter, an accountability partner, and an encourager during this process. I am truly thankful that we get to do life together.

To my strong daughters, Alecia and Allison, who inspire me every day, may you always pursue knowledge, wisdom, and truth throughout your lives.

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I would also like to thank my friends and family, Amy, Kathryn, Jamie, Anna, Marianne, Beth, Lisa, and Alecia, who tirelessly and boldly helped me recruit study participants when the school district and pandemic put a kink in my plans. Without your help I would still be waiting.

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List of Abbreviations

Attention Deficit Disorder (ADD)

Attention Deficit Hyperactivity Disorder (ADHD)

Advanced International Certificate of Education (AICE)

Advanced Placement (AP)

American Psychological Association (APA)

Asperger's Syndrome (AS)

Autism Spectrum Disorder (ASD)

Diagnostic and Statistical Manual of Mental Disorders (DSM-4, DSM-5)

Education Plan (EP)

Gifted Education (GE)

High Functioning Autism (HFA)

Individualized Education Program (IEP)

Intellectually Gifted (IG)

Learning Disability (LD)

Neurologically Typical/Neuro Typical (NT)

National Association for Gifted Children (NAGC)

Professional Development (PD)

Response to Intervention (RtI)

Social Emotional Learning (SEL)

Science, Technology, Engineering, and Math (STEM)

Twice-Exceptional (2e)

Typically Developing (TD)

CHAPTER ONE: INTRODUCTION

Overview

One million of the nation's most auspicious, innovative thinkers – brilliant students who learn differently – make up an undervalued civic resource (Bracamonte, 2010). Twice-exceptional students make up at least 6% of students with a disability, but because their challenges are often not reflected on their report cards, they are not receiving the services they need (Blustain, 2019). The purpose of this chapter is to provide an overview for this study describing the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. Following a brief overview of the background of the problem, this researcher explored the situation to self. The problem that twice-exceptional students are often underdiagnosed and therefore underserved is introduced within the theoretical frameworks of models of disability, capability approach, self-efficacy theory, and social cognitive theories. The research questions are identified with supporting explanation. Relevant terms are provided and defined.

Background

Twice-exceptional students are often underdiagnosed and therefore underserved. Because intellectually gifted students have a greater ability to mask their disabilities (Haelle, 2018), these students frequently go unidentified, and as a result, unserved. Students may be masking a disability with their strengths or overshadowing gifted characteristics with their specific learning challenges (Silverman, 1993). The consequent disruption these students precipitate when their needs are unmet is cause for concern and future research (Haelle, 2018). Describing the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome will help educators meet the needs of students and inform further research.

The question of appropriate identification itself is rather unimportant. The more important question is what this information can do for the students, researchers, and educators.

The theory of self-efficacy (Bandura, 1977) is foundational when reviewing literature related to the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. Students are rarely identified as both intellectually gifted and with high functioning autism or Asperger's syndrome. The significance of their shared characteristics and abilities to mask their differences make twice-exceptional students difficult to diagnose (Haelle, 2018). These diagnostic issues lead to academic and social-emotional consequences for 2e students (Rutter & Schopler, 1987). A survey of the historical, social, and theoretical background was constructed to offer context for the research problem.

Historical Context

Asperger's syndrome borrows its name from the Austrian physician who is credited with first describing the disorder (Baldwin et al., 2015; Barahona-Correa & Filipe, 2015). Hans Asperger first described the disorder as early as 1944. Asperger found that the children he observed often had highly select intellectual interests, displayed poor social skills, were detail-oriented, exhibited high levels of integrity, were persistent, and relied heavily on routine (Barahona-Correa & Filipe, 2015). Asperger's syndrome was not included in the Diagnostic and Statistical Manual of Mental Disorders until the fourth edition (DSM-4) in 1994 (Autism Speaks, 2020; Barahona-Correa & Filipe, 2015). Within the DSM-4, the diagnosis of Asperger's syndrome called for at least two symptoms of social interaction impairment and one behavioral and interest restriction along with normal or above normal cognitive functioning and no general delay in language (deGiambattista et al., 2019). The Asperger's syndrome distinction, however, did not last long. Both patients with Asperger's syndrome and those with autism show deficits in

social interaction, inappropriate communication skills, and restricted interest (Barahona-Correa & Filipe, 2015). As a result, under the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), Asperger's syndrome became part of an umbrella diagnosis of autism spectrum disorder (ASD). Even so, many still argue that it is a disorder distinct from autism (Campanelli & Ericson, 2014; Gallagher & Gallagher, 2016). Often, people diagnosed before the change still identified strongly as having Asperger's syndrome and even embraced the moniker of an "Aspie" (Autism Speaks, 2020).

High functioning autism (HFA) is the mildest form of autism spectrum disorder (Holland, 2018). HFA is not a term found in the DSM, but refers in general to patients with autism who have average or above average cognitive functioning and are able to manage life skills with minimal assistance (deGiambattista et al., 2019; Holland, 2018). Many still cite unsolved confusion and difficulty in reliably differentiating AS from HFA. Evidence suggests more perceptible rather than subjective differences between AS and HFA. Primary differences proved superior linguistic, cognitive, and social functioning skills were found in students with AS compared with students with HFA (deGiambattista et al., 2019). More research is needed in this area.

Gifted education (GE) became a topic of discussion as early as the 1920s and 1930s (NAGC, 2020). With the Soviet launch of Sputnik in the late 1950s, there was renewed interest in training up America's best and brightest through gifted education (NAGC, 2020). 1983 brought *A Nation at Risk* and 1993 offered *National Excellence: A Case for Developing America's Talent* which spotlighted America's failure to serve gifted students. The response was the issuance of national standards by the National Association for Gifted Children (NAGC) in 1998 which offered schools nationwide a guide to programming criteria for gifted students

(NAGC, 2020). In 2002, the No Child Left Behind Act (NCLB) was passed, combining the reauthorization of the Elementary and Secondary Education Act with the Javits program as well as expanding grants to help cover costs of educating gifted students (NCLB, 2002). Then in 2004, *A Nation Deceived* was published, highlighting yet again the inability of America to meet the needs of its most able students (NAGC, 2020). Each of these events contributed to the GE programs offered in schools across America today.

Not until 1973 was the idea of gifted children with learning disabilities introduced (Baldwin et al., 2015; Elkind, 1973). The Council for Exceptional Children published Providing Programs for the Gifted Handicapped, the first book to address program implications for students with dual exceptionalities (Baldwin et al., 2015). Between 1980-1985, several publications focused on gifted students with difficulties, exploring the combination of gifts with areas of disabilities and showed unique characteristics and needs of people exhibiting both (Baldwin et al., 2015; Gallagher, 2016; Whitmore, 1980; Whitmore & Maker, 1985). The term twice-exceptional, or 2e, was first used in the mid-1990s to take the place of the IG/LD label (NAGC, 2020). Between 1984 and 2000, several federal projects and state grants were initiated. Jacob Javits Grants were issued to The Twice Exceptional Child Project, Project High Hopes, A.C.E.S., and the Colorado state grants to Cherry Creek Schools and Littleton Public Schools (Baldwin et al., 2015). In 1997, Brody and Mills published a review of issues and contributed a summary of challenges in identification and programming as well as best practices in education (Baldwin et al., 2015; Brody & Mills, 1997). In 2004, the Individuals with Disabilities Educational Improvement Act (IDEA) was reauthorized and acknowledged that students with learning disabilities can also be gifted (Baldwin et al., 2015; IDEA, 2004). Finally, in 2014, a

collaboration of professionals with expertise and interest in 2e, the National Twice-Exceptional Community of Practice (2e CoP), created and published the following official definition of 2e:

> Twice-exceptional individuals evidence exceptional ability and disability, which results in a unique set of circumstances. Their exceptional ability may dominate, hiding their disability; their disability may dominate, hiding their exceptional ability; or each may mask the other so that neither is recognized or addressed. (Baldwin et al., 2015, p. 212)

Social Context

People with AS have average or above average intelligence (Asperger, 1944). Asperger's Syndrome is principally a disorder in social interactions, as people with AS have difficulty adhering to social conventions (Asperger, 1944; Ferguson, 2015; Rutter & Schopler, 1987). Teachers generally see three primary impairments in students with AS: social interaction; communication and imagination; and a narrow, restricted interest (Autism Speaks, 2020). In a school setting, this might present as lack of understanding of personal space; puzzling melt-downs; lack of understanding of social cues and conversational language; great difficulty understanding another person's perspective or thinking; inflexible adherence to routines; persistent preoccupation with objects; or a narrowly focused topic of interest (CDC, 2015). A more thorough understanding of the social-emotional learning needs of students with ASD will help teachers create programs to improve students' self-concept.

Like students with AS, students exhibiting behaviors associated with intellectual giftedness (IG) can present challenges for teachers (Callahan & Hertberg-Davis, 2017; Haelle, 2018). Researchers have described concerning behaviors that include isolation from peers, pressure to conform, defiance toward authority, anxiety, depression, refusal to complete work, dissatisfaction with daily life, difficulty accepting criticism, antagonistic competitiveness, and

poor study habits (Campanelli & Ericson, 2014; Diezmann & Watters, 2006). Students with AS and IG learners present with unexpected common characteristics (Campanelli & Ericson, 2014; Wormald et al., 2015). These shared characteristics create challenges in serving unidentified students with AS or IG, and especially those who are 2e (Gallagher & Gallagher, 2016). A deep comprehension of these exceptionalities will allow teachers and other professionals to better meet the needs of these students.

A more complete understanding will also enable educational researchers to further examine best practices and develop programming and interventions to promote the success and persistence of these learners (Gallagher & Gallagher, 2016; Haelle, 2018). Additionally, more thorough knowledge will help teachers and other professionals identify students who are 2e at a younger age (Hodge & Kemp, 2006). Ensuring that neither exceptionality is overlooked (Haelle, 2018) will aid the teachers' ability to offer programming to meet the needs of all students.

Theoretical Context

The inquiry process for a qualitative study is strengthened by a theoretical structure which enables the researcher to expand upon previous observation and study conducted by founding theorists. Mitra (2006) discussed the historical basis for creating theoretical models for understanding and conceptualizing disability established upon perceived deficits within an individual. These historical models include the *medical model*, the *social model*, and the *Nagi model*, all of which focus on what the affected cannot do. The medical model of disability frames disability as a medical diagnosis. Supports and accommodations are put in place to aid the student, but because Asperger's syndrome is considered to be a direct effect of a disease, this model offers the student no hope to rehabilitate (Mitra, 2006). In contrast, the social model of disability frames disability as a social construct which is created by the communal surroundings

and necessitates social change (Mitra, 2006). This model focuses on one's desire to be recognized as a full member of society while distancing oneself from the biological determination of impairment as the primary reason for restricted access to participation in the community (McKenzie, 2013). One critique of the social model of disability is its overemphasis on self-advocacy can potentially minimize support for students who require assistance (McKenzie, 2013). On the contrary, Sen and Nussbaum (1993) discussed the capability approach which focused on the abilities rather than disabilities of students. Finally, Bandura (1977, 1989) postulated a theory of self-efficacy which explained psychological changes achieved through various mechanisms of treatment, and social cognitive theory which explained behavior.

Bandura's social cognitive theory (1989) uses a model by which human behavior is caused by triadic reciprocal determinism. Behavior, cognition and personal factors, and environmental influences all work together as interacting determinants and all influence one another. Within this framework, people are characterized in terms of their basic capabilities rather than disabilities (Bandura, 1989).

Students with disabilities are offered accommodations as part of their Individual Education Programs (IDEA, 2004). Likewise, students who are gifted are offered accommodations as part of their education plans (IDEA, 2004; U.S. Department of Education, 1978). These accommodations enable students to function in the general education environment to the greatest extent possible (Shriner & Ganguly, 2007; Ysseldyke et al., 2001). In general education, it is the responsibility of the classroom teacher to ensure that accommodations are implemented (Shriner & Ganguly, 2007). The purpose of these accommodations is to provide students with disabilities programming to achieve success in inclusion classrooms, general education classrooms, or gifted education classrooms (McLeskey & Waldron, 2002). In the

absence of accommodations, students may develop difficulties with peer relationships, poor academic performance, lack of understanding, and processing of information (Worrell, 2008).

Situation to Self

The following vignette is an example of effective use of social-emotional learning for 2e students: Geraldo paces uncomfortably in the back of the classroom. His gifted education teacher does not understand why he is inconsolable. Geraldo looks around the room, still pacing, growing increasingly agitated. His teacher tries to make eye contact, Geraldo turns and avoids her. Geraldo mutters something to himself, shaking his "jazz hands" at his side, and moves side to side with each step. Geraldo is nearing a meltdown. Again, his teacher attempts to intervene. Another student signals to the teacher that she would like to try to use a tool she and Geraldo share. She moves to within a few feet from Geraldo and calmly and soothingly reminds him to use his tools. After a moment she is able to persuade Geraldo to listen to her words. She is offering a tool Geraldo has learned to use. She is able to talk him through a strategy they learned in a group session earlier in the week. After a few minutes, Geraldo calms. Eventually, Geraldo is ready to resume learning. This scenario could be typical for twice-exceptional students, but unfortunately, all too often the students are not properly identified and provided services.

I have been teaching exceptional students for twenty years. My first several years of teaching I was in a full inclusion classroom. Most of my students did not have diagnoses of HFA, AS, or IG, though some did. It was not uncommon to have students in my class who exhibited behaviors characteristic of an exceptionality with no diagnosis at all. In this scenario, as a teacher, I simply did what I thought was best for the individual needs of each of my students, even with no label. I sought the advice of anyone who would give it. I read, and tried new strategies, and then read more. I talked with students, parents, and specialists. I learned

which tools work with specific behaviors. Soon, I became the go-to teacher for any student with a unique learning modality.

After moving to Florida, I took a position teaching in a full-time gifted program. What I learned is that having a gifted label does not preclude students from exhibiting characteristics of other exceptionalities. In fact, while often the students do not have dual diagnoses, behaviors and common characteristics of various exceptionalities are even more prevalent in my gifted classroom than in my general education classroom. This is a problem because the students like Geraldo, without proper identification, are not learning the tools they need in order to be successful.

Another motivation for my research is that I have a daughter who was identified as gifted at age 5. She was speaking in complete sentences as a toddler, reading by the age of three, and was academically overall very advanced for her age. She attended Christian preschool as a 3 and 4-year-old. At the end of her preschool experience, she told us she wanted to go to public school for kindergarten so she could "tell everyone about Jesus" because "everyone here already knows about Him." In kindergarten, she went through testing and it was recommended that we send her to a private boarding school for the exceptionally gifted. We declined because we did not feel our young daughter would thrive in a live-in situation far from home. As she grew, she began exhibiting mild characteristics and behaviors that are often displayed by those with a high functioning autism, or more specifically, an Asperger's syndrome diagnosis. This time, my husband and I chose not to have her evaluated, as we believed a diagnosis would be detrimental to her self-concept and would not change the way we interact with her or her school placement. I do wonder, though, if we made the right choice, as participating in programs may have given her tools and strategies that I was unable to offer. She was extremely successful in high school,

graduating at the top of her very competitive class while participating in clubs, music, and athletics. Her success made us comfortable with our decision not to have her tested. However, the transition to college didn't go as well. The first semester of her freshman year of college was very difficult. Facing a couple bouts of fainting and more than a few panic attacks, struggling to establish patterns and routines, her grades suffered dramatically. My husband and I spoke with her daily, from a thousand miles away, offering her suggestions and tools. She began counseling the second week of school and was able to have a remarkable comeback during second semester. Still, I wonder if we had had her tested and if she participated in programming to learn strategies, whether she would have coped better and had a more successful transition into college.

Within qualitative research, the researcher participates as a human instrument for data collection and analysis (Creswell & Poth, 2018). As a result, as the researcher, I was an active participant in the study. My philosophical assumptions, or paradigms, shaped the study, they guided how problems were solved and the methods I chose (Brown & Dueñas, 2019). While I asked open-ended questions, the content of the questions was guided by my assumptions (Creswell & Poth, 2018; Moustakas, 1994). Therefore, it is important to disclose my research paradigm and philosophical assumptions in order to fully understand the role of the human instrument as my paradigm and assumptions impacted my interpretation of the study's results (Brown & Dueñas, 2019).

I operate under the social constructivist worldview. This means human development is socially established and knowledge is constructed through interaction with others (Creswell & Poth, 2018). Phenomenological research has a primary focus on lived-experiences. This qualitative approach focuses on the perceptions of each study participant and how they come together to create meaning for the whole. My epistemological assumption was that as the

observer, my knowledge was dependent on what I was researching as well as evidence and specific quotes from study participants. Students learn through thinking and problem solving. Students realize experiential meanings. This type of worldview focuses on both the interactions between people as well as the contexts in which they learn. This was ideal for studying twice-exceptional students in their learning environments, allowing me to glean a better understanding of the personal, cultural, and historical experiences of the students that lead to their individual learning requirements (Creswell & Poth, 2018). This type of research allowed me, as the researcher, to go follow the evidence and draw conclusions based upon what I discovered.

I hold the axiological assumption of interpretivism which asserts that the researcher is part of research content and, therefore, the research will necessarily be subjective (Moustakas, 1994). My rhetorical assumption was not that I was seeking absolute truth, but rather that I was simply synthesizing lived-experiences, through the perspectives of my participants, of twice-exceptional students into a conclusion which might inform programming. As a result, phenomenological qualitative research was the ideal method for this study.

I am searching for a mechanism by which I might transform the lives of my students through the bolstered change of the educational establishment (Creswell & Creswell, 2018). I desire to provide a voice to students who have difficulty communicating for themselves (Barahona-Correa & Filipe, 2015; Creswell & Creswell, 2018). Qualitative research utilizes participants as co-researchers (Boylorn, 2008). This means the participants share knowledge, access, and responsibility, offering feedback and identifying themes which might otherwise go unnoticed (Boylorn, 2008). I was able to gain knowledge through the interaction with my participants. Through a social constructivist worldview, I hope to promote interaction within learning groups to meet the unique needs of 2e students.

Problem Statement

Intellectually gifted children with high functioning autism or Asperger's syndrome are frequently underdiagnosed (Zecker, 2016). These students are often identified as either intellectually gifted or as having AS or HFA, but not both. Because of this, the prevalence of twice-exceptional learners is not known (Dever et al., 2016; Haelle, 2018). With a rate of gifted child births hovering between 2% (NAGC, 2020) and 10% (CDC, 2015) and a ratio of 1:68 children being diagnosed with AS (CDC, 2015), one can see the importance of teachers and school professionals understanding the common characteristics of children with these diagnoses. Practically, when 2e students go underdiagnosed, their unique needs are not being met in the classroom (Haelle, 2018) and little research addresses the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome (Baldwin et al., 2015).

There is a close relationship between self-concept, ability, and academic programming among twice-exceptional youth (Bellebaum et al., 2014; Lone & Lone, 2016). Twice-exceptional students can be successful if they are able to develop a positive self-concept (Lone & Lone, 2016). However, the problem is that 2e students remain underdiagnosed and underserved, resulting in a need for more research.

Purpose Statement

The purpose of this transcendental phenomenological study was to describe the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. The two exceptionalities were generally defined as (a) Intellectual giftedness as measured by the Wechsler Intelligence Scale for Children (WISC) and (b) high-functioning autism—primarily in the form of Asperger's syndrome—as identified by a licensed psychologist. The theory guiding this study is Bandura's (1989) social cognitive theory as it provides a lens for

examining the experiences of students who are best served through twice-exceptional programming.

Significance of the Study

The significance of this study was examined utilizing empirical, theoretical, and practical perspectives. It is hoped that shared awareness was formed concerning the lived experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. Results of this study may help develop the literature on the social-emotional wellbeing of twice-exceptional students.

Empirical Significance

For years, researchers have studied and reported on children with high functioning autism or Asperger's syndrome. Likewise, researchers have studied children who are gifted and talented (Attwood & Gray, 2016; Gallagher & Gallagher, 2016). Only in contemporary education have experts begun to consider twice-exceptional students and the impact their academic programming has on their self-concept (Campanelli & Ericson, 2014; Gallagher & Gallagher, 2016). Understanding the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome warrants further research.

Theoretical Significance

Bandura's theory of self-efficacy (1977) lies at the heart of his social cognitive theory (1989) and was engaged to frame this study. The theory was designed to demonstrate and anticipate psychological changes achieved through various mechanisms of treatment (Bandura, 1977). As students are exposed to increasing observational learning and social experiences, they begin to develop their abilities (Bandura, 1989). The theory of self-efficacy states that various psychological procedures reshape the degree and intensity of self-efficacy. Bandura (1977)

discussed four primary sources of efficacy information: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. In performance accomplishments, also called mastery experiences, Bandura posited that having success in a task will build self-efficacy, whereas failure in a task will undermine self-efficacy. Bandura's theory of self-efficacy through his social cognitive theory may have implications for twice-exceptional students' development of self-concept within their 2e programming.

Practical Significance

The outcome of the study may inform the body of knowledge on twice-exceptional programming for students identified as IG and HFA or AS. The results will inform those responsible for professional development, teacher training, as well as making curriculum decisions within the school district. It is essential that educators have the knowledge they need to serve all learners in today's academic and social environments. It is critical that teachers and other professionals are informed and clearly understand the effective programs that can be utilized to improve self-concept in 2e students. Informed teachers are better prepared to serve high-need students (Auger, 2018). It is, therefore, beneficial to determine what teachers know, which programs are available, and to seek strategies and resources to aid students in managing self-concept.

Research Questions

Research questions were aligned with the problem and purpose statements. Phenomenological questions should be constructed clearly and concretely with social meaning and personal significance (Moustakas, 1994). The study was guided by the following central research question and three sub questions:

Central Research Question

What are the experiences of students who have been identified as intellectually gifted and having high functioning autism or Asperger's syndrome?

Twice-exceptional students have unique experiences which shape the way they view the world and how they learn from that view **(**Gallagher & Gallagher, 2016; Lone & Lone, 2016). As students begin to engage in new experiences, the way they view learning changes (Bandura, 1977).

Sub Question One

What does receiving a twice-exceptional identification mean in terms of self-concept for a student identified as intellectually gifted and having high functioning autism or Asperger's syndrome?

Students are often not identified with dual exceptionalities **(**Gallagher & Gallagher, 2016; Lone & Lone, 2016). Students with a twice-exceptional identification sometimes feel alone and inferior to their neurotypical peers.

Sub Question Two

What does receiving a twice-exceptional identification mean in terms of academic experiences for a student identified as gifted and having high functioning autism or Asperger's syndrome?

The identification may change students' placement and programming. Academic programming offers students and teachers tools to compensate and work-arounds for when students are struggling (Wormald et al., 2015; Zecker, 2016). Students may receive programming in gifted studies, support for learning deficits, or both.

Sub Question Three

What does receiving a twice-exceptional identification mean in terms of social experiences for a student identified as gifted and having high functioning autism or Asperger's syndrome?

Students identified as gifted and having high functioning autism or Asperger's syndrome must learn tools for working through their social challenges with little support from peers. Students who are diagnosed with HFA or AS are sometimes ostracized from friend groups or have difficulty making friends (McKenzie & MacLeod, 2012; Vignoles et al., 2006).

Definitions

The following are important terms used throughout this study.

1. *Asperger's Syndrome (AS)*—Asperger's syndrome is a developmental disorder that affects a person's ability to socialize and communicate effectively with others. Children with Asperger's syndrome typically exhibit social awkwardness and an all-absorbing interest in specific topics (Attwood & Gray, 2016).
2. *Asynchrony*—Asynchrony is the term used to describe the mismatch between cognitive, emotional, and physical development of gifted individuals (NAGC, 2020).
3. *Autism Spectrum Disorder (ASD)*—Autism spectrum disorder is a serious neurodevelopmental disorder affecting a child's ability to communicate and relate to others (CDC, 2015).
4. Comorbidity—Comorbidity is the simultaneous presence of two chronic conditions (CDC, 2015).
5. *Compensation*—Compensation is a strategy where a person plays a character who acts socially appropriately and creates rules to follow in social situations in order to blend in (Haelle, 2018).

6. *Impaired Executive Function*—Impaired executive function is when a person exhibits significant difficulties in the areas of planning, judgement, delaying gratification, self-monitoring, and impulse control (CDC, 2015).
7. *Inclusion*—Inclusion, also called inclusive education, means that students attend and are welcomed by their neighborhood schools in age-appropriate, regular classes and are supported to learn, contribute, and participate in all aspects of life at the school. Delivery is accomplished by following the core curriculum and utilizing general class activities (CDC, 2015).
8. *Intellectually Gifted (IG)*—Intellectually gifted is a distinction given to a person whose remarkable intellectual abilities necessitate specifically designed curriculum and instructional support services (NAGC, 2020).
9. *Masking*—Masking, also called camouflaging, is the process of artificially exhibiting social behaviors deemed to be neurotypical, hiding behaviors viewed as socially inappropriate, or exhibiting behaviors deemed to be atypical, artificially hiding capability (Haelle, 2018).
10. *Meltdown*—An autistic meltdown is similar to a temper tantrum that is precipitated by overwhelming sensory input. A meltdown has specific qualities that make it different from a tantrum including: it is not limited to young children, is preceded by signs of distress, often includes intense stimming, and serves no manipulative purpose (Fogt et al., 2003).
11. *Neurotypical (NT)*—Neurotypical is a term used to describe an individual who thinks, perceives, and behaves in ways that are considered to be “normal;” individuals who do

not have a diagnosis of autism or another intellectual or developmental disorder (Rudy, 2020).

12. *Twice-exceptional (2e)*—Twice-exceptional is a term describing a learner in which learning challenges are present in gifted people who have above average abilities in academic areas. These people are often referred to as *twice-exceptional* because giftedness can pose additional challenges beyond LD (Foley-Nicpon et al., 2015).

Summary

Intellectually gifted children with high functioning autism or Asperger's syndrome are frequently underdiagnosed (Zecker, 2016) and therefore underserved. There is a close relationship between self-concept, ability, and academic programming among twice-exceptional youth (Bellebaum et al., 2014; Gallagher & Gallagher, 2016). The purpose of this transcendental phenomenological study was to describe the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. Findings from this study will aid teachers and professionals in cultivating a positive self-concept in 2e students and help them persist to meet their goals. These students deserve programs that translate research on 2e into an active commitment to fuse academic rigor with individualized accommodations and adaptations (Bracamonte, 2010).

CHAPTER TWO: LITERATURE REVIEW

Overview

A detailed review of the research was conducted to identify studies that bring about understanding of the experiences of students identified as gifted or having an intelligence quotient at or above 130 and having high functioning autism or Asperger's syndrome. As related to this study, this chapter offers an overview of the current literature. In the first section, discussion is included of the selected theories as connections were drawn to the topic during the development of a theoretical framework. The second section includes a synthesis of knowledge regarding related literature which considers the lived experiences of twice-exceptional students in the classroom with an emphasis on identification, programming, self-concept, and ability. Throughout the succeeding section, challenges that twice-exceptional students face while being incorrectly or incompletely identified is the focus. Following a review of the identification challenges, the focus is shifted to the lack of teacher training in programs designed to improve self-concept for students who have been diagnosed with high functioning autism or Asperger's syndrome. Finally, literature is reviewed pertaining to the effects of programs designed to improve self-concept of twice-exceptional students. Consequent to reviewing the literature, the gap in the literature necessitating the need for focused study is summarized.

Theoretical Framework

The inquiry process for a qualitative study is bolstered by a theoretical structure which enables the researcher to expand upon previous observations and studies conducted by founding theorists. Mitra (2006) discussed the historical basis for creating theoretical models for understanding and conceptualizing disability established upon perceived deficits within an individual. These models include the *medical model*, the *social model*, and the *Nagi model*. Sen

and Nussbaum (1993) discussed the capability approach which focused on the abilities rather than disabilities of students. Bandura (1977) postulated a theory of self-efficacy which explained psychological changes achieved through various mechanisms of treatment. Bandura's theory of self-efficacy informed his 1989 social cognitive theory which explained a relationship between people, their behavior, and their environments.

Related Theories

Several historical, related theories emerged to construct theoretical models for awareness and knowledge of disability. Each of these models is chartered on recognized or anticipated deficits within a person. Further, each of these models focused on one's disability and deficits (Mitra, 2006), emphasizing what one cannot do rather than what one can do.

Medical Model

In the medical model, developed in 1975, disability is seen as a problem belonging to the disabled individual (Mitra, 2006). Supports and accommodations are put in place to aid the student, but because high functioning autism and Asperger's syndrome are considered to be a direct effect of a disease, the model purports that the student will never rehabilitate (Mitra, 2006). The medical model focuses on the impairment, or disability, as the defining characteristic of the disabled person. This model sees disability as something that is wrong with a student's body or mind and suggests that in order to become equal to his peers, the student must be treated and cured (Mitra, 2006). Since there is no cure for autism spectrum disorder, the model identifies the disabled person as unable to meaningfully participate in society. This model views people with disabilities as passive receivers of services aimed at a cure or disease management (World of Inclusion Limited, 2020). The medical model is rooted in the belief that adversities faced by

the disabled person are the lone responsibility of the disabled person and he must, as a result, take additional strides to safeguard against inconveniencing anyone else.

The medical model sees the person as responsible to aid himself or simply not participate. The model often results in the person with a disability feeling ostracized, underestimated, pressured to adhere to the norm, and treated as if he is handicapped in every way (Goering, 2015). This model is heavily criticized for the superfluous power ascribed to medical and psychological professionals to both diagnose and define the specific disability (McKenzie, 2013). Another issue with this model is that it pushes the false narrative that the medical community should advocate for preventing the transmission of the disability to future generations and that the disabled are unable to make decisions about their own lives (Mitra, 2006). Within 2e educational paradigms, the medical model forces the student with a disability to perform as a typical student or not participate. This could mean finding a private school or not going to school at all. This model causes students with disabilities to feel ignored and even shunned within the school system.

Social Model

The social model of disability, developed in the 1960s and 1970s, focuses on disability as a social construct. In this model, high functioning autism or Asperger's syndrome is viewed as created by the social environment, and social change is the proposed cure (Mitra, 2006). This model focuses staunchly on the clear distinction between impairment and disability (Goering, 2015). An impairment consists of a non-standard state of the body, and therefore is not necessarily seen as having a negative connotation (Goering, 2015). Conversely, a disability is the restriction of activity caused by the failure of a social organization to account for impairments of people. The distinction emphasizes that the limiting factor is often the failure of a social

institution to provide arrangements or accommodations for inclusion in a task or activity (Goering, 2015). The social model is constantly changing. There are nine variations of the model: the social model of the United Kingdom, the oppressed minority model, the social constructionist version of the United States, the impairment version, the independent living version, the postmodern version, the continuum version, the human variation version, and the discrimination version (Mitra, 2006; Pfeiffer, 2001). Each model is similar, focusing on disability as a social construct. In the social model, one's disability is a difference, it has a neutral value (neither positive nor negative), and is simply part of who one is (Mitra, 2006). This model describes people with disabilities as active fighters for equality working in partnership with allies (World of Inclusion, 2020).

The catalyst for this framework was entrenched in people with disabilities' aspiration to be recognized as functional members of society. This required departing from the biological determination that established the impairment as the cause of limited access to community participation (McKenzie, 2013). This model has been highly criticized for its hyperbolic emphasis on self-advocacy. Within a school, this model can lead to minimized support practices (McKenzie & MacLeod, 2012). Despite the limitations of this model, the social model offers a student with high functioning autism or Asperger's syndrome access to education and a role in the community. This is because proponents of the model seek to identify strengths, needs, and barriers in order to develop solutions (World of Inclusion, 2020). The model allows impairments to be overcome so long as social organization offers accommodations for inclusion of the person with a disability (Goering, 2015).

Nagi Model

Nagi's paradigm of functional limitations, developed in 1965, described disability as an interaction between an individual and societal expectations. This paradigm viewed disability as the inability of an individual to perform or function according to societal norms at the level of the whole person (Mitra, 2006). Nagi's model emphasized research into environmental factors such as family, community, and society that potentially impact disability as an outcome (Whiteneck, 2006). For students with autism spectrum disorder, the inability to perform according to society's norms is the heart of the pathology. Nagi's design focused on defining conditions and determining the extent to which a person is considered disabled rather than suggesting contributing factors or improving outcomes for students with disabilities. This model represented a shift from disease-centered care toward patient-centered care. In the education system, this represented a shift toward capability models.

Capability Model

More recently, researchers studying disability shifted their focus from the medical model, social model, and Nagi's model, which all focus on a person's disability, to an opportunity model called the capability approach, which focuses on a person's abilities (Mitra, 2006). This capability approach is actually an economics design. Originally credited to Amartya Sen and Martha Nussbaum in the 1980s (Cohen et al., 1993), this model suggests that well-being is focused on one's ability to perform valuable acts or reach valuable states of being. Sen (1993) defined value based upon the specific individual, considering factors such as personal characteristics, social arrangements, and an individual's personal objectives.

The capability approach considers that despite perceived societal disadvantage (high-functioning autism—Asperger's syndrome), society must contemplate students' actual capabilities, rather than their disabilities (Sen & Nussbaum, 1993). To this end, Sen (1993)

asserted that educators and leaders must, at the least, consider what assistance is needed for a student to reach the minimum threshold of capability in order that he or she may ultimately achieve at levels commensurate with peers. In this model, policies dictating programming and evaluations of programming focus on ability, quality of life, and removing obstacles rather than focusing on the disability (Robeyns, 2005).

The capability approach has been studied and applied in many disciplines including economics, gender equality, and social justice. Recently, though, additional attention has been devoted to its potential role in disability research, special education, and inclusion of students with disabilities with the general student population (Mitra, 2006; Toson et al., 2013). This framework is important and relevant to this study of the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. But the framework does not fully explain the needs of twice-exceptional students. If teachers and students do not believe IEP accommodations are productive and effective or they determine there are implementation limitations, students with high functioning autism or Asperger's syndrome may not be afforded the same opportunities as their neurotypical peers. The capability approach as further applied to disabilities seems to imply that the purpose of accommodations is to provide the minimum standard by which students with disabilities will be capable of achieving at the same level as other students, not ever to exceed peers' academic achievement. The capability approach seeks to secure the recognition of students with high functioning autism or Asperger's syndrome's entitlements as citizens by considering obstacles preventing each student's ability to function (Toson et al., 2013).

Social Cognitive Theory

Bandura's (1989) social cognitive theory is a learning theory which explained human behavior through triadic reciprocal determinism in which behavior, cognition and other personal factors, as well as environmental influences work together and influence one another to affect human behavior. The social cognitive theory is based in part on Bandura's earlier theory of self-efficacy (1977). The theory of self-efficacy is a framework designed to demonstrate and anticipate psychological changes achieved through various mechanisms of treatment (Bandura, 1977). Bandura (1977) purports that self-efficacy can be measured within four domains (academic, physical, social, and emotional). As students are exposed to increasing experiences within the four domains, they begin to develop their abilities. The theory states that various psychological processes reshape the degree and intensity of self-efficacy. A strong sense of self-efficacy complements achievement and well-being (Vignoles et al., 2006). A weak sense of self-efficacy contributes to low levels of aspiration and weak commitment to goals (Bandura, 1977). Bandura (1977) discusses four primary sources of efficacy information. These include performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Bandura's theory of self-efficacy may have implications for twice-exceptional students' development of self-concept within their twice-exceptional programming, especially as it evolved into the social cognitive theory.

In his social cognitive theory, Bandura (1989) described a three-way reciprocal model, much like a triangle, which includes personal factors, environmental influences, and behavior as equal contributors to the theory, constantly interacting. Personal factors, including cognitive abilities, biological events, and self-efficacy, are one vertex of the triad. Self-efficacy beliefs are people's analysis of their capabilities to construct and enact necessary procedures in order to

achieve stipulated categories of performances (Pajares, 2002). The fundamental premise of the social cognitive theory is that people learn from an interaction of a triadic reciprocal causation—shared influence among three factors, each originating change, occurring in a different order at different times—including the actions of others, the results of the actions of others, and their own experiences (Bandura, 1989). Personal factors in the form of cognition, affect, and biological events, including intellectual giftedness, autism, and self-efficacy, both affect and are affected by behavior and environmental factors (Pajares, 2002). This theory is important for twice-exceptional learners because it allows therapeutic efforts to be directed at any one or more of these factors. In a school, teachers and specialists are able to target strategies to improve a student's self-concept (personal factors), improve a student's academic skills and self-governing practices (behavior), and adjust school and classroom organization and systems that impair student achievement (environmental factors) in order to best serve all the needs of twice-exceptional students (Pajares, 2002).

Bandura (1989) described mechanisms of human agency, or the power that people hold to think and act in a way which shapes their experiences, through which one might affect change. These include attention, retention, reproduction, and motivation. The principle of attention simply states that an individual cannot learn if he is not focused on the task. The principle of retention claims an individual learns by internalizing his memories. The principle of reproduction says that an individual reproduces previously learned information. The principle of motivation claims that without motivation, an individual will not do anything (Bandura, 1989). This may have implications for the creation and implementation of programming for twice-exceptional students.

Summary of the Theories

Several theories were provided as a framework for this study. Historical models framed the concept of disability. Mitra's (2006) medical, social, and Nagi models of disability offered historical context focusing on what a person with a disability is unable to accomplish. Sen's (1993) capability approach offered historical context shifting the focus toward what a person with a disability is able to accomplish. Each of these theories informed Bandura. Bandura's theory of self-efficacy (1977) relied on the individual's belief in his own ability and greatly informed Bandura's social cognitive theory. Bandura's (1989) social cognitive theory demonstrated the learning patterns and settings ideal to meet the individualized needs of twice-exceptional students. This theory may have implications for 2e students as they navigate their specific learning programs and opportunities.

Related Literature

A wide-ranging review of the literature revealed three essential themes, all of which supported the need for additional learning programs to improve self-concept in students who are identified as intellectually gifted and having high functioning autism or Asperger's syndrome and are participating in academic learning programs. These themes include a concern with proper identification of twice-exceptional students, a gap in teacher training and implementation of learning programs to develop self-concept, and a gap in literature discussing specific effects of self-concept programs on twice-exceptional students.

Twice-Exceptional Students

The idea of intellectually gifted children who also experience learning differences was first introduced in 1973 by the Council for Exceptional Children (Baldwin et al., 2015). Until the mid-1990s, these students were simply referred to as intellectually gifted and learning disabled

(IG/LD), or by their specific disability, such as intellectually gifted with Asperger's syndrome (NAGC, 2020). Not until the 2004 Individuals with Disabilities Educational Improvement Act (IDEA) was reauthorized, acknowledging that students with disabilities can also be intellectually gifted, was there a legal affirmation of the existence of twice-exceptional students (Baldwin et al., 2015; IDEA, 2004). Even with legal recognition, each state and municipality are currently free to determine how to best educate twice-exceptional students. There is no consistent curriculum or funding for twice-exceptional education. This presents significant challenges to serving the needs of intellectually gifted students with high functioning autism or Asperger's syndrome.

For the purposes of this study, twice-exceptional (2e) students were students identified with intellectual giftedness (IG) or having an IQ at or above 130 (two standard deviations above average) and high functioning autism (HFA) or Asperger's syndrome (AS). In order to better serve students with high functioning autism or Asperger's syndrome and intellectual giftedness, it was important to first identify the gap in self-concept suffered by the groups. Once the gap is identified, interventions may be put into place to enable schools to better address the needs of twice-exceptional students.

Twice-exceptional students are often underserved. Because intellectually gifted students have a greater ability to mask their disabilities (Haelle, 2018), secondary exceptionalities frequently go unidentified, and therefore, unserved. Conversely, some students' disabilities mask their intelligence. Further, strengths and weaknesses can mask each other in individuals with disabilities (Cassidy et al., 2019; Matheson & Robinson, 2019; Silverman, 1993). Whether intellectual giftedness masks disability, disability masks intellectual giftedness, or intellectual giftedness and disability mask each other, the resulting disruption these students precipitate when

their needs are unmet is cause for concern and future research (Haelle, 2018). Describing the experiences of students who are identified as intellectually gifted and having high functioning autism or Asperger's syndrome will help schools meet the needs of students, justifying the need for further research.

Twice-Exceptional Students Incorrectly Identified

There is limited existing literature examining potential processes that contribute to disproportionality in identifying students for special education (learning disability) programs (Dever et al., 2016). Students who are high functioning, or intellectually gifted, are capable of masking behaviors and therefore, do not always receive the support they need (Haelle, 2018). It is not uncommon for these students to appear to have average ability because their strengths and weaknesses offset one another. As a result, these students may not qualify for gifted programs or special education programs (Haelle, 2018). Twice-exceptional students typically present in one of three categories which help explain why students are underserved: students whose giftedness masks their learning and thinking differences, students whose learning and thinking differences mask their giftedness, and students whose learning and thinking differences and giftedness mask each other (Katon et al., 1982; Rosen, 2020).

Students who score very well on tests for intellectual giftedness but underperform in gifted programs may have masked learning differences (Rosen, 2020). These students are able to compensate for their weaknesses by emphasizing their exceptional abilities in other areas. This is an instance where intellectual giftedness masks a student's secondary exceptionality. These students are typically identified as intellectually gifted at a young age. Unfortunately, as they get older, it becomes more difficult for them to compensate and they are often labeled as underachievers or lazy as they fall behind their gifted peers (Rosen, 2020).

Another category of masked behavior is students whose learning and thinking differences mask their intellectual giftedness (Rosen, 2020). Students' learning differences can affect their performance on gifted assessments. Since many of these assessments rely heavily on language skills, students with language-based disabilities do not perform well. Students may even be placed in special education programs to support their learning needs. This can sometimes lead to behavioral problems when students are not challenged and act out due to boredom. Moreover, these students are sometimes inappropriately identified with emotional problems (Rosen, 2020). This is an example of a student's disability masking his secondary exceptionality.

A third category of masked behavior can be identified when students appear to have average ability because their strengths and challenges offset one another. As a result, these students will likely not qualify for either gifted programming or for special education services (Haelle, 2018; Rosen, 2020). This is an example of exceptionalities masking one another. This is especially troublesome because these students often do not qualify for any services at all. The result can be students who act out in attention seeking behavior simply to gain stimulation (Arant, 2015).

Students who are identified as twice-exceptional are decidedly affected, both positively and negatively, both academically and socially, by their school environment (Rubenstein et al., 2015; Wormald et al., 2015). As the students age and mature, they begin to play an increasing role in the development of their own talents. This leads to increased success in masking. The identification process for twice-exceptionality is very much lacking and is an area for further research. The programming provided in schools and in the community affects both the academic and the social development of twice-exceptional children (Foley-Nicpon et al., 2015).

The Individuals with Disabilities Education Act (IDEA) protects students with disabilities. School districts are legally bound to identify and provide services to students who qualify for special education services. However, the same cannot be said for providing services to gifted students. Individual states and local governments make decisions about gifted programming. Funding varies wildly among municipalities. Schools are often too overwhelmed with meeting the needs of struggling learners that they do not always identify masked need for gifted services (Haelle, 2018; Rosen, 2020). Students may be placed in classrooms where they become bored and may begin acting out to seek stimulation (Arant, 2015). Because there is little consistency in funding, gifted programs suffer. For every $100 spent on educational programs in 2007, only $0.03 went toward gifted programming, while special education programs received $31.00 and No Child Left Behind programs received $57.00. This inconsistency in funding may limit the potential of the best and brightest students (Arant, 2015).

Within schools, students with high functioning autism or Asperger's syndrome could be considered eligible for special education programming under IDEA categories of Autism Spectrum Disorder or Other Health Impairment (Fogt et al, 2003; Safran, 2008). When parents present the school with an official diagnosis from a clinical psychologist and the IEP team determines eligibility for special education services under a special education classification, the student becomes eligible (Swisher, 2009). As a result, it is possible for a student to have a clinical diagnosis of ASD as well as an educational eligibility of Other Health Impairment based on the alignment with the IDEA defined eligibility for autism (Swisher, 2009). The National Education Association (NEA) emphasizes that programming for students with dual-exceptionalities must meet both the special education and gifted education needs of the learner. It is not uncommon, however, for a school to focus on the deficits of the student and ignore his

strengths. Notwithstanding, according to the NEA, emphasizing the child's strengths, while still addressing learning needs, is best practice (Josephson et al., 2018; Morin, 2020). Educators should consider and capitalize on the specific areas in which a student excels, specific topics of demonstrated knowledge, and masking behaviors. When educators emphasize a student's strengths, it boosts the student's self-concept and encourages the student to continue to work hard (Josephson et al., 2018). Educators can take advantage of a student's strengths by teaching according to his preferred modality. Another way a teacher can focus on the student's strengths is to appropriately challenge him. When instructors reduce the emphasis on a student's disabilities, students display an increased enthusiasm to undertake challenging projects, while emphasizing problem-solving techniques (Josephson et al., 2018).

Students receiving accommodation services for both intellectual giftedness and learning disabilities are often found to be underachievers (Elkind, 1973; Gallagher & Gallagher, 2016; Haelle, 2018; Neihart, 2000; Safran, 2008; Winebrenner, 2003; Wright, 2016; Zecker, 2016). Some hypothesize that this underachievement is due to reduced expectations from school, parents, or students, but no conclusive causal relationship has been established (Cohen et al., 1993; Haelle, 2018; Missett et al, 2016; Wormald et al., 2015). While it is true that intellectually gifted students often experience greater asynchrony in their social-emotional development than their neurotypical peers, the disparity is even more evident in twice-exceptional students (Josephson et al., 2018). These gaps lead to increased anxiety, low self-concept, and deficits in executive functioning due to the considerable discrepancies between their gifts and learning differences (Ferguson, 2015; Josephson et al., 2018). Attwood (2007) indicated the combination of mental exhaustion from navigating the school day and deficits in executive function (organizing, initiating, self-monitoring) as well as low self-concept (Foley-Nicpon et al., 2015)

may make completing homework aversive for students with high functioning autism or Asperger's syndrome. Additionally, twice-exceptional students who mask their disabilities may find as they grow older it becomes more challenging to compensate for their weaknesses and begin to fall behind (Rosen, 2020). These factors contribute to the problem of underachievement. Students with high functioning autism or Asperger's syndrome face myriad challenges and display equally demanding behaviors, which may impact their success regardless of environment, whether in the general education classroom or in a special education classroom.

Cross and Cross (2017) illuminated the issue of relying on parent and teacher recommendations for intellectually gifted and learning-disabled student identification. They asserted that the idea of subjective, anecdotal evidence is antiquated at best and reckless at worst. Dori et al. (2018) also emphasize the gender gap in student identification when left to subjective measures. Renzulli et al. (2014) offer, as a possible solution, a conversation about the Renzulli Learning System. This system, when properly utilized, offers both strategies for effective identification of 2e students, but also implementation of learning models. Naglieri and Ford (2015) discuss the Naglieri Non-Verbal assessment as a possible alternative to parent and teacher recommendations. Many assert that offering a universal screening assessment to all students would allow schools to eliminate bias and properly identify students who are intellectually gifted and learning-disabled at a young age. This would greatly reduce the prevalence of students masking their deficits with their giftedness, their giftedness with their deficits, or both their giftedness and their deficits with one another. The Naglieri is considered to be the premiere assessment because it eliminates gender, race, and language biases. In addition to identifying learners who are intellectually gifted and learning-disabled English language learners, it is

important to eliminate language bias in order to identify students with language-based challenges as a dual exceptionality.

Overexcitabilities

Twice-exceptional students may present with sensory concerns which result in sensory overload (Dabrowski, 1967). Students who are intellectually gifted often exhibit characteristics of overexcitabilities (Alias et al., 2013; Lind, 2011). These overexcitabilities are psychomotor, sensual, intellectual, imaginational, and emotional.

One of the more common overexcitabilities found in gifted identified children is psychomotor. This intensity can be misinterpreted as attention deficit/hyperactivity disorder in kids who are not sufficiently stimulated. These children often exhibit extreme competitiveness, compulsive organizing, compulsive talking, impulsive behavior, physical expression of emotions, preference for fast action and sports, nervous habits and tics, rapid speech, and sleeplessness (Alias et al., 2013; Lind, 2011).

Sensual overexcitabilities are characterized by profound awareness of all five senses. This intensity is associated with the utmost appreciation of beauty in art, writing, music, or nature; craving for pleasure; sensitivity to smells, tastes, or textures of food; or a tactile sensitivity and can be problematic if students over or under-eat or refuse to engage in activities which cause tactile discomfort (Alias et al., 2013; Lind, 2011).

Intellectual overexcitabilities may get students in trouble in school when their endless questioning may be misinterpreted as disrespect by teachers. These traits include asking probing questions; deep curiosity; analytical, theoretical, and independent thinking; ability to maintain concentration; love of knowledge and learning; fascination with problem solving; and avid reading (Alias et al., 2013; Lind, 2011).

Imaginational overexcitabilities can be problematic when overactive imaginations prevent students from taking chances. This intensity is characterized by vivid dreams (night-time or daydreams); detailed visualization; having imaginary friends; love of fantasy; love of drama, music, or poetry; and having a good sense of humor (Alias et al., 2013; Lind, 2011).

Emotional overexcitabilities are characterized by intense emotional sensitivity. Children with this intensity are sometimes mistakenly believed to have mental problems or disorders. Children with emotional overexcitabilities may show characteristics of anxiety, depression, emotional extremes, feelings of guilt and sense of responsibility, a heightened sense of right and wrong or injustice and hypocrisy, extreme physical response to emotions, difficultly adjusting to change, strong memory of feelings, need for security, concern for others, and irrational loneliness (Alias et al., 2013; Lind, 2011).

Common characteristics between Asperger's syndrome and giftedness

Students who are identified as intellectually gifted and students who have been diagnosed with high functioning autism or Asperger's syndrome experience many of the same characteristics (Boschi et al, 2016). Shared characteristics of Asperger's syndrome and intellectual giftedness include: verbal fluency or precocity (Winebrenner, 2003); demonstrating a fascination in a specialized topic (Hodge & Kemp, 2006); exceptional memories; obsession with letters or numbers (Clark, 1992); endless questioning; hypersensitivity to sensory stimuli (Baum et al., 2016; Neihart, 2000); and memorizing factual information at a young age (Attwood & Gray, 2016). Considering these shared characteristics, both parents and practitioners may be confused. Both students with autism spectrum disorder and students with intellectual giftedness often encounter asynchronous development when comparing cognitive development with social-emotional development (Altman, 1983). Whether high functioning autism or intellectually gifted,

students often become devoted to a single object or concept (Bianco, 2010). Intellectually gifted students may ramble about their latest devotion without realizing that others are not listening or are not interested - yet another common characteristic of students with Asperger's syndrome (Atwood, 2016; Bianco, 2010).

Emotionally, students with high functioning autism or Asperger's syndrome and students with intellectual giftedness may present nearly identically (Neihart, 2000). Practitioners in the context of early childhood may focus on age appropriate concerns (Winebrenner, 2003). In both groups, age appropriate temper tantrums are bettered by much more intense meltdowns (Attwood, 2007; Attwood & Gray, 2016). Both students with autism spectrum disorder and those who are intellectually gifted are characterized by high anxiety (Amend, 2009; Attwood, 2007). Both students with high functioning autism or Asperger's syndrome and intellectual giftedness are often inclined to challenge the social norm (Amend, 2009; Webb, 2000). Emotional characteristics are often indistinguishable.

Neurobiologically, both students with autism spectrum disorder or Asperger's syndrome and students with intellectual giftedness may have increased interconnectivity between areas of the brain, a surplus of synapses (Voit, 2020). Students with autism spectrum disorder, though, do not seem to go through typical "critical periods" in which the brain naturally expunges wasteful or unnecessary networks in order to make room for more essential connections (Voit, 2020). During these critical periods, the brain is more responsive to change. Students who are neurotypical have clear pathways and connections. Students with autism spectrum disorder have a maze of network correlations. This developmental difference may be what allows people with autism spectrum disorder to cultivate extraordinary observations and insights. In the case of twice-exceptional minds, those who are both intellectually gifted and have high functioning

autism, this motley brain wiring may also facilitate higher order abstract thinking and increased working memory (Voit, 2020). Yet, this brain wiring also explains why many of our twice-exceptional students go unidentified; they are simply unable to effectively communicate their intellectual strengths.

Academically, both students with autism spectrum disorder and students who are intellectually gifted frequently breeze through elementary understanding of mathematics, but struggle with the abstractness of high school curricula (Zecker, 2016). Another often-unanticipated common struggle between students with ASD and IG is their handwriting. Both groups of students, at times, present with nearly illegible handwriting (Manjiviona & Prior, 1995; Webb, 2000). This could be due to their visual-spatial learning modalities, the disparity of their thoughts as compared to the time it takes them to write thoughts down, poor eye-hand coordination, or even poor organizational skills (Webb, 2000). Identifying and serving the needs of twice-exceptional students can be a challenge.

Differences between Asperger's syndrome and giftedness

Even with all their similarities, differences between students with high functioning autism spectrum disorder and intellectual giftedness are many (Boschi et al., 2016). These differences may be categorized in different ways, but there are five primary categories of differences (Amend, 2009). One difference between students with autism spectrum disorder and intellectual giftedness is in motor skills. While students with high functioning autism or Asperger's syndrome tend to lack age-appropriate coordination, therefore avoiding team sports, students who are gifted are often well-coordinated and frequently show an interest in team-sports (Amend, 2009).

Memory and attention are other areas in which students with autism spectrum disorder and those with intellectual giftedness are similar but have identifiable differences. While both groups have excellent memory capability for facts and detailed information, typically students with autism spectrum disorder only remember information of specific interest, while students with intellectual giftedness are able to retain information about a variety of topics (Amend, 2009). Whereas both students with high functioning autism and intellectual giftedness display an intense focus, students with ASD tend to focus only on topics of interest. If distracted, students with intellectual giftedness are likely to return to their task with little or no redirection, while students with high functioning autism or Asperger's syndrome may have difficulty returning to a task even with redirection (Amend, 2009; Atwood, 2007; Neihart, 2000).

A primary difference between students with high functioning autism spectrum disorder or Asperger's syndrome and intellectual giftedness is behavioral; the manner by which they respond to disruptions in routines and itineraries (Neihart, 2000). Students with autism may experience a meltdown, actively or aggressively resisting change (Amend, 2009; Atwood, 2007), where intellectually gifted students likely passively resist, complain, and move on. Students with giftedness often question rules and structure, whereas students with autism spectrum disorder thrive on structure and adhere strictly to rules and routines (Amend, 2009). Stereotypical behaviors and tics such as flapping, rocking, and complex body movements are not present in students with intellectual giftedness, but are frequently present in students with autism spectrum disorder. Finally, students with intellectual giftedness become distressed when problems arise, while students with autism spectrum disorder may be unaware of a distressing situation (Amend, 2009; Atwood, 2007).

Another distinction between the groups falls in the area of speech and language. While both groups often have advanced vocabularies, students with autism spectrum disorder tend to have stilted, pedantic speech patterns, sometimes using advanced vocabulary without regard to context or connotation, while intellectually gifted students generally exhibit more fluid modes of conversation with a rich, expressive style of speech and use of elaborative techniques (Amend, 2009; Foley-Nicpon et al., 2015). Students with IG are able to consider and communicate abstract ideas, while students with ASD think and communicate concrete ideas using literal terms. Students who are intellectually gifted are able to understand and employ mature and socially reciprocal humor including irony and sarcasm. Conversely, students with HFA tend to misunderstand jokes involving social reciprocity (Amend, 2009). Gifted students are able to conduct a reciprocal conversation (Bianco, 2010). On the other hand, children with high functioning autism or Asperger's syndrome may not be capable of carrying on a reciprocal conversation even if the topic is of interest to them (Amend, 2009). This is, in part, due to the inability of students with autism spectrum disorder to understand humor or how to use humor appropriately (Gallagher & Gallagher, 2016). Lastly, students with intellectual giftedness are typically able to communicate concerns verbally, while students with autism spectrum disorder often communicate distress by acting out rather than with words (Amend, 2009; Atwood, 2007; Neihart, 2000).

A final, significant, difference between students exhibiting the two exceptionalities is social and emotional learning. Students who are gifted are often aware of their eccentricities and that others may view them as odd. These students are aware of social norms and are able to choose when these norms are important for them to adhere to. Students with autism spectrum disorder are typically unaware of how others perceive them and are indifferent to social norms

(Amend, 2009; Neihart, 2000). Students with intellectual giftedness engage others in conversation, are aware of the unique perspectives and viewpoints of others, and follow rules of social interaction. Students with autism spectrum disorder show significant difficulty initiating and engaging in conversation, assume everyone else shares their personal views, are unaware of social conventions and the reasoning behind them, and lack social insight (Amend, 2009; Neihart, 2000). Students with intellectual giftedness are typically aware of others' emotions and recognize others' feelings. They are able to read social situations and respond to social cues. Additionally, they show empathy for others and comfort friends in need. Students with autism spectrum disorder tend to exhibit inappropriate or immature emotions as well as a flat or restricted affect, have limited recognition or interest in the emotions of others, misread social cues, and typically do not show empathy or concern for the needs of others (Amend, 2009; Atwood, 2007).

Properly identifying twice-exceptional students can lead to the implementation of successful programming and changes in student performance. Comorbidity, or the simultaneous presence of two chronic conditions, is often overlooked in schools because it is difficult to identify 2e students who may be masking a learning disability with their strengths or overshadowing intellectually gifted characteristics with their specific learning disabilities (Burger-Veltmeijer et al., 2011; Councill & Fiedler, 2017). Continued research related to the role of self-concept and ability in the context of academic programming among twice-exceptional students must be conducted in order to meet the unique needs of these students (Foley-Nicpon et al., 2015). These studies indicate a need for further examination in proper identification techniques for 2e students.

Self-Concept

Self-concept is the collective sum of a person's thoughts and feelings about himself as an object (Bong & Skaalvik, 2003; Ferguson, 2015). A student's self-concept is developed through environmental experiences and especially influenced by environmental reinforcements (Bong & Skaalvik, 2003). Self-concept has come to be viewed as multidimensional perceptions of oneself. Perceived competence is a key component of students' motivation and learning (Bong & Skaalvik, 2003). There are five primary antecedents to self-concept identified by Skaalvik (1997): frames of reference, causal attributions, reflected appraisals from significant others, mastery experiences, and psychological centrality.

First, self-concept is significantly influenced by frames of reference, which are standards students use to judge their own attributes and achievements. Students utilize both internal and external frames of reference. Students make internal comparisons related to their own achievements on schoolwork. They compare achievements in different subjects at one time, compare achievements in the same subject over time, compare their achievements with their goals and aspirations, and compare their achievements in different subjects with their effort in each subject (Skaalvik & Skaalvik, 2002). Based on these internal comparisons, students draw conclusions on their strengths and weaknesses. Students also make four types of external comparisons: school-average ability, class average ability, selected students in class, and selected students outside of the class. Students place themselves on a continuum and compare where they are with their perceptions of where others lie. From these frames of reference, students form their own self-concept (Skaalvik & Skaalvik, 2002). One of the most significant sources of self-concept is social comparison. As a result, frames of reference play a critical role in the evolution of academic self-concept (Marsh, 1987).

Students also attribute their successes and failures to descriptive and affective features of their self-concept. Self-concept and attributions are reciprocally related. Attributions are a student's perceived cause of success or failure. Like frames of reference, causal attributions can be internal or external. For students, these types of causal attributions account for earlier successes and failures and lead to consequent self-concept. The self-concept that is formed affects later attributes (Skaalvik, 1997). Typically, students with internal causal attributions, those who believe they are responsible and in control of their successes and failures, have a greater sense of self-concept (Skaalvik, 1997).

Self-concept researchers claim people's views of us may be the most significant source of information we receive about ourselves. These views are called reflected appraisals from significant others. Mead's (1934) concept is that in communication, people take on the role of the other. The way students believe others see them is often a factor in how students perceive themselves (Mead, 1934).

Individuals' past experiences are used to develop self-schemas. These self-schemas process applicable information and experiences. Mastery experiences are the positive experiences students gain when they persist through a challenge and succeed. Skaalvik (1997) counseled that prior mastery experiences may be of equal importance in the formation of self-concept as self-efficacy (Bandura, 1986). Mastery experiences provide students with evidence that they can achieve their goals. The import of the mastery experience depends upon several factors: the difficulty of the task, pattern of success, amount of effort expended, amount of external aid received, and circumstances under which the task was performed. The more difficult the task, the more meaningful the student perceived the experience and, as a result, greater the self-efficacy boost (Skaalvik, 1997).

Rosenberg (1979) suggested that self-esteem, at its foundation, is based on self-assessments of characteristics perceived by psychologically central individuals as important. In other words, students' perceptions of how others they deem to be important view them can inform their sense of self-concept.

Teacher Training Gaps

Research indicates a need for more than simply a workshop or informal training in twice-exceptional education. Foley-Nicpon et al. (2015) found that students receiving accommodation services in both gifted programming and learning disabilities had no relationship to self-concept. The study suggested that having a high IQ can act as a buffer against self-concept issues. In other words, intellectually gifted students are less likely than their neurotypical peers to be negatively affected emotionally by their social deficits. This is an unexpected result and thus deserves further study. Barbot et al. (2016) were able to identify learning patterns of students who are at risk. Offering teachers training in these patterns may help schools better support 2e students with social-emotional learning programs to bolster self-concept.

School staff need more training in order to understand the characteristics of high functioning autism and Asperger's syndrome to consider them part of a developmental disorder students cannot control (Bauer, 1996). Bauer reported educators often label students with ASD as "manipulative" or "spoiled" when, in actuality, they respond differently to the world than NT students do. Bauer (1996) reiterated authority figures should avoid power struggles as rigidity may lead the twice-exceptional student to spiral out of control.

Schools should seek and find opportunities for teacher training in order to "unlock the mystery" that often characterizes intellectually gifted students (Councill & Fiedler, 2017; Ferguson, 2015). Most teachers do not have the necessary training to identify 2e students who

may be masking a learning disability with their strengths or overshadowing gifted characteristics with their specific learning disabilities (Councill & Fiedler, 2017). Renzulli (2014) offered a learning system that focuses on the strengths and opportunities for the whole child, focusing not only on the student's academic success, but also on gaining social-emotional competencies. Josephson et al. (2018) discussed the benefits on writing of learning strategy training for 2e students. There are opportunities for teacher training available if schools would utilize them.

Since gifted services are not considered under the same laws and mandates as special education services, it is common for the stakeholders to be different. Collaboration in both planning and instruction for twice-exceptional students should be a priority (Josephson et al., 2018). Twice-exceptional students should have a team working for them including the parent, classroom teacher, learning support teacher, and gifted teacher. This team is not only what is best for the 2e student, but will provide the support each teacher and team member needs in order to confidently and comfortably serve the needs of the student (Josephson et al., 2018). Collaborative planning and teaching will ensure the student's disability is addressed while also meeting the advanced needs of the student. Co-teaching is a strategy that requires additional professional development for the teachers involved. In this model, a special educator and a general educator teach together in the general education classroom during part or all of the instructional day in order to meet the needs of all students (Nevin & Cramer, 2006). While there is no shortage of educational material describing what co-teaching and planning should look like, there is a gap in the research on precisely how teachers become collaborative co-teachers. Research has just begun to consider the issues of planning, implementation, and assessment within a co-teaching classroom (Nevin & Cramer, 2006).

Research indicates relevant professional development trainings are a crucial component of building a healthy school culture. Campanelli (2014) proposed school administrators should consider delegating the PD planning to teacher leaders. Forming collaborative groups of teachers consisting of special education, gifted education, and general education would increase the effectiveness of the PD. Finally, Campanelli (2014) suggests schools form problem-solving groups to provide context and long-term support for sharing successes and opportunities for improvement.

Effective professional development yields benefit in teacher performance and in self-efficacy (Shulman & Armitage, 2005). The National Center for Educational Evaluation and Regional Assistance (2007) conducted a report on professional development effectiveness which showed significant gains in student achievement among students who met criteria for study inclusion. Ball and Even (2009) assert that it is time to eliminate resistance to acknowledging that teaching is hard work and with a system of reliable professional development, many can learn to do well.

These studies all indicate that more training is necessary in order for teachers to successfully implement social-emotional learning programs to bolster self-concept. Researchers note a link between the lack of teacher preparation for supporting students with ASD in the classroom and lack of self-concept toward their ability to support students on the spectrum (McGregor & Campbell, 2001; Sansosti & Sansosti, 2012). More specifically, Sansosti and Sansosti (2012) advocate for professional development to include three key components. These include an in-depth study of the instructional implications for students with ASD; assessment strategies to incorporate specific support accommodations; and a synopsis of research-based

strategies proven to be effective for improving behavioral, social-emotional, and academic outcomes for students with ASD included in general education classes.

Gap in Literature

Effects of gaps in research are not lost on educators. Baldwin et al. (2015) discussed a summit held by educational experts in order to evaluate gaps in research and the current effect on education. Educators and stake-holders determined next steps in supporting twice-exceptional students' capacity to grow and thrive. They focused on two established priorities. First, the identification procedures, interventions, and social-emotional health of 2e students. Committee members also created a universal national message to instruct 2e student policy including recognition and response to the needs of twice-exceptional students relying on evidence-based practices (Baldwin et al., 2015). Stakeholders agreed to meet regularly to discuss their two priorities and inform educators through publication of research articles (Baldwin et al., 2015).

As indicated, research is indecisive. Zecker's (2015) research offered no conclusive differences in self-concept between students with autism spectrum disorder (ASD) and specific learning disability (SLD) groups. However, the researchers did not study whether twice-exceptional students regard their intelligence differently than their gifted peers without diagnoses of ASD or SLD. What this means is that learning-disabled students may have social-emotional self-concept concerns when compared with their neurotypical peers. Customarily, students with ASD struggle in the area of self-concept. The results of this study are surprising and indicate a need for more research.

Students with high functioning autism or Asperger's syndrome often experience ASD related challenges in school. Deficits in social constructs and communication, narrow interests, inflexibility, and difficulty with organization and problem-solving (Smith-Myles et al., 2002) are

contributing factors. Barnhill (2001) noted social impairment, communication impairment, restricted range of interests and rigidity, motor clumsiness, academic difficulties, emotional difficulties, peculiar sensory responses, and theory-of-mind deficits as having the greatest impact on social functioning among students with AS. While these unique challenges are impactful, considering the central role of social relationships throughout the teenage years, Asperger's syndrome could potentially be the greatest cause of disability in adolescence (Barnhill, 2001). Minimal research has focused on the connection between these deficits, the impact of student behavior, and general education classroom experiences for both student and teacher. Moreover, the limited research has a mixed focus. Some literature focuses exclusively on students with an Asperger's syndrome diagnosis (Bayliss, 2011; Young & Mintz, 2008), while other studies include students from other areas of the autism spectrum (Crosland & Dunlap, 2012).

Navigating everyday tasks can be a challenge for a student with high functioning autism or Asperger's syndrome. Often teachers, when describing classroom issues encountered when working with a student with ASD, discuss difficulty turning in homework (Attwood, 2007). The research postulates that this is because for some reason, the student does not evaluate the task as part of the routine, which causes an increase in anxiety for the student (Attwood, 2007). For example, when questioned about why he didn't turn in his homework, a student explained to his specialist that the rules for turning in homework were ever changing; sometimes students were directed to turn in their work before class, sometimes at the end, and sometimes students were directed to hold on to it to review during the lesson; as a result, the student simply didn't turn it in at all (Attwood, 2007). Limitations in executive functioning and central coherence presumably contributed to a student apparently failing to comply with basic classroom expectations. In this

case, social-emotional learning programs would have aided the student in determining and implementing a strategy for what to do in this and similar scenarios.

While students with high functioning autism or Asperger's syndrome have an above average IQ, some struggle with listening comprehension, written language, math procedures, and math computations (Smith-Myles et al., 2002). Poor fine motor skills contribute to difficulty taking notes (Sansosti, 2010). Once again, completing homework can be an additional challenge for students with HFA or AS. The combination of being mentally exhausted from handling the everyday school situations in addition to maneuvering deficits in executive function could contribute to a student with high functioning autism or Asperger's syndrome's aversion to homework (Attwood, 2007).

Tantrums, aggression, and noncompliance create obstacles to general education placement and reduce opportunities for social development through peer interactions (Strain et al., 2011). Students with Asperger's syndrome often exhibit inflexible thinking (Attwood, 2007). Intense reactions and emotional outbursts in response to stress or frustration are also common (Williams, 2001). Uncertain structure of various settings can likewise be a catalyst for escalation in behavior.

Students with HFA or AS often exhibit challenges with verbal communication, including unusual speech patterns (Gillberg & Gillberg, 1989). This could include abnormalities in inflection, idiosyncratic use of words, too much or too little speech, lack of cohesion in conversation, or repetitive patterns of speech (Gillberg & Gillberg, 1989). Students with AS may also have significant struggles understanding messages of others presented orally and deriving logical meaning and solutions to standard, real-life problems (Atwood, 2007). These are areas

where specific social-emotional programming could aid a student's ability to function within a classroom environment.

Limited research has focused on the link between autism related social-emotional deficits, the impact of behavior, and the experiences in the classroom. Furthermore, the focus of the minimal literature is mixed; some focuses exclusively on those students with an Asperger's syndrome diagnosis (Bayliss, 2011; Young & Mintz, 2008), while other studies broaden the focus to students with autism spectrum disorder (Crosland & Dunlap, 2012; Walters, 2012). These studies and others highlight the need for more research in the area of effects of social-emotional learning on intellectually gifted students with Asperger's syndrome.

Summary

Several theories were provided as a framework for this study. Historical models framed the concept of disability. Bandura's social cognitive theory demonstrates the learning patterns and settings ideal to meet the individualized needs of twice-exceptional students. Each of the theories may have implications for 2e students as they navigate their specific learning programs and opportunities.

Existing research regarding twice-exceptional students has drastically expanded and advanced over time. In recent years, additional research has been published concerning students with dual exceptionalities, the barriers to inclusion for these students, and the impact of the exceptional characteristics of AS on the learning environment. Still, gaps in the research remain. Creating correlations in research between students identified as intellectually gifted and students with high functioning autism or Asperger's syndrome with supporting programming within the schools is preeminent to gleaning a more useful and complete understanding of what teachers need to better facilitate student growth.

Today, twice-exceptional students are held to the same rigorous standards and expected to reach growth milestones that are commensurate with the neurotypical student population. Challenges exhibited by twice-exceptional students provide insight into the barriers these students must persevere through. Schools must design programs to meet the individual needs of these students (Burger-Veltmeijer et al., 2016; Foley-Nicpon et al., 2015). Students with HFA or AS participating within general education classes present with tremendous strengths as well as potentially crippling challenges. Providing programming to meet the very specific and demanding needs of students with high functioning autism or Asperger's syndrome is critical in order for these students to have equal access to their education and, ultimately, to reach their potential (Foley-Nicpon et al., 2015).

A gap in the literature is present. While much research can be found about autism spectrum disorder and Asperger's syndrome, and much research can be found about intellectually gifted students, little research can be found about twice-exceptional students presenting with both HFA or AS and IG. The purpose of this phenomenological study is to describe the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. With little research focused on twice-exceptional students with high functioning autism or Asperger's syndrome and gifted education, this study will provide necessary information to current research concerning twice-exceptional student programming.

CHAPTER THREE: METHODS

Overview

The purpose of this phenomenological study was to describe the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. Proper identification of twice-exceptional students, teacher training and implementation of social-emotional programs to buttress self-concept, and effects of social-emotional learning programs to bolster self-concept on twice-exceptional students are the principal elements this researcher sought to understand (Foley-Nicpon et al., 2015). This chapter provides an overview of the research methods for this study. Moreover, a rationale is provided for the selected design with a participant selection summary and a site description. Methods for data collection and analysis are explained. It is concluded by explaining actions taken to ensure the ethical integrity and trustworthiness of the study.

Research Design

Phenomenology, at its core, is the science of pure phenomena (Groenewald, 2004). Transcendental phenomenology is a qualitative research method which focuses on the shared components of a lived experience, or phenomenon, within a specific group (Creswell & Poth, 2018). Therefore, a transcendental phenomenological study was chosen in order to study the experiences, behavior, and relationships (Moustakas, 1994) of twice-exceptional students. This method ensured the phenomenon was seen with a fresh lens and open to wherever the study lead (Creswell & Poth, 2018). The focus was to encapsulate the lived experiences of the group into the comprehensive meaning for the whole phenomenon (Creswell & Poth, 2018; Moustakas, 1994) of twice-exceptional students.

The transcendental phenomenological approach best fits the topic of understanding the lived experiences faced by students who are participating in academic programming in support of their exceptionalities. As in other types of qualitative research, phenomenology shares the goal of understanding how individuals construct their own realities (Gall et al., 2007). However, phenomenological research reduces the focus of one individual and instead points to the experiences as they relate to the whole group (Creswell & Poth, 2018). A transcendental phenomenology was used to view the participants anew, through their lived-experiences (Moustakas, 1994). The identification of the phenomenon was based on bracketing students' personal experiences compared to others who have lived the phenomenon (Creswell & Poth, 2018).

Upon identification of the phenomenon, lived experiences were compared with others who have experienced the phenomenon utilizing bracketing (Creswell & Poth, 2018). Personal judgement and prejudice were set aside and the phenomenon viewed with a fresh eye, working toward epoché, to focus on the analysis of the participants' lived experiences. After comparing experiences, the data seeking themes were explicated which formed both textural and structural descriptions (Creswell & Poth, 2018; Groenewald, 2004). The aim of the textural and structural descriptions was to construct understanding of the lived experiences (Moustakas, 1994) of twice-exceptional students participating in academic programming.

Research Questions

Research questions were aligned with the problem and purpose statements. Phenomenological questions were constructed clearly and concretely with social meaning and personal significance (Moustakas, 1994). The study was guided by the following central research question and three sub questions:

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Central Research Question

What are the experiences of students who have been identified as gifted and having high functioning autism or Asperger's syndrome?

Sub Question One

What does receiving a twice-exceptional identification mean in terms of self-concept for a student?

Sub Question Two

What does receiving a twice-exceptional identification mean in terms of academic experiences?

Sub Question Three

What does receiving a twice-exceptional identification mean in terms of social experiences?

Setting

The study was conducted primarily presenting students from a school district (SD, pseudonym) in southwest Florida, behavioral therapy centers, and the researcher's personal and professional contacts. The study was conducted in participants' homes or other neutral locations of the participants' preference. SD was comprised of nearly 96,000 students in three geographic zones within a county-wide school mega-district. The district included forty-five elementary schools, sixteen middle schools, four K-8 schools, fourteen high schools, seventeen special education centers and vocational or technical schools, and twenty-three public charter schools (SchoolMessengerPresence, 2020). The district was chosen for its quality and diversity. SD was made up of students from 150 countries, speaking 133 different languages. In fact, nearly 41,000

students in the District came from homes where English was not the primary spoken language. Within the District, 40.9% of students were Hispanic or Latino, 37.2% of students were white, 14.2% were black or African American, 5.8% were multi-racial, 1.8% were Asian, and 0.2% were Native American or Pacific Islander (SchoolMessengerPresence, 2020). Within SD, twice-exceptional students may participate in general education, special education, gifted education, or a combination of programs. SD was a diverse district with school choice, allowing students, parents, and teachers to make placement decisions based upon which schools offered the most appropriate programming for the needs of the students. The behavioral therapy centers were local Applied Behavior Analysis (ABA) therapy centers, serving students with special needs ages three through adult. Interviews were conducted through video-conferencing such as Zoom, Microsoft Teams, or the platform of the participants' preference or request. Participants were also given the choice to participate face-to-face, employing appropriate social-distancing, at neutral locations comfortable to the participants.

Participants

Creswell and Poth (2018) advise determining a common phenomenon as a central point of a participant's experience. The central phenomenon in this study was the experiences of students identified as intellectually gifted or having an intelligence quotient at or above 130 and having high functioning autism or Asperger's syndrome. Comorbid disabilities did not disqualify an individual from participation, as other disabilities are unrelated. Participants for this study were selected using a criterion sample technique. The necessary criterion were students who are identified as twice-exceptional and participating in learning programming. Because participants must be experienced in the phenomenon of twice-exceptional, purposeful sampling (Patton, 2002) was used to identify subjects. Purposeful sampling intentionally examined a group of

people that could best inform the researcher about the research problem under examination (Creswell, 2013). The researcher utilized personal and professional contacts to identify an initial purposeful sample. Snowball sampling, in which participants' parents shared the recruitment letter with parents of students they identified as potential information-rich participants, was utilized in order to vary the sample while still meeting the criteria.

Ten students receiving special education services were selected through criterion and snowball sampling to participate in the study. Each is identified by a pseudonym given by this researcher, with the exception of Jerry, who specifically requested his pseudonym.

Table 1

Participant Demographics

Pseudonym	Gender	Ethnicity	Age	Diploma/ Degree Program	1st Diagnosed/ Identified
Andrew	Male	White	21	Acting	Gifted
Belinda	Female	Hispanic	16	Cambridge AICE	Gifted
Charles	Male	White	16	Advanced Placement	Gifted
David	Male	White	21	Undecided	ASD
Jerry	Male	White	19	Math/Interdisciplinary Studies	ASD
Luke	Male	White	22	Mechatronics Engineering	ASD
Mark	Male	White	22	Ocean Engineering	Gifted
Mary	Female	White	21	Business	ASD
Ruben	Male	Hispanic	18	Firefighting Academy	ASD

Tanya	Female	Hispanic	22	Photography	Gifted

Samples were continued until thematic saturation was reached. Potential participants were identified through the researcher's personal and professional contacts. The number of participants was well within the sample size of 5-25 recommended by Creswell (1998) and three to ten recommended by Creswell and Creswell (2018). Exceptional Student Education (ESE) was chosen as the targeted area for several reasons. ESE teachers were trained in EP and IEP accommodations and programs. They were experts in their field and able to identify potential participants accurately. ESE teachers were familiar with coding and abbreviations and were comfortable completing surveys and answering questions, again increasing potential sample size. ESE teachers were trained to look for patterns of behaviors and would offer insight.

Procedures

According to Moustakas (1994), the procedures section is an organized, disciplined, and systematic instrument for drafting processes fundamental to the study. These procedures include securing Institutional Review Board (IRB) approval, eliciting participants for the study, gathering data, and recording procedures. Prior to data collection, approval was sought and granted from Liberty University (see Appendix A) and then a modification to expand the study was additionally sought and granted (see Appendix B).

Permissions

IRB approval was sought through Liberty University (see Appendix A and Appendix B). Processes were employed to gain this approval, including successful defense of the proposal, seeking approval for IRB through the dissertation chair, waiting for chair approval, completing IRB training modules, and completing the IRB application for Liberty University with

supporting documentation. This researcher then awaited either approval from the IRB or possible requested revisions. These steps helped ensure human rights were not violated during the research, review, and publishing process (Creswell & Creswell, 2018).

Recruitment Plan

A minimum of ten study participants were ideal to ensure a successful phenomenological study (Creswell & Poth, 2018). After approval from IRB was obtained, potential participants were then sought out. A recruitment letter was sent via email, obtaining contact information through personal and professional contacts, to special education teachers in SD, therapists, parents, and adult students sharing study information and requesting cooperation (see Appendix C and Appendix D) in identifying potential study participants. Parental informed consent and student assent forms (see Appendix H) and adult student consent forms (see Appendix I) were provided to potential participants and their parents or guardians as links in the recruitment letter. Since a minimum of ten participants were not gathered through this process, the snowball sampling strategy was utilized to identify additional potential participants. In this case, participants and their parents identified, through their contacts and experience, potential participants and offered contacts the recruitment letter.

Data Collection Plan

This researcher began by gathering data from twice-exceptional students who were participating in academic programming. Data collection was conducted through transcendental phenomenological approach utilizing parent or adult-student questionnaires, projective techniques such as self-portraits and bring three items, as well as an interview (Creswell & Creswell, 2018; Perry, 2018). IQ scores and medical diagnostics determining twice-exceptional status through the parent or adult-student questionnaire were obtained. Questionnaires can be

useful because they allow one to individualize interview questions for participants. One can uncover specific medical diagnoses, participants' strengths, as well as unique interventions or interventionists' characteristics which have been particularly successful (Perry, 2018). In addition to the questionnaire, students were asked to bring to the interview a projective piece of their choice. Students were given the option of creating a Bitmoji, avatar, or self-portrait and asked to describe in detail each specific attribute included. Specific template and instructions were included with the parent questionnaire. Interviews can also be useful because they allow the researcher to have more control over questioning, however, one could lose the benefit of the natural setting (Creswell & Poth, 2018). During the interview, the participant was asked to go and retrieve three items that he or she felt were important and to describe them to the researcher, including why they were important.

Recording Procedures

Recording procedures were developed to facilitate data explicitation (Groenewald, 2004, Moustakas, 1994). Video recording was utilized to chronicle exact responses of each participant during the interview process. Video of interviews were transcribed accurately and thoroughly (Creswell & Poth, 2018).

The Researcher's Role

As a teacher leader in the school district in which many participants attend school, as well as a co-chair of the gifted department in my specific school, serving students who are twice-exceptional with intellectual giftedness and high functioning autism or Asperger's syndrome, I attempted to remain intentionally cognizant of personal bias. As a mother of a gifted student who I strongly suspect also has Asperger's syndrome, as well as an educator with the best interest of

my students at the forefront, I have a vested interest in the applicability and efficacy of recommendations resulting from this study and worked to ensure reliable results.

I have no prior relationship with the participants in this study. I did not select students from within my classes, case list, or any students I already knew for participation in the study in order to reduce bias. In qualitative study, I function as an instrument of research. This refers to my role as an active respondent in the research process (Hammersley & Atkinson, 2007). Through my facilitative interaction with participants, I encouraged a safe environment to share lived-experiences (Owens, 2006).

Data Collection

The study consists of three types of data collection in order to glean comprehensive understanding of the studied experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. The primary source of data collection was student interviews. Parent questionnaires including instructions for a projective tool as well as three important items were utilized to triangulate and validate the findings (Patton, 2002).

Parent Questionnaires

Once identified and informed consent was granted, a parent or adult-student questionnaire was included which allowed for gathering of demographic information and solicit additional documents and parental comments (Patterson, et al., 2005). The questionnaire was disseminated using a Google Form.

The following open-ended questions were asked of adult participants and minor participants' parents:

1. What are (your/your child's) medical diagnoses and when were these received?

   a. (Were you/ was your child) identified as gifted or diagnosed with high functioning autism first?
   b. Why do you feel (you/your child) received the X (or Y) identification first and the Y (or X) identification second?
   c. How do you feel this timeline has affected (your/his/her) experiences (educational, social, emotional)?
2. Which characteristic behaviors and traits of giftedness, high functioning autism, or Asperger's syndrome do you observe in (yourself/your child)?
3. When you describe (yourself/your child), which identity do you use (gifted, high functioning autism, Asperger's, combination)?
4. Which characteristic behaviors or traits has a psychologist, counselor, or teacher mentioned with respect to academic, social, or behavioral goals?
5. What type of school (do you/does your child) attend (public, private, home school, etc.)?
6. In which type of classroom(s) (do you/does your child) participate (inclusion, resource, gifted, etc.)?
   a. What services (do you/does your child) receive? (IG/ESE/Speech and Language, etc.)
7. What is (your/your child's) ethnicity?
8. What is (your/your child's) age?
9. What is (your/your child's) grade in school?
10. How many siblings (do you/does your child) have?
11. What are their ages?
12. What are (your/your child's) strengths?

13. What are areas of weakness for (you/your child)?
14. What are the characteristics of teachers who have been effective with (your/your child's) needs?
15. Is there anything else you would like me to know about (you/your child)?

Interviews

The data gathered was used as part of the questionnaire to target interview questions to each participant. Each of the participants responded to an individual interview, allowing for meticulous response to each question or concept. Researchers suggest piloting interview questions with a participant not involved in the study for the purpose of refining research questions and adapting research procedures if necessary (Creswell & Creswell, 2018; Yin, 2014). Before the initial interviews, the interview questions were piloted with a student who met the requirements of the study, but was not a participant of the study. Following the interview, a special education teacher was asked to provide feedback regarding both the specific questions and the style of the interviewer. Based on the feedback offered, interview questions were adjusted to reflect the answers in the questionnaire and personalized the questions, but no substantive adjustments were made.

The semi-structured interview process was utilized to support the opportunity to explore the research questions as well as to probe unanticipated themes that arose through the semi-structured interview process. Merriam (2009) explained that semi-structured interviews often involve: a mix of more and less structured interview questions, flexible questions, recording specific data from all participants, and the bulk of the interview is guided by lists of questions to explore. Gall et al. (2006) suggest using the same predetermined wording and order of questions to reduce bias.

Participants were briefed on the purpose of the study, procedure of the interview, and the ability to stop the interview at any point (Creswell & Creswell, 2018). Each interview was conducted via electronic software such as Google Meets or Zoom, with video recording enabled, to be transcribed at a later date (Creswell & Creswell, 2018). The interviews lasted approximately 45-60 minutes and took place either at the participant's home or an alternate location comfortable to the participant.

The following open-ended interview questions were explored with student participants:

1. Please introduce yourself to me, as if we just met one another.
2. Please describe your identification of intellectual giftedness and high functioning autism or Asperger's syndrome.
3. Please describe your experiences with having HFA or Asperger's syndrome.
4. Please describe your experiences with the gifted program at your school.
5. Please describe your experiences in the special-education program at your school.
6. What types of things do you work on with your special-education teacher?
7. What have been your greatest successes in your 2e programs?
8. What types of instructional strategies have given you the greatest success?
9. What is your general attitude about yourself and your intelligence with regard to your gifted classes?
10. What is your general attitude about yourself and your intelligence with regard to your special-education classes?
11. What information do you wish your teacher knew about you?
12. Please list for me the accommodations you are allowed on classwork, homework, and tests.

13. How do you know which accommodations you have?
14. Who is your case manager?
15. When you consider various programs, are there some that you find to be more or less helpful to you than others? If so, please explain.
16. As a 2e student, are you ever asked for feedback in regard to which programs are helpful for you?
17. What resources do you feel you have access to that help you manage the social aspects of your HFA/AS in the classroom? Do you have support making friends, maintaining friendships, collaborating with peers, etc.?
18. What resources do you feel you are lacking that might help you manage the social aspects of your HFA/AS in the classroom?
19. When you describe your friends, what are their defining characteristics?
20. How has your giftedness affected you as a person?
21. How has your HFA/AS affected you as a person?
22. What else can you share about your experiences in 2e programming?
23. Would you please describe your self-portrait to me?
24. How did you choose your setting or background?
25. Why did you position your Bitmoji/avatar/self the way you did?
26. Is there anything else you would like to share with me about your self-portrait?
27. If you were to add a friend to your picture, who would you include and what characteristics would they have?
28. Now I'd like you to leave your computer for just a moment and go find me three items, objects, or things that are important to you. I'll wait right here. Bring the items back to

your computer.

29. Will you please describe your first object? Why did you choose to show me this object?
30. Will you please describe your second object? Why did you choose to show me this object?
31. Will you please describe your third object? Why did you choose to show me this object?
32. Is there anything else you would like to share with me about your objects?
33. We've covered a lot of ground in our conversation, and I so appreciate the time you've given to this. One final question… What else do you think would be important for me to know about your experiences at school?

The first question was designed to break the ice and build background knowledge on each participant (Gall, et al., 2006). The purpose of this question was simply to establish rapport and allow the participant to become comfortable answering questions (Gall, et al., 2006; Moustakas, 1994). This question set the tone for the remainder of the interview.

Questions two through eight sought to identify specific programming each student received and the participant's perceived success level of each program (Foley-Nicpon, et al., 2015). To further express each participant's understanding of his self-concept and ability, each was asked about his own perceptions. Questions nine through 11 investigated the student's self-concept and ability (Haelle, 2018). As each student discussed his perceived self-concept and ability, links to programming could have emerged (Gall, et al., 2006).

Questions 12-14 studied each participant's accommodations (Gallagher & Gallagher, 2016; Shriner & Ganguly, 2007; Ysseldyke, et al., 2001). The goal of these questions was to build understanding of supports offered, gaining insight toward questions 15-19, which spelled out each participant's perception regarding what programming was helpful (Haelle, 2018). These

two lines of questioning go hand in hand, first discussing what participants did followed by whether they believed it was helpful.

Questions 20-22 discussed each participant's perception of the effects of 2e on their lived experiences (Haelle, 2018). These questions supported the central research question: *What are the experiences of students who have been identified as intellectually gifted and having high functioning autism or Asperger's syndrome?* Question 21 wrapped-up this portion of the interview and allowed each participant to share anything else he found pertinent. Providing an opportunity for participants to add information may support previous questions and answers or allow elaboration on emerging themes (Creswell & Creswell, 2018; Gall, et al., 2006).

Questions 23-32 sought to address the Research Sub question 1: *What does receiving a twice-exceptional identification mean in terms of self-concept for a student?* Including information about the setting and positioning as well as descriptions of each aspect of the self-portrait would offer the researcher insight to the student's self-concept (Foley-Nicpon, et al., 2015).

Question 33 wrapped up the interview and allowed each participant to share anything else he found pertinent. Providing an opportunity for participants to add information may support previous questions and answers or allow elaboration on emerging themes (Creswell & Creswell, 2018; Gall, et al., 2006).

Projective Self-Portraits

In conjunction with the interview, participants were asked to complete a projective self-portrait (Patton, 2002; Parry, 2018). This third data collection method was used to understand participants' motivations and attitudes (Parry, 2018). Projective techniques were chosen for their

ability to expand participant engagement and boost participant enjoyment while bringing to light authentic impulses behind participants' behaviors and attitudes of self-concept (Parry, 2018)

The following directions were given to adult participants or parents for participants' projective self-portraits.

1. Choose a medium (drawing, painting, electronic—Bitmoji/avatar, etc.) to create a self-portrait.
2. Place yourself in a particular setting or background.
3. Create an image of yourself.
4. Describe, in detail, how and why you chose your setting.
5. Describe, in detail, how and why you chose your medium.
6. Describe, in detail, your image. Why did you include each component? Is there any special meaning for the things you chose to include?
7. Bring your self-portrait to our interview and be prepared to discuss it.

Data Analysis

Data consisting of questionnaires, self-portraits, three items, and interviews were collected and then analyzed for this study (see Appendix K). Creswell (2013) characterizes data analysis in qualitative research as preparing and organizing data, reducing data into themes through the development of codes and code condensing, and then depicting data in figures, tables, or discussion. Moustakas (1994) describes transcendental phenomenological analysis as involving four stages: the epoché, phenomenological reduction, imaginative variation, and meaning synthesizing.

Epoché

Moustakas (1994) advocates using self-reflection to reduce personal bias and preconceived notions. This method allowed this researcher to look at a phenomenon as if for the first time (Creswell & Poth, 2018). Interviews were recorded and transcribed verbatim (see Appendix J). Transcriptions denote trivial pauses and overlaps (Creswell, 2013). When completing interviews, this researcher safeguarded against influencing participant responses, ensuring the analysis reflected participants' experience by developing a rapport with the interviewees and maintaining neutrality during interviews (Patton, 2002). Recommended practices were utilized for constructing interview questions and conducting interviews (Dana et al., 1992; Merriam, 2009). Before the initial interviews, the interview questions were piloted with a student who met the requirements of the study, but was not a participant of the study. Following the interview, a special education teacher was asked to provide feedback regarding both the specific questions and the style of the interviewer. Based on the feedback offered, interview questions and style were adjusted. While true epoché is rarely achieved (Moustakas, 1994), through Husserl's concept of bracketing (Husserl, 1965; Creswell & Poth, 2018), reflective notes were used (Segen, 2011) to be able to both describe this researcher's own phenomenological experiences and bracket out personal views in order to reduce bias (see Appendix L). Member checks of both transcripts and conclusions were utilized after data analysis to ensure no misinterpretation the participants' reporting or major themes (Creswell & Creswell, 2018; Creswell & Poth, 2018).

Phenomenological Reduction

Using Husserl's (1965) reduction, no position was taken with respect to the existential reality of what was observed. This researcher simply witnessed and described the phenomenon

(Moustakas, 1994). The use of qualitative data analysis software (QDAS) supported data management and analysis of data gathered through interviews using open ended questions, self-portraits, three items, and parent questionnaires (Woods et al., 2015) (See Table 6). A software program designed to facilitate qualitative research, NVivo, was used to conduct data analysis, or explicitation (Groenewald, 2004). NVivo allowed data to be scrutinized to explore relationships through analysis, with reduced bias. Phenomenological reduction was performed to cull the textural descriptions, or meaning and essence of the experience, to produce overarching themes (Moustakas, 1994). The purpose of the study and research questions were considered in order to extract the themes (Creswell & Poth, 2018).

Imaginative Variation

This researcher sought the themes that best answered the central research question. In order to achieve this, Husserl (1965) suggests the free play of fancy, which is to seek all possible meanings through using the researcher's imagination and approaching the phenomenon from a variety of perspectives (Moustakas, 1994). Horizonalization was used to give equal value to significant statements (Creswell & Poth, 2018; Moustakas, 1994). Each emergent topic, idea, and pattern of meaning was coded. Common themes emerged, offering clusters of meanings (Creswell & Poth, 2018; Moustakas, 1994). Each emerging theme was examined to search for possible connections between the role of self-concept and ability in twice-exceptional students (Creswell & Creswell, 2018).

Table 6

Significant Word Frequency

Word	Count	Similar Words
gifted	367	bright, capable, gifted, smart
autism	242	ASD, autism, autism spectrum disorder, autistic, on the spectrum
Asperger's	239	AS, Asperger's syndrome

school	236	class, classes, college, high school, schools, university, universities
diagnosis	156	diagnose, diagnosis, label, tested
identification	130	classification, classify, diagnosis, identify, identification, label, tested
friends	72	acquaintance, classmates, friend, friendly, friends, peers
family	69	brother, brothers, families, family, parent, parents, parents', sister, sisters, step-dad, step-mom, step-sister
struggle	61	challenge, difficulties, opportunities, struggles, trouble
characteristics	54	attributes, characteristics, mannerisms, symptom, symptoms
education	54	educate, education, learn, learning, professor, teach, teacher
creative	52	creative, creativity, imagination, originality
services	51	help, program, services, special education class, specialist
behaviors	49	behaviors, idiosyncrasies, quirks
strengths	48	strength, strengths
concerns	47	area of concern, area of opportunity, concerns, weakness, weaknesses
speech	42	articulate, communicate, communication, language, pronunciation, speech

Synthesis of Meaning

Structural descriptions explaining the "how" epitome of personal experiences as the researcher, and textural descriptions, the "what" descriptions of each participant's experiences, were synthesized to construct the meaning and essence of the lived experiences of the participants through a composite description (Creswell & Poth, 2018; Husserl, 1965; Moustakas, 1994). The composite description of the essence of the experience of the phenomenon was then compared to the related data to ensure authentic representation (Creswell & Creswell, 2018).

Trustworthiness

Trustworthiness in transcendental phenomenology can be assured through quality data collection and reporting. Interview questions, first, were pilot tested before utilization in the study. Interviews were recorded and transcribed verbatim. Transcriptions denoted trivial pauses and overlaps (Creswell, 2013). When completing interviews, this researcher safeguarded against

influencing participant responses, ensuring the analysis reflected participants' experience by developing a rapport with the interviewees and maintaining neutrality during interviews (Patton, 2002). Recommended practices were utilized for constructing interview questions and conducting interviews (Dana et al, 1992; and Merriam, 2009). Interview questions were piloted and both questions and style were adjusted based on feedback (Creswell & Creswell, 2018; Yin, 2014).

Credibility

Credibility is the level of confidence that can be placed in the truth of the research findings (Lincoln & Guba, 1985). To ensure credibility, data was triangulated (Lincoln & Guba, 1985) through the completion of semi-structured interviews, projective self-portraits, three items, and parent questionnaires. These methods ensured this researcher delved deeply enough into the research to thoroughly understand the role of programming and that findings were consistent with data collected. Member checks of both transcripts and conclusions after data analysis were also completed with two participants to ensure no misinterpretation of the participants' reporting or major themes (Moustakas, 1994; Creswell & Creswell, 2018; Creswell & Poth, 2018). Two participants were chosen in order to reduce demands on participants' time while ensuring correct interpretation of themes (Creswell & Creswell, 2018). Participants were asked to read the results and analysis section and respond to the following questions:

- Does the interpretation match your experience? Please explain.
- As you read the results and analysis, what were your reactions? Did anything stand out?
- Are there any other questions, comments, or suggestions you would like to ask or make related to your experience?

Dependability and Confirmability

Dependability is represented by the stability of the findings over time (Lincoln & Guba, 1985), while confirmability is the degree to which the findings of the research study are able to be confirmed by other researchers (Lincoln & Guba, 1985). To ensure data were consistent and dependable, an audit trail was conducted, describing with great transparency each research step taken. Research records were kept through the duration of the study. It also ensured the audience would regard the findings as meaningful and important (Merriam, 2009).

Transferability

Transferability is the degree to which the results of the qualitative study can be transferred to other contexts with other respondents (Lincoln & Guba, 1985). In order to establish transferability, it was confirmed that the participants were experienced with twice-exceptional education as students. An adequate number of study participants were ensured to reach thematic saturation so findings could be stated with confidence. Maximum variation was sought in the sample. Diversity was sought in gender, ethnicity, and grade level in order to account for maximum variation in the sample, enhancing the transferability. The results included relevant and rich, or thick, descriptors (Lincoln & Guba, 1985).

Ethical Considerations

As a teacher leader as well as a co-chair of the gifted department serving students who were twice-exceptional, with giftedness and high functioning autism or Asperger's syndrome, this researcher attempted to remain intentionally cognizant of personal bias. This researcher has a vested interest in the applicability and efficacy of recommendations resulting from this study and worked to ensure reliable results.

Ethics in qualitative research are the responsibility of the researcher. Merriam (2009) asserted the validity and reliability of a study depends on the ethics of the investigator. The degree to which the researcher upholds rigor in the research is the degree to which said research will be respected. Patton (2002) described complementary precepts as credibility. Patton emphasized a foundation of ethical principles as upholding high standards in research. Patton offered an Ethical Issues Checklist, identifying ten items to be considered when conducting qualitative research. These include: the considerations of risk involved for the researcher and participants, confidentiality of research, informed consent, data access and ownership, interviewer mental health, data collection boundaries, and ethical versus legal conduct. In this study, risk was minimized by following ethical practices. Confidentiality was established and maintained through the use of site and participant pseudonyms. Informed consent was obtained from parents. Informed assent was obtained from students. Data access and ownership security was maintained through locked file drawers and electronic passkeys. Interviewer's mental health, ethical, and legal considerations were established by the ethics committee.

When conducting research with human subjects, adherence to ethical principles is inflexible. Before beginning research, the proposal was reviewed and approved by the Institutional Review Board (IRB). In doing so, the IRB, and dissertation committee were assured the researcher would uphold the ethics of research and maintain the approved format of the study.

Summary

This chapter provided an overview of the methods for this transcendental phenomenological study which explored the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome, through the lens of the

student. A central research question and three sub questions relating to twice-exceptional students framed the design. A site was identified by the participants' availability. The ten or more participants desired for this study were identified using purposeful criterion sampling and snowball sampling techniques. Procedures were described for securing IRB approval and site permission, eliciting study participants, gathering data, and awareness of recording procedures to facilitate data analysis. The researcher's role was established to reduce study bias.

The semi-structured interview format was used for this transcendental phenomenological research study. Interview questions were developed using practices supported by Dana, et al. (1992) and Merriam (2009). Data were triangulated using analysis of interviews, projective techniques, three items, and parent questionnaires in order to ensure credibility and validity of the data analysis. Data analysis was conducted utilizing Moustakas's (1994) epoché, phenomenological reduction, imaginative variation, and meaning synthesizing. Trustworthiness was established through credibility, dependability, confirmability, and transferability (Creswell and Creswell, 2018). Ethical considerations have been considered and measures were taken throughout the study to hold to the ethical standards (Creswell & Creswell, 2018; Moustakas, 1994).

CHAPTER FOUR: FINDINGS

Overview

The purpose of this transcendental phenomenological study was to describe the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome. A total of 10 participants were selected to represent the perspectives of twice-exceptional students. This chapter introduces results from the study through the research questions, questionnaires, projective self-portraits, bring-three-items, and interviews. The chapter presents the emerging themes in the context of the research questions, which were aligned with the theoretical framework used for this study. Summary findings identify both textual and structural descriptions of the lived-experiences of twice-exceptional students.

Participants

This study included twice-exceptional students of different ethnic and social backgrounds who shared the common experience of both being identified as intellectually gifted and diagnosed with high functioning autism or Asperger's syndrome. This study is made up of 10 participants who met the research criteria and were willing to participate. The participants all conformed to the necessary eligibility specifications: were between the ages of 13 and 22 years old, were identified as intellectually gifted or had an intelligence quotient of at least 130, and were diagnosed with high functioning autism or Asperger's syndrome. Participants included seven males and three females between the ages of 13 and 22 years old. Seven participants were white and three were Hispanic. Three participants were high school students and seven participants were college students. All participants were enrolled in an advanced diploma program or a degree-seeking undergraduate program at the time of their participation.

Participants came from various backgrounds, each with a unique educational experience which provided the contextual framework for their unique insights into the phenomenon.

Table 2
Participants

Pseudonym	Age	Ethnicity	Identification/ Diagnosis(es)	Services
Andrew	21	White	Gifted/ASD/Manic Depressive/ Bipolar Disorder	Speech/Gifted
Belinda	16	Hispanic	Gifted/Anxiety/Clinical Depression/Narcolepsy with Cataplexy/AS	Gifted
Charles	16	White	Gifted/ASD/ADHD/ Anxiety/Depression	Gifted
David	21	White	AS/Gifted	Speech/Gifted
Jerry	19	White	ASD/Gifted	Speech/Gifted
Luke	22	White	AS/Gifted	ESE/Speech/ OT/Gifted
Mark	22	White	Gifted/AS	Speech/Gifted
Mary	21	White	ASD/Gifted	Speech/PT/OT/ESE
Ruben	18	Hispanic	AS/Gifted	Speech/Gifted
Tanya	22	Hispanic	Gifted/ASD/OCD/ PTSD/Anxiety	Gifted

Participants shared their experiences in the format of a screening survey, an interview, a projective self-portrait, and a bring three items exercise. Two students completed the member-checks of the individual interview transcripts, both of whom affirmed the accuracy and completeness of the transcripts. Participant quotes were taken from the participants' individual interview transcripts or screening surveys and were presented verbatim.

Andrew

Andrew was a 21-year-old white male college student from southwest Florida. He attended an acting conservatory in Pennsylvania and had been in print and television commercials as well as theater productions. Andrew was identified as gifted in early elementary school and diagnosed with ASD with bipolar disorder at around age 10. Andrew was struggling to finish college on time. He failed two core classes during the current semester, as his organizational skills were lacking and when he got an acting job, his focus shifted from his schoolwork. Even at an acting conservatory where there were procedures for course completion while working, Andrew had struggled in this area. When asked about his defining characteristics, Andrew stated,

> Being an actor, I am really good at masking who I am. Or, maybe I learned to be good at masking and that's why I'm a good actor. Socially, I can feel upset yet not know why or even show that I'm upset, but it can be due to overstimulation. It was really weird being in school and feeling mentally broken or like I needed something more to act the same as everyone else. Academically, I'm crazy good at science because I can memorize anything with little or no effort. One of my stims is to walk around the pool reciting what I've read. I am hyper-focused and tend to perseverate on things. This was always helpful in school and now is crazy helpful in acting. It's a combination of my ASD, bipolar, and giftedness. My kind of crazy is also my greatest gift.

Belinda

Belinda was a 16-year-old Hispanic female high school student from southwest Florida. She was taking Advanced Placement (AP) and Cambridge Advanced International Certificate of Education (AICE) classes at her public high school. At the age of five, Belinda was identified as

exceptionally gifted, scoring 170+ on an IQ test. At age 13, Belinda was diagnosed with Narcolepsy with Cataplexy. At age 14, she was diagnosed with severe anxiety and clinical depression. Finally, at age 15, Belinda was diagnosed with autism spectrum disorder. She had an eidetic memory, with the ability to recall words and images effortlessly. Although she was making progress, Belinda had difficulty with social situations. She reported that she really did not have friends. She struggled with relationships and when peers did not agree with her impassioned viewpoints, Belinda shut out her peers and ended the relationship. Belinda had tics, such as pulling out her right eyebrow, rocking, and eloping (abruptly leaving a secure location—classroom—and running up and down the halls). Belinda had poor organizational skills, which hindered her ability to be successful in school. She struggled academically when she failed to complete work that she did not find to be valuable. Even though Belinda knew the information and passed her exams, she was failing several courses, as she simply did not do anything if she did not find it personally fulfilling; including homework or classwork. When asked about her defining characteristics, Belinda said,

> My quote un-quote giftedness has nothing to do with me as a person. It has no relevance on me or on my character. It's an arbitrary, man-made number. My Asperger's, though, has absolutely affected me on a fundamental level. But I couldn't tell you how it has, because it is so fundamental to me as a person, that without it, I would have been different at a basal level. I can't even postulate, I can't even put it into words at all, absolutely not.

Belinda was involved in community advocacy groups and would like to become a mosquito researcher, seeking a solution for the problem of disease and even nuisance bites without eradicating the species and destroying the ecosystem.

Charles

Charles was a 16-year-old white male high school sophomore. He was enrolled in advanced and AP courses and was very successful academically. Charles was exceptional in the area of mathematics and often struggled with teachers over the idea of showing his work. He felt as though if he understood how to solve a problem in his head, he should be allowed to do so. Charles had learned tools for interacting with people, but struggled with learning and applying the rules for social norms. When asked about his defining characteristics, Charles said,

> My giftedness is really an aid to my AS. I don't always know the rules, but I'm good at memorization and once I learn the rules I'm good at following them. I still have a hard time with jokes and certain sarcasm, but I'm getting better with that, too. My biggest struggle is my insistence on maintaining a schedule. I am cognitively aware that my rigid routine can't always work, but, I don't know, I have a really hard time with change.

David

David was a 21-year-old white male college sophomore who was unsure of his future career path. He was diagnosed with AS at age four and giftedness in upper elementary school. David was a strong student, always taking honors level courses. When asked about his defining characteristics, David said,

> I feel like my Asperger's has had a huge impact on every one of my experiences. It was definitely a struggle fitting in socially through middle school. I would often act out in class and was bullied for it. In high school I really got it together. I was accepted by most of my peers and participated in many social activities including sports, orchestra, the school news, and the school's actors' society. I think forcing myself into multiple settings

> where I was constantly surrounded by and interacting with my peers has helped me learn the rules of how to fit-in in a social setting.

Jerry

Jerry was a 19-year-old white male college freshman, double majoring in math and interdisciplinary studies, combining computer science and physical sciences at a large Christian university in Virginia. His ultimate goal was to go to graduate school and develop a career in quantum computing. He was diagnosed with Asperger's Syndrome at age four. Jerry bounced around every couple of years among public schools in his district, trying to find the best fit, until finally one teacher pointed out that he had strong gifted tendencies. Throughout elementary school, he participated in speech classes, special education resource classes, inclusion classes, then gifted classes when he was identified as gifted in fifth grade. In middle school, Jerry moved to a private, Christian school where he found much success. He generally participated in classes a grade-level ahead of his peers. When asked about his defining characteristics, Jerry stated,

> I think there comes problems with communication as outlined. My brain is fundamentally different in ways that I don't think a ton of people understand. And I think it's about, how do I word this? It's something in people's minds that goes, 'You probably think just like me.' I mean regardless of neurotypical or autistic, or whatever, people just assume that other people will think almost exactly like them. But that difference is a lot more noticeable when you're on the spectrum. So, I think people more consciously notice, like, wait, hold on, you're not navigating this the same way I am, and it really impacts communication.

Luke

Luke was a 22-year-old white male college senior, studying mechatronics engineering, or robotics, at a medium-sized university in Georgia. At the age of six, Luke's parents were told that Luke had ASD, was severely disabled, and that he would never be able to do things that other kids do, like graduate high school or go to college. Luke's parents chose to homeschool him through fourth grade, allowing more time for various therapies. When Luke was in fifth grade, his parents agreed to allow him to attend public school. Luke's teachers were impressed with his abilities and suggested that he be tested for giftedness. Luke took part in an inclusion classroom, with pull-out speech, OT, ESE, and gifted services. When asked about his defining characteristics, Luke said,

> Well, sometimes I may not understand something, I need a different explanation for some things. And I need to see something in order to understand a new concept. For example, when I'm learning new formulas, I need to be shown how it can be used, you know? And sometimes I talk weird, or probably not talk plainly, or may not talk normally, but I just try to do my best. In the end, I try to understand something by just seeing it in my head and then doing it, and trying to see where else I can apply the same concept. My disability forces me to think about things differently and in the end, I usually understand them better than others do.

Mark

Mark was a 22-year-old white male college senior, studying engineering at a state university in Florida. He would require at least three additional semesters to graduate. He attended public school for kindergarten through sixth grade and then public charter school for seventh through 12th grade. Mark began receiving speech therapy in second grade and was

identified as gifted in third grade. He received part-time gifted services through a pull-out program once weekly throughout elementary school. In sixth grade, Mark received a medical diagnosis of high functioning autism. He found his full-time gifted program to be highly competitive, rather than nurturing. Mark's parents moved him to a public charter school where he attended a STEM academy through graduation. Mark's specific strengths were in mathematics; engineering; and science, specifically physics, chemistry, and material science. He struggled with social interaction and reported feeling very alone and disconnected. He stated that his only real friend was his sister. Mark planned to be an ocean engineer, which is a type of systems engineer, combining mechanical, electrical, and computer engineering with submarine systems. When asked about his defining characteristics, Mark stated,

> As far as gifted, I am able to adjust my way of thinking to fit the scenario, for what I'm doing. This, actually, is one of the driving forces of why I chose my major within engineering. On the flip side, I have a very bad tendency to overthink things. As far as the Asperger's, I have a sense that I am isolated. I feel a lot that I am abnormal and am an outsider. I desperately want to be considered normal and belong, but always feel other. It takes me longer to understand things than my peers, sometimes, but when I do I can use that knowledge in more unique ways and make connections that are more outside of the box. My Asperger's actually makes me more gifted.

Mary

Mary was a female 21-year-old white college sophomore in southwest Florida. She was diagnosed with AS in elementary school and received services in speech, PT, OT, and ESE resource for second and third grade. By middle school, Mary was excelling in her classes and was tested for giftedness, though due to her struggles, she opted out of the full-time gifted

program and chose a part-time pull-out program. Mary walked on her toes and had difficulty with slow reflexes. She struggled with interpreting information, facial recognition, and social skills such as humor. Mary tended to be disorganized and procrastinated. When she became overwhelmed, she tended to elope and had struggled academically as a result. Additionally, Mary was a determined learner and deep thinker. When she was interested in a topic, she excelled. When asked about her defining characteristics, Mary said,

> I just think that for so long my education was about what I couldn't do, you know, my struggles, therapies. Nobody ever stopped to think I might actually be smart. I might be able to do stuff. I can think. I just don't always choose to! Sometimes it's just easier to allow people to assume I can't do something and let someone else do it. I may play the system a little bit.

Ruben

Ruben was a male 18-year-old Hispanic high school senior, dual-enrolled through the local college in an Emergency Medical Technician (EMT) certification program. Ultimately, he wished to go on and earn his firefighter certifications and his EMT-Paramedic license. Ruben was diagnosed with HFA when he was five. He liked the idea of being an EMT because the profession demands critical thinking and sometimes out of the box thinking, while in a structured environment full of rules. When asked about his defining characteristics, Ruben said,

> Basically, the way I think. Sometimes when people ask me a question I don't really get what they're really asking, I mean what they're trying to imply. I just don't get when the question isn't asking what it seems to be asking. My speech class helped me a lot with this, though. Sometimes I know the answer to a question, but I just can't put it into words, so my turn-of-phrase can be a little odd sometimes. When I'm an EMT, if I ask a

> question, the answer will be straight forward. You know, when someone's been in a car accident they tell you where they're hurt or they don't get the help they need. There are rules.

Tanya

Tanya was a female 21-year-old Hispanic college junior. She was studying photography at a conservatory in Pennsylvania. She was identified as gifted in early elementary school and then diagnosed with ASD, OCD, and PTSD. Tanya excelled in the arts and free thinking, but struggled with concentration, attention, and stress management. When asked about her defining characteristics, Tanya said,

> I think gifted is a broad term used to describe kids who excel in creative and interpersonal ways. And often times in society girls that show early signs of anything are often overlooked because of the expectation that falls upon us to be care takers and strong. My ASD makes me struggle to concentrate and manage stress, but I am also super creative. My creativity is a perfect meld of my ASD, OCD, and giftedness.

Results

This study was guided by the central question: What are the experiences of students who have been identified as intellectually gifted and having high functioning autism or Asperger's syndrome? Because participants must be experienced in the phenomenon of twice-exceptional, purposeful sampling (Patton, 2002) was used to identify subjects. Purposeful sampling intentionally examined a group of people that could best inform this researcher about the research problem under examination (Creswell, 2013). Personal and professional contacts were utilized to identify an initial purposeful sample. Snowball sampling was utilized in which adult participants or minor participants' parents shared the recruitment letter with adult students or

parents of students they identified as potential information-rich participants, in order to vary the sample while still meeting the criteria. The results of this study were presented through structural analysis, as recommended by Moustakas (1994). The process of data analysis included four stages: the epoché, phenomenological reduction, imaginative variation, and meaning synthesizing as described by Moustakas (1994). After reviewing screening questionnaires, completing individual interviews, analyzing projective self-portraits, and evaluating bring three items, four primary themes were developed in consonance with the theoretical foundations of self-concept, academic experiences, and social experiences.

Table 3

Themes and Subthemes for all Data Sources

Theme	Subthemes
Social Context and Self-Concept	Academic programming Social programming
Relationships	Family Friends
Academic Self-Efficacy	Factors influencing self-efficacy Coping skills
Challenges to Academic Success	Giftedness AS/HFA Comorbidities

Social Context and Self-Concept

The first salient theme was the finding that students gained self-concept through their social experiences. Two subthemes included academic programming and social programming. Students whose academic needs were met felt that they were smart and could learn new things. Jerry asserted, “I have a love of learning. I even do homework for fun.” Andrew confirmed, “school was always the one thing I do really well.” Jerry affirmed, “I took a lot of hard classes in

school, and I continue to do so now in college. I'm smart and it makes sense to push myself." Students whose learning needs are overshadowed, though, often feel doubtful of their academic abilities. Mary's programming was primarily in the area of her ASD. Her special education classes focused on her disability. Mary reported that school was always difficult for her and that she struggled with her coursework. "School is hard for me, it's really not my thing. I know it's important for my future, but I really wish I could just skip that step and move on to the rest of my life." The same can be said for social needs. Students whose social learning needs are being met feel as though they are good at making friends and feel comfortable in their own situations. David articulated, "I received years of therapy to work on social skills as well as motor skills…by high school I was accepted by most of my peers and did many social activities." Ruben reported meeting most of his friends through his speech and ESE classes. "I met some long-time friends through speech and regular classroom settings." Conversely, those whose social needs are eclipsed by their learning needs often do not receive the support they need. Mary reported,

> Social interactions were difficult for me growing up, they still are now. I really struggled to understand the social aspects of the teenage years. Just when I felt I was getting it; social norms and expectations would change and the rules would be different. I always felt out of place, like I never really belonged anywhere.

Academic Programming

Twice-exceptional students often feel as though the educational system is not built for them. Academic programming is based on their giftedness or need for ESE services, but not both. When asked about her experiences in the classroom, having HFA, Tanya stated, "I was in gifted classes and academically I felt like I understood what was being said, but the way that

school was structured and lessons were taught were for a very small select group of neurotypical students." Tanya went on to say that, since school was easy for her, she was just expected to be able to find ways to help herself with organizational strategies and work on filling in her own learning gaps. Mark elaborated, "The gifted program was full of very motivated, competitive students who weren't interested in differences, only domination." Mark felt very isolated from his peers. Eventually, he even left the school to find a place where he could fit in more successfully. Belinda emphasized this point, "The school system just serves to reinforce that people who don't learn the way that most learn are, like, somehow lesser than everyone else." Belinda had little to no social interaction at school. She had found a community of support through her therapist.

Social Programming

Twice-exceptional students oftentimes participate in programming that aids in social acclimation. Social programming is regularly designed to meet the needs of students with ASD, but students with giftedness are expected to learn socialization on their own. When asked to describe the benefits of his programs, Ruben stated,

> In elementary and middle-school I would spend quite a lot of time outside of the general-education classroom and met some long-time friends in speech and special classroom situations. Then when I graduated from speech therapy, all of those services just stopped; I was on my own from then on. I could have really used some continued support.

Mary participated in speech and language programming, which doubled as a way to meet friends and work on social skills. She reported having met her best friend through this program. Conversely, Tanya received only programming for her giftedness. She struggled to build friendships while she was young. Her anxiety and OCD were often too much for other students

to understand. She reported wishing she had participated in a program to help her with socialization.

Regardless of whether they received programming for socialization, nine out of 10 participants struggled during the discussion about their self-portraits. It was asked of them if they were to include a friend, where would they place that friend and what would their characteristics be? Seven rephrased the question to include either a family member or a peer, eliminating the word "friend." Belinda went a step further. She suggested, "I have several friends, acquaintances really, and it wouldn't be fair to include just one. So, I would include them all in little floating bubbles above my head." Belinda showed that, while she understood the difference between friends and acquaintances, she felt she could conflate them for the purposes of the study. She was resigned that her relationships remain at arms-length.

Relationships

Another conspicuous theme is that students with ASD often struggle to build meaningful relationships with people who may not understand their unique communication needs. Mary reported that she and her step-father had an extremely rocky relationship in the beginning, but after years of working on the relationship, they got along well now. Relationships with family and friends emerged as subthemes.

Family

Building relationships is often easier with members of one's own family because they are constant, lasting relationships. Familial relationships are built on the feeling of unconditional love and support. These relationships are typically built over time and require years of developing trust. Mark reported,

> I have a sense that I am isolated. I feel a lot that I am abnormal and am an outsider. I desperately want to be considered normal and belong, but always feel other. The only person that really gets me is my sister. Even my parents a lot of times don't get me. They try, I don't harbor any ill will against them or anything, they just don't get what I'm going through or how I think or why I do some of the things I do. But with my sister, there's always a judgement free zone. Don't get me wrong, she'll tell me if she thinks I'm being an idiot. But she loves me unconditionally, without expecting anything from me in return. She's my only real friend and the only person I can really trust in my life.

Mark stressed the importance of the family bond and that he and his sister had a relationship built on love, trust, and support. He knew that she would always be there for him. Andrew described how his parents helped him receive a dual-exceptionality diagnosis because they understood that there was something additional hindering his progress. He emphasized, "My parents always thought I was smart. Initially, they thought I was gifted-weird. Over time, their intimate knowledge of me helped them figure out that there was more going on. They supported and loved me unconditionally." Luke expressed his appreciation for his parents' consistent support. "When the doctors told my parents I would never be normal and I would never be able to do things, they believed in me and never gave up on me. They loved me no matter what."

Additionally, three participants substituted family members for friends in their projective self-portraits. Luke and Mary stated they would add their parents to their projective self-portraits and Mark said he would add his sister to his projective self-portrait, emphasizing the importance of developing close relationships through building trust. Likewise, one of Andrew's bring three items was a family photo, Mary indicated she would include a picture of her step-dad in her bring-three, and Tanya included old family photos in her bring-three.

Friends

At times, finding others with similar needs can build empathy and allow students to develop deep friendships. Building relationships with people outside of the family also allows students to seek out people with very specific characteristics. Ruben described spending a lot of time both in school and out of school with friends he met in his ESE and speech classes. “I met some long-time friends through speech and regular classroom settings.” Mary disclosed that she met her best friend in her special education class. She emphasized in her bring-three that she would bring her best friend because “she represents that there is someone out there who ‘gets me.’” Belinda describes her friends,

> They’re all really open and they’re good at communicating their truth about their trust. I don’t think there’s any really defining factor beyond that I have a lot of varying people that I’m friendly with. They’re all pretty eclectic, like none of them really share the same characteristics. Most of the people in my circle are not neurotypical. They have some sort of issues, but that makes them more open and more thoughtful in their communication. They share more.

Belinda overtly stated what Ruben and Mary only intimated when Belinda identified that her friends were not neurotypical. Ruben and Mary met their friends in their ESE classes. Belinda met her friends through therapy. In all three instances, friendships were built on common experiences and shared characteristics. Developing empathy and trust between friends becomes possible as students develop means of communicating with people who share their experiences.

Academic Self-Efficacy

A third important theme is that of academic self-efficacy. Factors that influence self-efficacy as well as coping skills came to the surface as subthemes. Students who have a

conviction that they can achieve academically at a specific level tend to perform in accordance with that conviction. Students who develop high levels of self-efficacy often perform at high levels and students with low levels of self-efficacy tend to perform at lower levels. Luke reported,

> When I was little, the doctors told my mom I would never be successful in school. She never gave up on me and taught me to ask meaningful questions and focus on what I can do rather than what I can't do. So, I did. Then, when I got to public school, I just decided to carry on that attitude. I decided that I can do whatever the teacher asks of me. If I didn't understand something, I just asked questions until I did understand. And guess what? My teacher thought I was smart. It was like the smarter I thought I was, the smarter I actually became.

Mary, however, had a very different experience. She believed she was broken and that she wasn't smart. She struggled in school throughout her experience, becoming overwhelmed with work load and missing deadlines.

Factors Influencing Self-Efficacy

There are several factors which can influence one's self-efficacy. Significantly, though, is a student's programming in school. Students who participate in gifted programming tend to believe they are smart and capable. Andrew reported, "Being smart was just who I was. I was a gifted kid and that meant I was smart." Jerry agreed, "I've received a lot educationally, and it has set me up for great programs." Charles reiterated, "The gifted program allowed me to find my place. It taught me that I am smart and I can do anything I put my mind to." On the other hand, students who were first identified with ASD and participated in programming only for their disabilities tended to have a lower academic self-efficacy. Mary described, "School was always

hard for me. I do ok, but that's because I really try. I get really overwhelmed when I have too much work and then I procrastinate until I miss due dates. It's not a good thing." Tanya emphasized this point. "My lack of organization has always been a problem. I struggle with concentration, lack of attention, and poor coping skills. School's never been my thing." Ruben elaborated,

> I have difficulty with questioning skills. I have a really hard time figuring out what a question is really asking. Is it literal, is it figurative, is there some nuance that I'm not picking up? My EMT instructor pointed out to me that I get bogged down in the minutia and sometimes I just need to let a question be a question, but if I'm really struggling, it's ok to ask for clarification.

Coping Skills

Students learn coping skills through various supports. Some learn from their parents or family members. Others learn from teachers, coaches, or councilors at school. Of the 10 participants, five turned to athletics to help them cope and gain social skills. Andrew, Charles, David, Mark, and Ruben included athletic ribbons, trophies, or artifacts in either their self-portraits or bring-three activities. David emphasized the importance of getting involved in activities. Through activities such as sports, orchestra, the school news, and the school's actors' society, he gained friends and learned social skills. Still others learn from psychological and medical professionals such as therapists. Belinda recognized the import of her therapist, "She's great. She has me hooked up with a support group and other kids with neurological differences. You know, none of them are like me, but they're all different, and they're all cool." Regardless of where they learn their coping skills, the evidence remains that stronger coping skills lead to a more successful student. Charles's mother emphasized this point, "In my opinion, he would have

a stronger skill set of coping skills if he had the diagnosis sooner and his elementary years would have been less stressful for him." Belinda's mother reiterated this idea, "If she had been tested for autism and found to be on the spectrum earlier…she would have received services to help her cope and learned strategies for managing her anxiety."

Challenges to Academic Success

Another important theme is that twice-exceptional students frequently encounter obstacles to their academic success. Three subthemes include students with intellectual giftedness, autism spectrum disorder, and varying comorbidities are regularly placed in general education classrooms with support in one primary area of need. Students learn to mask their disabilities with their giftedness, sometimes students' needs mask their intelligence, and at times both disabilities and intellectual giftedness are cancelled out each by the other.

Intellectual Giftedness

Parents, students, and teachers agree that focusing on a student's most critical need is important. However, this primary need can easily detract from meeting additional learning and social needs of students. Andrew remembered, "I was creative and inventive. I was labeled gifted and everything I did was just attributed to that. Mood swings? Gifted. Hyper focus? Gifted. No one even considered anything else." Mark was identified as gifted in early elementary school. Although he struggled with maintaining eye contact and social interactions, his school denied his medical diagnosis of autism spectrum disorder because he was receiving gifted services. The issue was never resolved; Mark ultimately left the public-school system and enrolled in a charter STEM academy. Belinda was intellectually the smartest person most people will ever meet. With an IQ of at least 170 and an eidetic memory, there was no limit to her ability to learn. From the time she entered school, her teachers recognized her brilliance. However, as an only child in a

single-parent home and an ethnic minority student, teachers attributed her extreme antisocial behavior and autistic meltdowns to acting out and temper tantrums—simply poor behavior. Belinda was punished and ridiculed nearly every day. The expectations that came along with her amazing intellect were not being realized in the classroom. Teachers and counselors made assumptions that Belinda's giftedness was her only neurological difference. Belinda's mother lamented,

> If she had been tested for autism and found to be on the spectrum earlier in her education, she would have had an entirely different experience. She would have received services to help her cope and learned strategies for managing her anxiety. Everybody just thinks she's lazy. Nobody understands her. Nobody gets that, yea, she's a genius, but she's also autistic and has anxiety and depression.

Overexcitabilities associated with giftedness may complicate diagnoses as well. Characteristics often mimic symptoms or features typical of comorbidities, resulting in underdiagnosis or misdiagnosis.

Table 4

Overexcitabilities

Overexcitability	**Pseudonym**	**Characteristic Behaviors**
Psychomotor	Ruben	Intensive Exercise, Movement
	Tanya	Obsessive Compulsive Disorder-reordering, organizing, checking & rechecking
Sensual	Andrew	Acting, Music, Photography, Visual Art
	Belinda	Art-virtual
	Mary	Visual Art
	Tanya	Photography, Visual Art

Intellectual	Belinda	Questioning Authority
	David	Asking Probing Questions
	Jerry	Fascination with Problem Solving
	Luke	Love of Learning, Independent Thinking
Imagination al	Andrew	Intense Love of Drama & Music
	Mark	Detailed Visualization
	Tanya	Love of Fantasy (cosplay), Detailed Visualization
Emotional	Andrew	Diagnosis of Bipolar Disorder, Laughing or Crying
	Belinda	Anxiety/Depression
	Charles	Anxiety/Depression

Autism Spectrum Disorder

A diagnosis of autism spectrum disorder can mean that students will be eligible to receive much needed services. On the other hand, a diagnosis may also mean that students' symptoms and characteristics of comorbidities will be overlooked. Luke was diagnosed with autism spectrum disorder when he was around three years old. He walked on his toes and missed several fine and gross motor skills milestones. Luke's speech was unintelligible, complicated by a severe stutter. Doctors told Luke's parents that he was severely disabled and would never lead a normal life. Luke's autism became the center of his life and the lives of his parents. He attended various therapy sessions multiple times per week. As Luke grew up, it became clear that he was responding well to therapy. Luke quickly learned and applied his tools. His disability was an obstacle, but not an insurmountable one. No one ever stopped to ask, though, how it was that Luke learned so quickly and applied his learning so thoroughly. Luke reported,

> When I finally went to school, real school, my teachers thought I was smart. My parents never thought I was dumb, but they were so focused on my therapy and implementing the tools we were supposed to use that they never stopped to consider maybe there was something else going on.

Ruben reinforced the idea, "My ESE and speech classes were so helpful and important for me. I really appreciate those opportunities. But what about my gifts? No one ever focused on what I could do…until I was much older." Even Jerry, who had a mostly positive experience in school, lamented that his gifted identification was late. "I received resource services and moved into regular education classes as I got older. My gifted services didn't begin until much later."

Comorbidities

Comorbidities may complicate or delay diagnosis. Students learn to mask their disabilities with their giftedness; sometimes students' needs mask their intelligence, and at times both disabilities and intellectual giftedness are cancelled out each by the other. Andrew was identified as gifted in early elementary school, but he reported that his parents always knew he was different. He was able to mask his disabilities with his intelligence. Andrew recalled,

> My parents first thought I was just gifted-weird. I did strange things like cry furiously at non-sad kids' movies and play with Legos in the middle of the night, endlessly. I would always build and create inventions and loved science. The schools deemed me gifted. I never grew out of the weirdness, but now we know that I have ASD and bipolar disorder. I feel like there is so much that would have been different if we had known sooner. So many situations can be explained.

There are times when students may have a dual-diagnosis, but still, comorbidities mask additional diagnoses. Belinda was identified as gifted at a young age, but it took through age 15

for her complete gambit of comorbidities to be diagnosed. Belinda's mother stated, "There is an understanding for smart kids that are not doing well. She was considered lazy, an underachiever. No one but me tried to figure out why." Mark's characteristics of giftedness overshadowed his behavioral attributes of autism until middle school. When he finally was identified, his school refused services because he was already receiving gifted services and his performance was strong. Luke's early diagnosis with autism and his intense struggles with daily tasks dominated his life and the lives of his parents for years before his gifted identification. Tanya's giftedness and autism were both initially masked by her PTSD. Her behaviors and overexcitabilities were declared to be symptoms of her trauma. Tanya reiterated,

> Everyone always called me gifted as a kid and as I got older it just morphed into strong and capable. But really, I just got good at masking my symptoms. I was diagnosed young with PTSD and that stunted my ability to properly get diagnosed with anything else. People overlook things if you have a big enough symptom to focus on.

Outlier Data and Findings

The outlier in this study is the scenario in which a student, David, received an appropriate early identification and diagnosis at an ideal age. The result was that David received programming for giftedness as well as ESE services. He is the only student in the study who reports early diagnosis with AS at approximately the same time he was identified with intellectual giftedness. David did not experience lack of diagnoses or programming. David's parents educated themselves on both IG and AS and were staunch advocates for his success. David affirms,

> I received years of therapy to work on social skills as well as motor skills. In grade school, I was one of the few students with an IEP who took regular academic classes and

> the only one who was in gifted. My parents always taught me that I could do anything I put my mind to. I also held myself to the expectations of every other student in my classes. I went to a small school where everyone was close. I might have been weird, but people saw me as unique or quirky weird, not creepy weird. I was accepted and had friends. All of the extra support growing up, programs to help with my AS and the gifted program, were extremely effective for me. I am thankful I had them.

Research Question Responses

The study was guided by the central research question and three sub questions using the themes social context and self-concept, dual-exceptionalities, relationships, academic self-efficacy, and challenges to academic success.

Central Research Question

What are the experiences of students who have been identified as intellectually gifted and having high functioning autism or Asperger's syndrome? The participants' perceptions were that programming is designed for students with only one exceptionality: students' more profound area of need overshadows the students' dual-exceptionality. Mark explained,

> Receiving gifted education in elementary gave me an outlet to safely challenge myself. In middle school however, it was a different story. Since middle went from part-time to full-time, it became competitive between students and less emphasis was put on accommodating and more on competing and comparing students. It was rather isolating in my experience. As to whether the Asperger's had an element to that I don't know. When the diagnosis for Asperger's came through, the school initially denied the need for services because I'm gifted. Ultimately, I transferred to a STEM academy where more people were like me and the school was willing to acknowledge my 2e status.

Logan had a similar experience, with the distinction that his primary exceptionality was his ASD. Logan received years of therapies and services for speech and language, OT and PT for his motor skills, and so on. Academically, he was essentially ignored. Logan remembered, “From the time the doctors told my parents I had ASD, it was a constant stream of therapies and specialists. I wasn’t identified as gifted until fifth grade. I didn’t realize I was smart.” Belinda’s teachers focused on her giftedness; her mother reported, “Belinda can remember anything she has ever seen, heard, or read. Yet she fails in school. Her psychiatrist recommended a psychologist who finally gave us a diagnosis at age 15. It changed her life.”

Sub Question One

What does receiving a twice-exceptional identification mean in terms of self-concept for a student identified as intellectually gifted and having high functioning autism or Asperger’s syndrome? Participants whose prominent exceptionality was giftedness had a strong sense of self-concept. Charles explained, “I am great. Most people don’t even know I’m struggling because I use my tools and mask my difficulties really well. I really don’t have any issues.” However, students whose prominent exceptionality was AS had a more uncertain sense of self-concept. When asked to describe herself, Mary started with her difficulties. She reported, “I was never good at fitting in. I’m not very good with people. I have trouble understanding humor.” All in all, students who felt supported in their academics and focused their attention on their strengths had a strong self-concept. Conversely, students whose focus was on their disabilities had a more fragile sense of self-concept.

Sub Question Two

What does receiving a twice-exceptional identification mean in terms of academic experiences for a student identified as gifted and having high functioning autism or Asperger’s

syndrome? Students with supports reported strong academic performance and placement in advanced courses throughout school. Luke explained,

> I just try to do my best. And I do! And I just understand it in the end by just seeing it and then trying to fill myself in and asking questions if needed to make sure I um, I am doing it correctly. And then I just understand things.

Students with services for only their giftedness reported difficulties with organization and time management. Dan detailed, “I’m a procrastinator, I avoid situations I’m uncomfortable with, and I have difficulty with organization.” Andrew illustrated, “Academically, I really need to list my work and do little by little, but I’m generally not that organized. I tend to put things off until the last minute.” Tanya described,

> I did a lot of IB, gifted, and AP programs growing up. I found that the programs academically were fine. I could handle them. But the work load and time management were meant for people who didn’t have anything else going on their lives. The required level of organization was really designed for the neurotypicals and didn’t account for kids like me.

Sub Question Three

What does receiving a twice-exceptional identification mean in terms of social experiences for a student identified as gifted and having high functioning autism or Asperger’s syndrome? Students reported that having the support from additional programming was helpful in social development. Students who were first identified as gifted reported feeling relieved and vindicated when they finally received a more complete diagnosis. Andrew illustrated,

> I knew there was something wrong with me. People just don't cry for no reason and speed-walk circles around the pool committing Shakespeare to memory. When they finally said I have ASD, I felt like, well, finally, there's a reason I'm crazy.

Ruben reported that, having always been treated as if he wasn't smart, his gifted identification offered a sense of vindication. David emphasized,

> I was accepted by most of my peers and did many social activities including sports, orchestra, the school news, and the school's actors' society. I think putting myself in multiple settings where I'm constantly surrounded by and interacting with my peers helped me to learn to fit in to a social setting.

Summary

Twice-exceptional students' lived-experiences are informed by their self-concepts, academic experiences, and social experiences. The participants' experiences evidenced that their social context heavily influenced their self-concept, as students with more supports had a more positive sense of self. Participants whose primary exceptionality was giftedness showed increased academic self-efficacy when compared with those whose primary exceptionality was autism. Dual-exceptionalities regularly go unnoticed or undiagnosed, resulting in students not receiving the programming they need in order to thrive. Participants reported that friends and family who understood their unique needs were the only people with whom they could connect. As a result, twice-exceptional students often struggle to form bonded relationships.

Participants reported utilizing and finding value in services and programming. However, only one participant with a 2e diagnosis received services related to both his intellectual giftedness and his autism spectrum disorder.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this transcendental phenomenological study was to describe the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. Ten participants were purposefully selected to represent the perspectives of a cross section of twice-exceptional students. This chapter presents a discussion of the findings relevant to the students' experiences in twice-exceptional programming. This is followed by an interpretation of the findings. This chapter further examines the implications for policy and practice. The discussion also includes the theoretical and methodological implications of the findings. Next, the chapter reviews the limitations and delimitations of the study. Finally, the chapter offers recommendations for future research.

Discussion

The information in this section discusses the study's findings in light of the developed themes. Interpretation of findings is supported with empirical and theoretical sources as well as evidence from participants. The discussion includes five major subsections including interpretation of findings, implications for policy or practice, theoretical and empirical implications, limitations and delimitations, and recommendations for future research.

Interpretation of Findings

After reviewing screening questionnaires, completing individual interviews, analyzing projective self-portraits, and evaluating bring three items, four primary themes were developed in consonance with the theoretical foundations of self-concept, academic experiences, and social experiences.

Summary of Thematic Findings

Study findings can be extrapolated through themes. First, social context and self-concepts are closely related. Additionally, dual-exceptionalities often mask one another and delay diagnoses, denying students much-needed services. Students have difficulty establishing and maintaining relationships with both family and friends who do not understand their methods of communication. Also, students frequently assume the identity of their initial diagnosis. This affects students' academic self-efficacy. Several challenges to academic success were also revealed.

Primary exceptionality overshadows secondary exceptionality. In each instance, with the exception of the outlier, students received either an identification of giftedness or a diagnosis with autism spectrum disorder as a young child. In each example, their initial diagnosis led to false assurance of a solution to a concern, which led to delays in their subsequent diagnoses and therefore, delays in programming (Haelle, 2018; Silverman, 1993). In each case, students and parents believed this delay had a negative impact on their self-concept, academic experiences, or social experiences. This negative impact could be predicted using Bandura's (1989) social cognitive theory in which behavior, cognitive factors, and environmental influences work together to affect human behavior.

Students who are twice-exceptional are often very creative. Imaginational overexcitabilities can be problematic when overactive imaginations prevent students from taking chances. Some characteristics of this intensity include vivid dreams (night-time or daydreams); detailed visualization; love of fantasy; love of drama, music, or poetry; and having a good sense of humor (Alias et al., 2013; Lind, 2011). However, when appropriately cultivated and supported, imaginational overexcitabilities can lead to unmatched creativity and out-of-the-box thinking. Of the ten study participants, two (Andrew and Tanya) are pursuing careers in the arts.

Still others specifically stated in their interviews that their autism pairs with their giftedness to allow them to think differently than others. Matthew reflects, “It sometimes takes me longer to understand things, but when I do I can use that knowledge in more unique ways and make connections that are more outside the box. My autism actually makes me smarter.”

Implications for Policy or Practice

Findings from this study have several significant policy and practical implications relating to students with ASD, students with intellectual giftedness, and twice-exceptional students.

Implications for Policy

Findings from this study have significant policy implications relating to twice-exceptional students. First, laws regarding gifted education are not nationally regulated. Policies change depending on state, county, municipality, or individual school. In some areas, gifted education is part of special education and is highly regulated. In other areas, gifted education is not part of special education and is virtually unregulated. This leads to incredibly variant identification methods and many students going unidentified. Creating one policy for the identification of gifted students would help ensure students receive the programming they require in order to be successful. Including gifted education under the banner of special education, utilizing a universal screening tool, and unifying gifted education expectations across states are important steps to improve policy. This applies generally to all students, but would specifically benefit military and transient families. The typical school-aged child in a military family will move between six and nine times during their K-12 schooling (All About the DODEA Educational Partnership, 2018).

The incredibly variant funding between states with gifted programs included as part of their special education programs and those not included are an important justification for a unified policy. Furthermore, gender bias in identification as evidenced by statistics as well as nine of ten cases of students receiving only partial initial diagnoses or identifications, delaying services, are two strong arguments for universal screening for common learning differences, including giftedness. Ideally, universal screeners would be implemented at critical developmental ages throughout the education of the child. This would include preschool (prior to entering primary grades), second grade (prior to entering intermediate grades), fifth grade (prior to entering middle school), and eighth grade (prior to entering high school). Finally, enumerating specific requirements for gifted education that are universal among public schools would unify the gifted experience and eliminate personal judgment informing policy.

Implications for Practice

Students often receive a diagnosis only for their more profound exceptionality, or receive a significantly delayed diagnosis for their less pronounced exceptionality. This results in delayed or absent services for the secondary exceptionality. According to this study's participants, this practice is negatively impacting their self-concept, academic experiences, and social experiences. A more seamless diagnostic process including universal screenings could be facilitated at specific intervals in a child's education to ensure students do not fall through the cracks by having only one exceptionality identified and serviced. While racial or ethnic bias can be a concern, typical screeners such as the Autism Spectrum Screening Questionnaire (ASSQ), or for younger children, Childhood Autism Spectrum Test (CAST), have been found to be effective initial screeners for children (Wilkinson, 2009). Both, however, rely on parent survey information, which can be difficult to attain if there is a cultural stigma associated with a

diagnosis. Universal screenings would also address the concern of gender-bias evidenced by the disproportionately low percentage of females diagnosed with ASD. Universal screenings would evaluate students for common exceptionalities found among students within particular age brackets to determine if they are meeting their developmental milestones. Students with markers for exceptionalities such as intellectual giftedness, ASD, and dyslexia, among others, would be flagged for further evaluation. While it is clear that early diagnosis is an important finding for these students, it may also be effective for all students.

Another significant challenge raised by multiple participants is the lack of social programming for twice-exceptional students. Students who are first diagnosed with giftedness often do not receive any additional services, even with a diagnosis of ASD. It was the experience of the study participants that they received services for either ASD related symptoms, such as speech or occupational therapy, or gifted services, but not both. Participants postulated that this is due to their ability to mask symptoms and compensate for their weaknesses. Twice-exceptional students tend to perform well academically through elementary school, when most services are assigned, so other needs are typically ignored. The result is a feeling of social isolation and students not receiving the tools they need in order to be successful as they mature. Practically, this problem and the resulting obstacles can be avoided if teachers, therapists, and decision makers would evaluate the individual needs of each student as a whole person rather than truncating services based on each individual diagnosis. This would require case managers to oversee all aspects of students' academic and social programming and coordinate services. Providers would work as a team to ensure all aspects of a student's IEP were thoroughly addressed and individualized goals were set and, ultimately, achieved.

Theoretical and Empirical Implications

The purpose of this section is to address the theoretical and empirical implications of the study. The theoretical framework that guided this study included social cognitive theory (Bandura, 1989), which was heavily influenced by self-efficacy theory (Bandura, 1977). Additional theories offered a historical backdrop for Bandura's theories and help explain the dismal history of autism education. The concepts of the disability theory offering no hope for students with ASD to be educated and the capability theory, which, for the first time proffered the idea that students with disabilities might be worth educating both shaped Bandura's research. Findings from this study reinforce and confirm previous research findings with social cognitive theory. Twice-exceptional students' behaviors are strongly influenced by a relationship between personal factors, environmental factors, and behavior (Bandura, 1989). Specifically, this study (a) supports prior research findings with gifted students (Callahan & Hertberg-Davis, 2017; Gallagher & Gallagher, 2016; Haelle, 2018), (b) affirms Bandura's (1977) theory of self-efficacy, specifically with students with ASD (Ferguson, 2015; Rutter & Schopler, 1987), (c) builds on the literature base demonstrating that twice-exceptional students have their own, unique needs (Baldwin et al., 2015), and finally, (d) reinforces the need for more research in the area of twice-exceptional educational practices.

Several findings from this study support prior research results developed from studies with gifted students. Specifically, the study found that 2e students who were identified as gifted at a young age and received services in gifted education, had a strong self-concept, positive academic experiences, but struggled with social experiences. The study, conversely, found that students who were first diagnosed with high functioning autism or Asperger's syndrome and received related services for ASD only, had a weaker self-concept, more negative academic

experiences, but had more positive social experiences. This supports parts of Bandura's (1989) social cognitive theory as well as Bandura's (1977) self-efficacy theory, but deviates from the theories in the area of social experiences. Bandura's theories postulate a direct correlation between self-concept, academic, and social experiences. This is an opportunity for further study.

Another opportunity for further research is in the instance where students are appropriately identified as twice-exceptional at a young age and receive services in both exceptionalities. The findings of the study showed, with it's one outlier participant, David, an ideal balance of services resulting in a strong self-concept, positive academic experiences, and positive social experiences. Further research could determine if other twice-exceptional students also describe positive academic experiences, strong self-concept, and positive social experiences as well as the impact of programming on their lives.

Limitations and Delimitations

This study includes both limitations and delimitations. The limitations were due in part to unavoidable events and circumstances associated with the unprecedented global pandemic. The delimitations were calculated decisions to limit the bounds of the study in order to best inform the researcher about the research problem under examination. Both the limitations and delimitations should be considered when generalizing the findings and conclusions of the study.

Limitations

The global COVID-19 pandemic placed significant limiting factors on this study. In response to the pandemic, the United States went into various stages of lock-down, depending on specific location. This meant that most students transitioned to virtual or hybrid learning models and those who attended school in person were restricted to physical or social distancing, masking, and sanitation mandates. As a result, many institutions put a moratorium on allowing

any type of research to be conducted. Accordingly, participant solicitation and data collection methods that may have otherwise been employed were not permitted. All participation was necessarily conducted through online media, limiting participation to those comfortable with technology and with access to necessary resources.

A second limitation of this study was also related to the pandemic. Participation in the interview was restricted to virtual meetings. Limited access to reliable internet made communication difficult. Internet clocking, freezing, and indiscriminately removing participants from virtual meetings adversely affected the participants' ability to contribute to data collection. In phenomenological research, Creswell and Poth (2018) implore investigators to conduct in-depth interviews with ten participants as the principal instrument for data collection. While data collection did continue until thematic saturation was reached, one participant began, but never finished the complete interview and a second participant completed the interview via an email conversation. Ten participants completed at least part of the interview. Ten participants, or their parents, completed screening surveys. However, only nine participants completed the processes with all supporting data. Ultimately, only 90% of participants contributed projective self-portraits and bring-three-items. Patton (2002) suggests utilizing multiple methods of data collection in order to triangulate data to increase reliability. In this study, individual interviews as well as projective self-portraits and bring-three-items provided separate data collection methods which produced correspondent results. Two members completed member-checks, affirming the accuracy and completeness of the results.

Delimitations

The delimitations of this study provided for representation from diverse groups. However, the participants who volunteered and conformed to eligibility requirements were 70%

white and 30% Hispanic. Nationally, students who are diagnosed with ASD are 52% white, 20% black, and 18% Hispanic (Yuan et al., 2021). The initial area of recruitment is 37% white, 41% Hispanic, 14% black, and minimal percentages of other demographics. A limitation of this study is that it did not present a full cross-section of the population. Utilizing a purposeful criterion sample and snowball sampling technique, relying on volunteer participants resulted in only willing and open participants sharing their experiences. This means that participants were not randomly selected and that participants may not be representative of the larger group of 2e students. As a result, these findings cannot be generalized to all 2e students.

Additionally, the delimitations of this study did not provide parameters for gender representation. Although participation was open to all students, participants who responded and met the eligibility qualifications for this study were 70% male and 30% female. This is in line with the national male-to-female ratio of 3:1 children meeting criteria for ASD (Loomes et al., 2017) or 78% male and 22% female (Yuan et al., 2021), suggesting a diagnostic gender bias rather than a limitation of the study.

Recommendations for Future Research

The evaluation of previous research on the lived-experiences of twice-exceptional students has limited transferability due to the underdiagnosis of students identified with both intellectual giftedness and diagnosed with autism spectrum disorder (Dever et al., 2016; Haelle, 2018). This study has contributed to the body of research, but is limited by the methodology and delimited by the study sample.

Future research could benefit from reproducing the study in alternate settings, with in-person interviews. Additionally, reproducing the study in a broader, more diverse area could increase the diversity of participants and increase transferability. Researchers, likewise, could

explore the concept of universal screening for exceptionalities in order to relieve the problem of under-identification and gender-bias in identification. Researchers could explore the idea that profoundly gifted students also experience more pronounced manifestations of their dual-exceptionalities and, conversely, moderately gifted students may experience more moderate expressions of their exceptionalities. Self-concept among 2e students could be further explored with a focus on primary services or programming received. Furthermore, academic self-efficacy could be investigated with special attention given to primary identification. Exploring mentorships for 2e students to increase self-concept is another potential area of future research. Along the same lines, exploring 2e students participating in roles as mentors to help other 2e students is worth further analysis. Similarly, researchers could concentrate on social experiences with respect to social programming. Within this study, participants' experiences of self-concept, academic self-efficacy, and social experiences were demonstrated to be closely correlated with their primary diagnosis and support programming. As suggested by the limitations of this study, it may be valuable to commence a quantitative descriptive study describing and exploring 2e students and their characteristics or a quantitative comparative study investigating the effects of programming on self-concept, academic self-efficacy, and social experiences.

Conclusion

This study examined the lived-experiences of twice-exceptional students identified as intellectually gifted and having high functioning autism or Asperger's syndrome. Findings of this study are informed by Bandura's (1989) social cognitive theory research that demonstrates the relationship among personal factors, environmental factors, and behavior, through the lived-experiences informed by students' self-concepts, academic experiences, and social experiences.

The study set out to answer the central question: What are the experiences of students who have been identified as intellectually gifted and having high functioning autism or Asperger's syndrome? The central question was bolstered by three support questions focusing on what a 2e diagnosis means for the student in terms of self-concept, academic experiences, and social experiences. Data collection methods included a screening survey, individual interviews, projective self-portraits, and bring-three-items exercise. Data was gathered from 10 students, ages 13-22, who have an identification of intellectually gifted and a diagnosis of HFA or Asperger's syndrome.

The most significant implication that developed from the data is that students are receiving delayed diagnoses, which translates to delayed or absent services for their second, less pronounced, exceptionality. There are many potential research implications that could result from this study, notably, determining the incidence and prevalence of delayed diagnoses as well as gender-bias in diagnosing ASD.

References

Alias, A., Rahman, S., Majid, R.A., Yassin, S.F.M., (2013). Dabrowski's overexcitabilities profile among gifted students. *Asian Social Science, 9*(16). https://doi.org/10.5539/ass.v9n16p120

Altman, R. (1983). Social-emotional development of gifted children and adolescents: A research model. *Roeper Review, 6,* 65-68. https://doi.org/10.1080/02783198309552757

Amend, E. (2009). A unique challenge: Sorting out the differences between giftedness and Asperger's disorder. *Gifted Child Today, 32*(4). https://www.davidsongifted.org/search-database/entry/a10900?fbclid=IwAR3CjRV2ix97mgfY2tQYY9BSzsKcfgWMXKmnm7ugZ0Gf-tGiJAcsZxVxbRg

Arant, M. (2015). State variation in gifted education funding and services. *The Council of State Governments.* http://knowledgecenter.csg.org/kc/content/state-variation-gifted-education-funding-and-services-0

Attwood, T. (2007). Complete guide to Asperger's syndrome. Jessica Kingsley Publishers.

Attwood, T., and Gray, C. (2016, February 23). The discovery of "Aspie" criteria. *Autism Awareness Centre, Inc.* https://autismawarenesscentre.com/discovery-aspie-criteria/

Auger, R. (2018). Autism spectrum disorders: A research review for school counselors. *Professional School Counseling, 16*(2), 256-268. https://doi.org/10.1177/2156759X12016002S02

Autism Speaks. (2020, January 24). *Autism Tool Kit.* Autism Speaks: https://www.autismspeaks.org/autism-speaks-tool-kits

Baldwin, L., Baum, S., Pereles, D., and Hughes, C. (2015). Twice-exceptional learners: The journey toward a shared vision. *Gifted Child Today, 38*(4), 206–214. http://doi.org/10.1177/1076217515597277

Baldwin, L., Omdal, S. N., & Pereles, D. (2015). Beyond stereotypes: Understanding, recognizing, and working with twice-exceptional learners. *Teaching Exceptional Children, 47*(4), 216-225

Ball, D.L. & Even, R. (2009). *Strengthening practice in and research on the professional education and development of teachers of mathematics: Next steps*. In Even, R., Ball, D.L. (eds) The Professional Education and Development of Teachers of Mathematics. New ICMI Study Series, vol. 11. Springer. https://doi.org/10.1007/978-0-387-09601-8_27

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175-1184. https://doi.org/10.1037/0003-066X.44.9.1175

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.315.4567andrep=rep1andtype=pdf

Barahona-Correa, J.B., and Filipe, C.N. (2016). A concise history of Asperger syndrome: The short reign of a troublesome diagnosis. *Frontiers in Psychology, 6.* https://doi.org/10.3389/fpsyg.2015.02024

Barnhill, G.P. (2001). Social attributions and depression in adolescents with Asperger syndrome. *Disabilities, 16*(1), 46-53. https://doi.org/10.1177/108835760101600112

Barbot, B., Zenasni, F., and Botella, M. (2016). *The socioemotional characteristics of creatively and artistically gifted children*. In M. Neihart, S.I. Pfeiffer, & T.L. Cross (Eds.), *The social and emotional development of gifted children: What do we know?* (p. 65-75). Prufrock Press, Inc.

Bauer, S. (1996). *Asperger Syndrome*. http://www.aspergersyndrome.org/

Baum, S.H., Stevenson, R.A., and Wallace, M.T. (2016). Behavioral, perceptual, and neural alterations in sensory and multisensory function in autism spectrum disorder. *Prog Neurobiol, 134,* 140-160. https://doi.org/10.1016/j.pneurobio.2015.09.007

Bayliss, M. (2011). Instructional accommodations for students with Asperger syndrome in the general high school classroom. [Master's Thesis, Dominican University]. Dominican Scholar. https://doi.org/10.33015/dominican.edu/2011.edu.04

Bellebaum, C., Brodmann, K., and Thoma, P. (2014). Active and observational reward learning in adults with autism spectrum disorder: Relationship with empathy in an atypical sample. *Cognitive Neuropsychiatry, 19*(3). https://doi.org/ 10.1080/13546805.2013.823860

Bianco, M., & Leech, N. L. (2010). Twice-exceptional learners: Effects of teacher preparation and disability labels on gifted referrals. *Teacher Education & Special Education, 33*(4), 319-334. http://www.doi.org/10.1177/0888406409356392

Blustain, R. (2019, May). Twice exceptional, doubly disadvantaged? How schools struggle to serve gifted students with disabilities. *The Hechinger Report.* https://hechingerreport.org/twice-exceptional-doubly-disadvantaged-how-schools-struggle-to-serve-gifted-students-with-disabilities/

Bong, M. & Skaalvik, E.M. (2003). Academic self-concept and self-efficacy: How different are they really? *Educational Psychology Review, 15*(1). 1-40. https://doi.org/10.1023/A:1021302408382oylorn, R.M. (2008). Participants as co-researchers. In *The SAGE Encyclopedia of Qualitative Research Methods*. 600-601. SAGE Publications, Thousand Oaks. https://dx.doi.org/10.4135/9781412963909.

Boschi, A., Planche, P., Hemimou, C., Demily, C., & Vaivre-Douret, L. (2016). From high intellectual potential to Asperger syndrome: Evidence for differences and a fundamental overlap-A systematic review. *Frontiers in Psychology, 7,* 1605. https://doi.org/10.3389/fpsyg.2016.01605

Brody, L.E. & Mills, C.J. (1997). Gifted children with learning disabilities: A review of the issues. *Journal of Learning Disabilities, 30*(3), 282-296. https://doi.org/10.1177/002221949703000304

Brown, M.E. and Dueñas, A.N. (2019). A medical science educator's guide to selecting a research paradigm: Building a basis for better research. *Medical Science Educator, 30,* 545-553. https://doi.org/10.1007/s40670-019-00898-9.

Boylorn, R.M. (2008). Participants as co-researchers. In *The SAGE Encyclopedia of Qualitative Research Methods.* 600-601. SAGE Publications. https://dx.doi.org/10.4135/9781412963909

Bracamonte, M. (2010). 2e students: Who they are and what they need. *2e Newsletter.* https://www.davidsongifted.org/search-database/entry/a10655

Burger-Veltmeijer, A., Minnaert, A., Van Houten-Van den Bosch, E.J. (2011). The co-occurrence of intellectual giftedness and Autism Spectrum Disorders. *Educational Research Review.*, *6*(1), 67–88. https://doi.org/10.1016/j.edurev.2010.10.001

Burger-Veltmeijer, A. E., Minnaert, A. E., & Van den Bosch, E. J. (2016). Intellectually gifted students with possible characteristics of ASD: A multiple case study of psycho-educational assessment practices. *European Journal of Special Needs Education, 31*(1), 76-95. https://www.doi.org/10.1080/08856257.2015.1087147

Callahan, CM. & Hertberg-Davis, H.L. (2017). *Fundamentals of gifted education: Considering multiple perspectives* (2nd ed.). Taylor & Francis.

Campanelli, J. and Ericson, C. (2014). *Twice exceptional guide: Preparing Ohio schools to close the achievement gap for gifted students with disabilities.* Ohio Department of Education. Columbus: Ohio Department of Education.

Cassidy, S.A., Gould, K., Townsend, M., Robertson, A.E., & Rodgers, J. (2019). Is camouflaging autistic traits associated with suicidal thoughts and behaviors? Expanding the interpersonal psychological theory of suicide in an undergraduate student sample. *Journal of Autism and Developmental Disorders*. 50, 3638-3648. https://doi.org/10.1007/s1083-019-04323-3

Centers for Disease Control and Prevention (CDC) (2015). *Prevalence of Autism Spectrum Disorders among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2010.* Autism and Developmental Disabilities Monitoring Network. Atlanta: CDC. http://www.cdc.gov/mmwr/review/mmwrhtml/ss6302a1.htm?s_cid=ss6302a1_w

Clark, B. (1992). *Growing up gifted.* New York: MacMillan.

Cohen, S., Tyrrell, D.A., and Smith, A.P. (1993). Negative life events, perceived stress, negative affect, and susceptibility to the common cold. *Journal of Personality and Social Psychology, 64*(1), 131–140. https://doi.org/10.1037/0022-3514.64.1.131

Councill, K.H. & Fiedler, L. (2017). Gifted 101: Unlocking the mystery of academically gifted education. *Music Educators Journal, 103*(4), 48-56. https://doi.org/10.1177/0027432117697005

Crosland, K. and Dunlap, G. (2012). Effective strategies for the inclusion of children with autism in general education classrooms. *Behavior Modification, 36*(3), 251-269. https://doi.org/10.1177/0145445512442682

Creswell, J.W. (1998, 2013). *Qualitative inquiry and research design: Choosing among five traditions.* SAGE Publications, Inc.

Creswell, J.W. and Creswell, J.D. (2018). *Research design: Qualitative, quantitative, and mixed-method approaches.* SAGE Publications.

Creswell, J.W. and Poth, C.N. (2018). *Qualitative inquiry and research design: Choosing among five approaches.* SAGE Publications.

Cross, T.L. and Cross, J.R. (2017). Social and emotional development of gifted students: Introducing the school-based psychosocial curriculum model. *Gifted Child Today, 40*(3), 178-182. https://doi.org/10.1177/1076217517713784

Dabrowski, K. (1967). *Personality shaping through positive disintegration*. Boston, MA: Little, Brown, and Co.

Dana, N.F., Dana, T.M., Thomas, D., Tippins, D.J. (1992). Qualitative interviewing and the art of questioning: Promises, possibilities, problems, and pitfalls. https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED349308

DeGiambattista, C., Ventura, P., Trerotoli, P., Margari, M., Palumbi, R., and Margari, L. (2019). Subtyping the autism spectrum disorder: Comparison of children with high functioning

autism and Asperger syndrome. *Journal of Autism and Developmental Disorders,* 49(1), 138-150. http://doi-org.ezproxy.liberty.edu/10.1007/s10803-018-3689-4

Department of Defense Education Activity. (2018, March 20). *All about DODEA educational partnership.* https://www.dodea.edu/partnership/about.cfm

Dever, B.V., Raines, T.C., Dowdy, E., and Hostutler, C. (2016). Addressing disproportionality in special education using a universal screening approach. *The Journal of Negro Education 85*(1), 59-71. https://doi.org/10.7709/jnegroeducation.85.1.0059

Diezmann, C.M. and Watters, J.J. (2006). Early entry to school in Australia: Rhetoric, research, and reality. *Australian Journal for Gifted Education, 5*(1), 3-5. https://core.ac.uk/download/pdf/10873841.pdf

Dori, Y.J., Zohar, A., Fischer-Shachor, D., Kohan-Mass, J., and Carmi, M. (2018). Gender-fair assessment of young gifted students' scientific thinking skills. *International Journal of Science Education 40*(6), 595-620. https://doi.org/10.1080/09500693.2018.1431419

Elkind, J. (1973). The gifted child with learning disabilities. *Gifted Child Quarterly, 17*(3), 45-47.

Ferguson, S.K. (2015). *Affective education: Addressing the social and emotional needs of gifted students in the classroom*. In F.A. Karnes & S.M. Bean (Eds.), Methods and Materials for Teaching the Gifted (479-512). Prufrock Press.

Fogt, J.B., Miller, D.N., and Zirkel, P.A. (2003). Defining autism: Professional best practices and published case law. *Journal of School Psychology, 41*(3), 210-216. https://doi.org/10.1016/S0022-4405(03)00045-1

Foley-Nicpon, M., Assouline, S. G., and Fosenburg, S. (2015). The relationship between self-concept, ability, and academic programming among twice-exceptional youth. *Journal of*

Advanced Academics, 26(4), 256–273. https://doi-org.ezproxy.liberty.edu/10.1177/1932202X15603364

Gall, M.D., Gall, J.P., and Borg, W.R. (2006). *Educational research: An introduction, 8th Edition*. Pearson Education.

Gallagher, S., and Gallagher, J. (2016, February 23). Giftedness and Asperger Syndrome: A new agenda for education. Open Space Communications: http://www.manta.com

Gillberg, I.C. and Gillberg, C. (1989). Asperger syndrome—some epidemiological considerations: A research note. *Journal of Child Psychology and Psychiatry, 30*(4). https://doi.org/10.1111/j.1469-7610.1989.tb00275.x

Goering S. (2015). Rethinking disability: the social model of disability and chronic disease. *Current Reviews in Musculoskeletal Medicine, 8*(2), 134–138. https://doi.org/10.1007/s12178-015-9273-z

Groenewald, T. (2004). A phenomenological research design illustrated. *International Journal of Qualitative Methods, 3*(1), 42-55. https://doi.org/10.1177/160940690400300104

Haelle, T. (2018, April 18). The consequences of compensation in autism. *Neurology Advisor.* https://www.neurologyadvisor.com/topics/autism-spectrum-disorder/the-consequences-of-compensation-in-autism/

Hammersley, M. and Atkinson, P. (2007). Ethnography. *The Blackwell encyclopedia of sociology.*

Hodge, K. and Kemp, C.R. (2006). Recognition of giftedness in the early years of school: Perspectives of teachers, parents, and children. *Journal for the Education of the Gifted, 30*(2), 164-204. https://doi.org/10.4219/jeg-2006-259

Holland, K. (2018, July 18). *High-functioning autism*. Healthline. https://www.healthline.com/health/high-functioning-autism

Husserl, E. (1965). *Phenomenology and the Crisis of Philosophy.* Torchbooks.

Josephson, J., Wolfgang, C., and Mehrenberg, R. (2018). Strategies for supporting students who are twice-exceptional. *The Journal of Special Education Apprenticeship, 7*(2). https://files.eric.ed.gov/fulltext/EJ1185416.pdf

Katon, W., Kleinman, A., Rosen, G. (1982). Depression and somatization: A review Part I. *The American Journal of Medicine, 72*(1), 127-135. https://doi.org/10.1016/0002-9343(82)90599-X

Lincoln, Y.S., and Guba, E.G. Naturalistic inquiry. California: Sage Publications; 1985.

Lind, S. (2011). Overexcitability and the gifted. *Supporting Emotional Needs of the Gifted.* https://www.sengifted.org/post/overexcitability-and-the-gifted

Lone, P.A. and Lone, T.A. (2016). A study on relation between self-concept and academic achievement among secondary school students of Jammu District. *Journal of Education and Practice, 7*(31). https://files.eric.ed.gov/fulltext/EJ1122537.pdf

Loomes, R., Hull, L., Polmear Locke Mandy, W. (2017). What is the male-to-female ratio in autism spectrum disorder? A systematic review and meta-analysis. *Journal of the American Academy of Child and Adolescent Psychiatry, 56*(6), 466-474. https://doi.org/10.1016/j.jaac.2017.03.013

Manjiviona, J. and Prior, M. (1995). Comparison of Asperger syndrome and high-functioning autistic children on a test of motor impairment. *Journal of Autism and Developmental Disorders, 25*(1), 23-39. https://doi.org/10.1007/BF02178165

Marsh, H.W. (1987). The big-fish-little-pond effect on academic self-concept. *J. Educational Psychology, 79*, 280-295.

Matheson, I.A., and Robinson, K. (2019). Aligning elements of the identification process: Implications for hidden exceptionalities. *Exceptionality Education International, 29*(1), 1–15. https://doi.org/10.5206/eei.v29i1.7776

McGregor, E. & Campbell, E. (2001). The attitudes of teachers in Scotland to the integration of children with autism into mainstream schools. *Autism, 5*(2), 189-207. https://doi.org/10.1177/1362361301005002008

McKenzie, J.A. (2013). Models of intellectual disability: Towards a perspective of (poss)ability. *Journal of Intellectual Disability Research, 57*(4). https://doi.org/10.1111/j.1365-2788.2012.01547.x

McKenzie, J.A. &MacLeod, C.I. (2012). Disability and society rights discourses in relation to education of people with intellectual disability: Towards an ethics of care that enables participation. *Disability and Society, 27*(1), 15-29. https://doi.org/10.1080/09687599.2012.631795

McLeskey, J. & Waldron, N. (2002). School change and inclusive schools: Lessons learned from practice. *Phi Delta Kappan, 84*(1), 65-72. https://doi.org/10.1177/003172170208400114

Mead, G.H. (1934). *Mind, self and society (Vol. 111).* University of Chicago Press.

Merriam, S.B. (2009). *Qualitative research: A guide to design and implementation.* Jossey-Bass.

Missett, T.C., Azano, A.P., Callahan, C.M., & Landrum, K. (2016). The influence of teacher expectations about twice-exceptional students on the use of high-quality gifted curriculum: A case study approach. *A Special Education Journal, 24*(1), 18-31. https://doi.org/10.1080/09362835.2014.986611

Mitra, S. (2006). The capability approach and disability. *Journal of Disability Policy Studies, 16*(4), 236-247. https://doi.org/10.1177/10442073060160040501

Montgomery, C. B., Allison, C., Lai, M.-C., Cassidy, S., Langdon, P. E., and Baron-Cohen, S. (2016). Do adults with high functioning autism or Asperger syndrome differ in empathy and emotion recognition? *Journal of Autism and Developmental Disorders, 4*6(6), 1931–1940. https://doi-org.ezproxy.liberty.edu/10.1007/s10803-016-2698-4

Morin, A. (2020). 7 Myths about twice-exceptional (2e) students. *Understood for All, Inc.* https://www.understood.org/en/friends-feelings/empowering-your-child/building-on-strenIGhs/7-myths-about-twice-exceptional-2e-students?_ul=1*19re66r*domain_userid*YW1wLXBJQnlfeTUxS09DSXJfcWdVcG14ZFE.

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: SAGE Publications, Inc. https://doi.org/10.4135/9781412995658

Naglieri, J.A. and Ford, D.Y. (2015). Misconceptions about the Naglieri Nonverbal Ability Test: A commentary of concerns and disagreements. *Roeper Review*, *37*(4), 234-240. https://doi.org/10.1080/02783193.2015.1077497

National Association for Gifted Children (NAGC) (2020). Gifted education in the U.S. https://www.nagc.org/resources-publications/resources/gifted-education-us

Neihart, M. (2000). Gifted children with Asperger's syndrome. *Gifted Child Quarterly*, *44*(4), 222-230. https://doi.org/10.1177/001698620004400403

Nevin, A. and Cramer, E. (2006). A mixed methodology analysis of co-teacher assessments. *Teacher Education and Special Education: The Journal of the Teacher Education*

Division of the Council for Exceptional Children, 29(4), 261-274. https://doi.org/10.1177/088840640602900406

Owens, E.O., (2006). Conversational space and participant shame in interviewing. *Qualitative Inquiry, 12*(6), 1160-1179.

Pajares, F. (2002). *Overview of social cognitive theory and of self-efficacy.* Retrieved November 9, 2020, from http://www.emory.edu/EDUCATION/mfp/eff.html

Patterson, J., Mockford, C., and Stewart-Brown, S. (2005). Parents' perceptions of the value of the Webster-Stratton Parenting Programme: a qualitative study of a general practice-based initiative. *Child: Care, Health and Development, 31*(1) 53-64. https://doi-org.ezproxy.liberty.edu/10.1111/j.1365-2214.2005.00479.x

Patton, M.Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work 1*(3), 261-283. https://doi.org/10.1177/1473325002001003636

Perry, R. (2018). Understanding the why? Projective techniques in qualitative research. *Research World.* https://www.researchworld.com/understanding-the-why-projective-techniques-in-qualitative-research/

Pfeiffer, D. (2001). The conceptualization of disability. In B. M. Altman & S. Barnartt (Eds.), Exploring theories and expanding methodologies: Vol. 2. *Research in social science and disability.* (pp. 29–52). Oxford, UK: Elsevier. https://doi.org/10.1016/S1479-3547(01)80019-1

Reflective Note. (n.d.) *Segen's Medical Dictionary*. (2011). Retrieved July 30, 2020 from https://medical-dictionary.thefreedictionary.com/reflective+note

Renzulli, J., Reis, S., and Shaughnessy, M.F. (2014). A reflective conversation with Joe Renzulli and Sally Reis: About the Renzulli Learning System. *Gifted Education International, 30*(1), 24-32. https://eric.ed.gov/?id=EJ1020611

Robeyns, I. (2005). The capability approach: A theoretical survey. *Journal of Human Development, 6*(1), 93-117. https://doi.org/10.1080/146498805200034266

Rosen, P. (2020). The challenges of twice-exceptional kids. *Understood For All, Inc.* https://www.understood.org/en/friends-feelings/empowering-your-child/building-on-strenIGhs/gifted-childrens-challenges-with-learning-and-thinking-differences

Rosenberg, M. (1979). *Components of Rosenberg's self-esteem scale.*

Rubenstein, L. D., Schelling, N., Wilczynski, S. M., & Hooks, E. N. (2015). Lived experiences of parents of gifted students with autism spectrum disorder: The struggle to find appropriate educational experiences. *Gifted Child Quarterly, 59*(4), 283–298. http://dx.doi.org.ezproxy.liberty.edu/10.1177/0016986215592193

Rudy, L.J. (2020). What does it mean to be neurotypical? *Very Well Health: Brain & Nervous System.* https://www.verywellhealth.com/what-does-it-mean-to-be-neurotypical-260047

Rutter, M. and Schopler, E. (1987). Autism and pervasive developmental disorders: Concepts and diagnostic issues. *Journal of Autism and Developmental Disorders, 63*(4), 159-186. https://doi.org/10.1007/BF01495054

Safran, S.P. (2008). Why youngsters with autistic spectrum disorders remain underrepresented in special education. *Remedial and Special Education, 29(2), 90-95.* https://doi.org/10.1177/0741932507311637

Sansosti, J, and Sansosti, F. (2012). Inclusion for students with high-functioning autism spectrum disorders: Definitions and decision making. *Psychology in the Schools, 49*(10), 917-931. https://doi.org.ezproxy.liberty.edu/10.1002/pits.21652

Sansosti, F. (2010). Teaching social skills to children with autism spectrum disorders using tiers of support: A guide for school-based professionals. *Psychology in the Schools, 47*(3), 257-281. https://doi.org.ezproxy.liberty.edu/10.1002/pits.20469

Sen A.K. (1993). Capability and Well-Being. In M.C. Nussbaum and A.K. Sen (Eds.), *The quality of life* (pp.30-53). Oxford: Clarendon Press.

Sen A.K. and Nussbaum, M. (1993). *The quality of life*. Oxford: Clarendon Press.

Shriner, J.G. and Ganguly, R. (2007). Assessment and accommodation issues under the no child left behind act with the individuals with disabilities improvement act: Information for IEP teams. *Assessment for Effective Intervention, 32*, 231-243. https://doi.org/10.1177/15345084070320040501

Shulman, V. and Armitage, D. (2005). Project discovery: An urban middle school reform effort. *Education and Urban Society, 37*(4), 371-397. https://doi.org/10.1177/0013124505277688

Silverman, L. (1993). *A developmental model for counseling the gifted.* Denver, CO: Love Publishing.

School Messenger Presence (2020). Retrieved from: www.leeschools.net

Skaalvik, E. M. (1997). Self-enhancing and self-defeating ego-orientation: Relations with task and avoidance orientation, achievement, self-perceptions, and anxiety. *J. Educ. Psychol.* 89: 71–81.

Skaalvik, E.M. and Skaalvik, S. (2002). Internal and external frames of reference for academic self-concept. *Educational Psychologist, 37*(4), 233-244. https://doi.org/10.1207/S15326985EP3704_3

Smith-Myles, B., Hilgenfeld, T.D., Barnhill, G.P., Griswold, D.E., Hagiwara, T., & Simpson, R.L., (2002). Analysis of reading skills in individuals with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities. 17*(1), 44-47. https://doi.org/10.1177/108835760201700104

Strain, P.S. and Bovey, E.H. (2011). Randomized, controlled trial of the LEAP model of early intervention for young children with autism spectrum disorder. *Topics in Early Childhood Special Education, 31*(3), 133-154. https://doi.org/10.1177/021121411408740

Swisher, A.H., (2009). *Practitioner views of Asperger's disorder: Clinical diagnosis and special education eligibility* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Thesis databases. (UMI No. 3399048).

Toson, A., Burrello, L.C., and Knollman, G. (2013). Educational justice for all: The capability approach and inclusive education leadership. *International Journal of Inclusive Education, 17*(5), 1-17. https://doi.org/10.1080/13603116.2012.687015

Vignoles, V. L., Regalia, C., Manzi, C., Golledge, J., and Scabini, E. (2006). Beyond self-esteem: Influence of multiple motives on identity construction. *Journal of Personality and Social Psychology, 90*(2), 308–333. https://doi.org/10.1037/0022-3514.90.2.308

Voit, D. (2020). Autism -vs- giftedness: A neurobiological perspective. *Resources by HEROES.* https://resources.njgifted.org/autism-vs-giftedness-a-neurobiological-perspective/

Wang, W.C., & Neihart, M. (2015). How do supports from parents, teachers, and peers influence academic achievement of twice-exceptional students? *Gifted Child Today, 38,* 148-159; https://doi.org/10.1177/1076217515583742

Webb, J.T. (2000). Misdiagnosis and dual diagnosis of gifted children: gifted and LD, ADHD, OCD, Oppositional Defiant Disorder. https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED448382

Webb, J.T., Amend, E.R., Webb, N.E., Goerss, J., Beljan, P, & Olenchak, F.R. (2019, January 10). Misdiagnosis and dual diagnosis of gifted children. *Supporting Emotional Needs of the Gifted (SENG).* https://www.sengifted.org/post/misdiagnosis-and-dual-diagnosis-of-gifted-children

Whiteneck, G. (2006). Models of disability: Past, present, and future. *Workshop on Disability in America, A New Look: Summary and Background Papers.* 55-66 https://www.researchgate.net/publication/283968254_Models_of_disability_Past_present_and_future

Whitmore, J.R., (1980). *Giftedness, conflict, and underachievement*. Allyn & Bacon.

Whitmore, J.R. & Maker, C.J. (1985). *Intellectual giftedness in disabled persons*. Aspen Systems, Corporation.

Wilkinson, L.A., (2009). Facilitating the identification of autism spectrum disorders in school-age children. *Remedial and Special Education 31*(5), 350-357. https://doi.org/10.1177/0741932509338372

Winebrenner, S. (2003). Teaching strategies for twice-exceptional students. *Intervention in School and Clinic, 38*(3), 131-137. https://doi.org/10.1177/10534512030380030101

Woods, M., Paulus, T., Atkins, D.P., Macklin, R. (2015). Advancing qualitative research using qualitative data analysis software (QDAS)? Reviewing potential versus practice in published studies using ATLAS.ti and NVivo, 1994-2013. *Social Science Computer Review (34)*5, 597-617. https://doi.org/10.1177/0894439315596311

World of Inclusion. (2020). *Understanding the social model of disability: The 'medical model' versus the 'social model'.* World of Inclusion, Ltd. https://ukdhm.org/what-is-ukdhm/the-social-model/

Wormald, C., Rogers, K. B., and Vialle, W. (2015). A case study of giftedness and specific learning disabilities: Bridging the two exceptionalities. *Roeper Review, 37*(3), 124–138. https://doi-org.ezproxy.liberty.edu/10.1080/02783193.2015.1047547

Worrell, J. L. (2008). How secondary schools can avoid the seven deadly school "sins" of inclusion. *American Secondary Education, 36*(2), 43–56. https://web-b-ebscohost-com.ezproxy.liberty.edu/ehost/detail/detail?vid=5&sid=1c3c1ccd-6e23-439a-9042-fc34d7b056cc%40pdc-v-sessmgr03&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=32143826&db=ehh

Wright, T.L. (2016). *Gifted with Asperger's Syndrome (twice-exceptional): The difference post-graduate certifications held make on early childhood teachers' knowledge* (Doctoral dissertation). http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1865331092?accountid=12085

Ysseldyke, J., Thurlow, M., Bielinski, J., House, A., Moody, M., and Haigh, J. (2001). The relationship between instructional and assessment accommodations in an inclusive state

accountability system. *Journal of Learning Disabilities, 34*(3), 212-220. https://doi.org/10.1177/002221940103400302

Yin, R.K. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: SAGE Publications.

Young, K. S., & Mintz, E. (2008). A comparison: difference, dependency, and stigmatization in special education and disability studies. In S. L. Gabel, & S. Danforth (Eds.), *Disability and the politics of education: An international reader* (pp. 499-516). Peter Lang Pub.

Yuan, J., Li, M., and Lu, Z.K. (2021). Racial/ethnic disparities in the prevalence and trends of autism spectrum disorder in US children and adolescents. *JAMA Network Open, 4*(3). https://doi.org/10.1001/jamanetworkopen.2021.0771

Zecker, S. (2016, February 23). *Underachievement and learning disabilities in children who are gifted*. Northwestern University Retrieved November 8, 2020, http://www.nldline.com/gifted_and_ld.htm

Appendix A

IRB Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

March 31, 2021

Heather Bernau
Lucinda Spaulding

Re: IRB Approval - IRB-FY20-21-534 Effects on the Social-Emotional Learning of Students Identified as Twice-Exceptional: A Phenomenological Study

Dear Heather Bernau, Lucinda Spaulding:

We are pleased to inform you that your study has been approved by the Liberty University Institutional Review Board (IRB). This approval is extended to you for one year from the following date: March 31, 2021. If you need to make changes to the methodology as it pertains to human subjects, you must submit a modification to the IRB. Modifications can be completed through your Cayuse IRB account.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following reason(s):

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Thank you for your cooperation with the IRB, and we wish you well with your

research project. Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix B

IRB Approval-Modification

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

June 10, 2021

Heather Bernau
Lucinda Spaulding

Re: Modification - IRB-FY20-21-534 Effects on the Social-Emotional Learning of Students Identified as Twice-Exceptional: A Phenomenological Study

Dear Heather Bernau, Lucinda Spaulding:

The Liberty University Institutional Review Board (IRB) has rendered the decision below for IRB-FY20-21-534 Effects on the Social-Emotional Learning of Students Identified as Twice-Exceptional: A Phenomenological Study.

Decision: Approved

Your request to "[expand] the population to include students [within the age range of] 18-22" has been approved. Thank you for submitting your revised study documents for our review and documentation. Your revised, stamped consent form and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study in Cayuse IRB. Your stamped consent form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.

Thank you for complying with the IRB's requirements for making changes to your approved study. Please do not hesitate to contact us with any questions.

We wish you well as you continue with your research.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix C

Recruitment Email-Parent (Minor Student)

Dear (Parent):

As a doctoral student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctor of philosophy degree. The purpose of my research is to explore the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome, and I am writing to invite eligible participants to join my study.

For this study, I am soliciting the participation of parents and twice-exceptional students. I seek the ability to request parent survey completion and interview the students. If you believe you and your student meet the criteria for the participants, I am requesting your participation. Participation will involve completion of a parent questionnaire and a video recorded video-conference interview between myself and the twice-exceptional student which will take place in a location convenient to you. I expect the interview to last approximately 45-60 minutes. The questions will relate to the student's thoughts and experiences with interventions and accommodations for students with high functioning autism or Asperger's syndrome. I will also ask the student to create a self-portrait to discuss during the interview. Finally, during the interview, I will ask the student to bring to the video-conference three items that describe him or her and explain the choice of each. The total time that would be asked of you to be involved in this study would be no more than 3 hours.

Your participation is voluntary, and your identity will be confidential. If you would like to be a part of this research study, please complete the Parent Questionnaire, and Parent Consent with Child Assent, and email the permission form to XXXXXXXXXXXXXXX. Please provide contact information as well as a few dates and times that would be convenient for you to complete the interview. I will contact you to schedule a time to complete the interview.

Thank you very much for your time and interest in this study. Your opinions will be invaluable to the success of this research study.

Sincerely,
Heather A. Bernau
(XXX)XXX-XXXX
XXXXXXXXX

Appendix D

Recruitment Email-Adult Student

Dear Student:

As a doctoral student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctor of philosophy degree. The purpose of my research is to explore the experiences of students identified as intellectually gifted and having high functioning autism or Asperger's syndrome, and I am writing to invite eligible participants to join my study.

For this study, I am soliciting the participation of twice-exceptional students. I seek the ability to request survey completion and interview the students. If you believe you meet the criteria for the participants, I am requesting your participation. Participation will involve completion of a questionnaire and a video recorded video-conference interview between myself and the twice-exceptional student which will take place in a location convenient to you. I expect the interview to last approximately 45-60 minutes. The questions will relate to your thoughts and experiences with interventions and accommodations for students with high functioning autism or Asperger's syndrome. I will also ask you to create a self-portrait to discuss during the interview. Finally, during the interview, I will ask you to bring to the video-conference three items that describe you and explain the choice of each. The total time that would be asked of you to be involved in this study would be no more than 3 hours.

Your participation is voluntary, and your identity will be confidential. If you would like to be a part of this research study, please complete the Adult Student Questionnaire, and Consent Form, and email the consent form to XXXXXXXXXXXXXXX. Please provide contact information as well as a few dates and times that would be convenient for you to complete the interview. I will contact you to schedule a time to complete the interview.

Thank you very much for your time and interest in this study. Your opinions will be invaluable to the success of this research study.

Sincerely,
Heather A. Bernau
(XXX)XXX-XXXX
XXXXXXXXXXXXXXXX

Appendix E

Projective Self-Portrait Instructions

Directions for Projective Self-Portraits

Below are the directions for participants' projective self-portraits.

1. Choose a medium (drawing, painting, electronic—Bitmoji/avatar, etc.) to create a self-portrait.
2. Place yourself in a particular setting or background.
3. Create an image of yourself.
4. Be prepared to describe, in detail, how and why you chose your setting.
5. Be prepared to describe, in detail, how and why you chose your medium.
6. Be prepared to describe, in detail, your image. Why did you include each component? Is there any special meaning for things you chose to include?
7. Bring your self-portrait to our interview and be prepared to discuss it.

Appendix F

Adult-Student Questionnaire

The following open-ended questions will be asked of participants:

1. What are your medical diagnoses and when were these received?
    a. Were you identified as gifted or diagnosed with high functioning autism first?
    b. Why do you feel you received the gifted (or ASD) identification first and the ASD (or gifted) identification second?
    c. How do you feel this timeline has affected your experiences (educational, social, emotional)?
2. Which characteristic behaviors and traits of giftedness, high functioning autism, or Asperger's syndrome do you exhibit?
3. When you describe yourself, which identity do you use (gifted, high functioning autism, Asperger's, combination)?
4. Which characteristic behaviors or traits has a psychologist, counselor, or teacher mentioned with respect to academic, social, or behavioral goals?
5. What type of school do/did you attend (public, private, home school, etc.)?
6. In which type of classroom(s) do/did you participate (inclusion, resource, gifted, etc.)?
    1. What services do/did you receive? (IG/ESE/Speech and Language, etc.)
7. What is your ethnicity?
8. What is your age?
9. What is your grade in school?
10. How many siblings do you have?

11. What are their ages?

12. What are your strengths?

13. What are your areas of weakness?

14. What are the characteristics of teachers who have been effective with your needs?

15. Is there anything else you would like me to know about you?

Appendix G

Parent Questionnaire

The following open-ended questions will be asked of participants' parents:

1. What are your child's medical diagnoses and when were these received?
    a. Was your child identified as gifted or diagnosed with high functioning autism first?
    b. Why do you feel your child received the gifted (or ASD) identification first and the ASD (or gifted) identification second?
    c. How do you feel this timeline has affected his/her experiences (educational, social, emotional)?
2. Which characteristic behaviors and traits of giftedness, high functioning autism, or Asperger's syndrome do you observe in your child?
3. When you describe your child, which identity do you use (gifted, high functioning autism, Asperger's, combination)?
4. Which characteristic behaviors or traits has a psychologist, counselor, or teacher mentioned with respect to academic, social, or behavioral goals?
5. What type of school does your child attend (public, private, home school, etc.)?
6. In which type of classroom(s) does your child participate (inclusion, resource, gifted, etc.)?
    1. What services does your child receive? (IG/ESE/Speech and Language, etc.)
7. What is your child's ethnicity?
8. What is your child's age?

9. What is your child's grade in school?
10. How many siblings does your child have?
11. What are their ages?
12. What are your child's strengths?
13. What are areas of weakness for your child?
14. What are the characteristics of teachers who have been effective with your child's needs?
15. Is there anything else you would like me to know about your child?

Appendix H

Parental Consent

Combined Parental Consent and Student Assent

Title of the Project: Effects on the Social Emotional Learning of Students Identified as Twice-Exceptional: A Phenomenological Study
Principal Investigator: Heather Bernau, M.Ed., Ph.D. candidate, Liberty University

Invitation to be Part of a Research Study

Your child is invited to participate in a research study. In order to participate, you must be the parent of a twice-exceptional student. For the purposes of this study, twice-exceptional will be identified gifted or having an IQ at or above 130 and diagnosed with high functioning autism or Asperger's syndrome. You must be willing to allow your child to be videotaped. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to allow your child to take part in this research project.

What is the study about and why are we doing it?

The purpose of the study is to describe the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome.

What will participants be asked to do in this study?

If you agree to allow your child be in this study, I would ask him or her to do the following things:

1. Complete a projective self-portrait. Approximately 30 minutes but could vary by participant.
2. Participate in a video-recorded interview. Approximately 45-60 minutes.
3. Bring three items to the interview to discuss. Approximately 10 minutes.

How could participants or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include increased public knowledge and improved programming for twice-exceptional students.

What risks might participants experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

As a mandatory reporter, the researcher is required to report any suspected child abuse, child neglect, or intent to harm self or others that she becomes privy to during the course of the study.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be kept confidential through the use of pseudonyms. Interviews will be conducted in a location where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be video recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should be done if a participant wishes to withdraw from the study?

If you choose to withdraw your child from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw him or her, data collected from your child will be destroyed immediately and will not be included in this study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Heather Bernau. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at (XXX) XXX-XXXX and/or XXXXXXXXXXX. You may also contact the researcher's faculty sponsor, Dr. Spaulding, at XXXXXXXXXXX.

Whom do you contact if you have questions about rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX or email at XXXXXXXXXX

Your Consent

By signing this document, you are agreeing to allow your child to be in this study. Make sure you understand what the study is about before you sign. You may print a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child to participate in the study.

☐ The researcher has my permission to video-record my child as part of his/her participation in this study.

_____
Printed Child's/Student's Name

_____
Parent's Signature Date

_____
Minor's Signature Date

Appendix I

Consent

Consent Form

Title of the Project: Effects on the Social Emotional Learning of Students Identified as Twice-Exceptional: A Phenomenological Study
Principal Investigator: Heather Bernau, M.Ed., Ph.D. candidate, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. In order to participate, you must have been identified as a twice-exceptional student. For the purposes of this study, twice-exceptional individuals will be identified as gifted or having an IQ at or above 130 and diagnosed with high functioning autism or Asperger's syndrome. You must be willing to be videotaped. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to allow your child to take part in this research project.

What is the study about and why is it being done?

The purpose of the study is to describe the experiences of students identified as gifted and having high functioning autism or Asperger's syndrome.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

1. Complete a projective self-portrait. Approximately 30 minutes but could vary by participant.
2. Participate in a video-recorded interview. Approximately 45-60 minutes.
3. Bring three items to the interview to discuss. Approximately 10 minutes.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include increased public knowledge and improved programming for twice-exceptional students.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

As a mandatory reporter, the researcher is required to report any suspected child abuse, child neglect, or intent to harm self or others that she becomes privy to during the course of the study.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be kept confidential through the use of pseudonyms. Interviews will be conducted in a location where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be video recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.

How will you be compensated for being part of the study?

Participants will be compensated for participating in this study. I will provide a $20 VISA gift card at the end as a token of appreciation for the participant's time. I will email the gift card to the participant upon completion of the interview. Compensation will not be pro-rated if a participant does not complete the study

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Heather Bernau. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at (XXX) XXXXXXX and/or XXXXXXXXXXXXXX. You may also contact the researcher's faculty sponsor, Dr. Spaulding, at XXXXXXXXXXXXXX.

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX or email at XXXXXXXXXX.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to video-record me as part of my participation in this study.

_____

Printed Subject Name

_____

Signature & Date

Appendix J

Interview Sample

Interviewer: Please introduce yourself to me, as if we just met one another.

Participant: I'm [Mark]. I am currently 22 years old, and right now I am a senior in the engineering program at Florida Atlantic University. I study ocean engineering, which is an emphasis on, basically, it's a systems engineering type of thing where it combines different aspects that work together in ocean aspects, so that's marine systems, combining the mechanical, the electrical, and computer aspects all into one looking at the bigger picture rather than the individual parts of the whole. Um...I got into that, actually because when I was younger I was obsessed with Titanic. I was actually going to use that as one of my references that you asked to bring. It was a book that my sister read me when I was two that I was obsessed with that was called *Aboard the Titanic*. I brought a substitute in which is a different book but gets the same point across. But I was obsessed with shipwrecks and the ocean and everything like that when I was younger. And, originally, I thought I was going to do marine biology for the longest time, until I took a biology course in high school and discovered I'm no good at biology. So, I ended up becoming really good in science and math and I ended up really following that engineering, it was actually in middle school life that I fell into a STEM program in eighth grade that got me interested in engineering and ever since it's been kind of a pretty straight trajectory, ocean engineering, from there.

Um, I originally moved down into Florida with my family when we were, four for me, so I was kind of too young to remember the transition for the most part. I grew up, I went to kindergarten in Florida, I mean my only education experience outside of Florida was preschool, so not much of a big escalation there. So, basically, I was just down here for as long as I can

remember. I went to Trafalgar Elementary.

Interviewer: Please describe your identification of intellectual giftedness and diagnosis with Asperger's syndrome.

Participant: In third grade they tested me for the gifted. I also had a speech diagnosis in the second grade, so I couldn't pronounce the "th"es and the "s"es, and the, eh. So, they fixed that one, and the Asperger's diagnosis came around towards the sixth grade. I went to Caloosa Middle School for one year. Had some trouble there because of a combination of insane bus schedules and a bit of--I got bullied a little bit. And the more interactive points. And I was also full-time gifted in the sixth grade which was not a good fit for me. I don't know if this is a reflectant on just the program or if it was my experience, but it was very ruthless, competitive, and it made me feel way stressed out and isolation and so eventually in the seventh grade I switched over to a charter school program at Oasis Charter in the seventh grade. And so it was more of a public charter, so not the traditional model there. Um, it went back to the part-time gifted, which was just the one class period, which ended up workin' well for me. And then eighth grade, I went to the STEM Academy and then in ninth grade I did the AICE program, ninth through twelfth. And I did a little JROTC in there, I was in swimmin' for a long time. Swimming was kind of my forte for a long time. Back in the day I really liked it, both because it was somethin' you could do sort of on your own and it helped maintain focus and stuff like that. It was a team sport without being a team sport. And um, between those two things, JROTC and swimming, um and academics, that was my high school experience for the most part. I am not one who went partying or anything like that. I basically hung out with friends, obviously, but I wasn't, I'm not a social butterfly by any definition of the means. I mean, I can get along with small groups pretty well, but big parties are not my thing in the slightest, they, I, at best, am a

wallflower. Like even at my cousin's, I just went to my cousin's wedding a couple of weeks ago, and even then, my cousins had to literally drag me onto the dance floor. A partier, I am not.

Interviewer: I know you mentioned that you were diagnosed with Asperger's in sixth grade. Would you please describe your experiences with having Asperger's syndrome?

Participant: Like I said, there was issues with bullying and stuff like that. And my interactions in sixth grade, um, outside of the gifted classes, which I wasn't doing too well, wasn't getting along with. Um, I was miserable and didn't fit in at all, and nothing was clicking, so they kind of suspected something might be up, and kind of got me tested. Afterwords, although it got kind of interesting with the school district, I don't know how much you read in the thing I put out [survey], but the school district, so, they took me to the psychologist and did the 40-page, and found out that I was on the autism um, Asperger's, um with a bit of sensory integration in there. And they did a 40-page report and sent it to the school district, who decided to do their own, in house um investigation by doing class observations and I was initially in gym and they put me into, there was an intensive class that they basically helped, that I helped, that I was a teaching assistant for. So that was kind of a way for me to get out of that environment [gym] and I was helping students with math and stuff like that. It was an intensive math class, basically I was helping kids. And um, they did their observations during that class and deduced by that that, no, the psychologist and her professional input was wrong and they would not do any accommodations whatsoever. And that output kind of affected how I interact with the diagnosis. I'm very private about that in my own life, I don't advertise it. I didn't put anything with ESE on for college or anything like that. And it's always been something that I try not ta, not feel comfortable bringing it up with strangers or anything like that. Not in a public forum, present company excluded, because, um. Um, yeah. There've been a coupla friends who I've mentioned

it to and they've took it well, but there have been a coupla friends who it freaked them out and they backed off and just like stopped interacting with me at all. One friend in particular, we used to hang out a lot, and then he just, stopped after I mentioned it to him. And I don't know if it was a direct cause or if it was some way I was reacting. So, from there, it just, I, to mine, I just keep it to myself when possible and I occasionally bring it up to a couple of my friends who I trust implicitly, I mean, I've only had to bring it up once when I was at work because of an interaction that happened with a colleague. One of my things is I had bad eye contact issues and, um, it's kind of awkward, but she thought I was staring in the wrong places whenever I looked at her and it got super uncomfortable. And I'm like, look, no, that's not what's happening here. I felt super embarrassed about that, but I mean, it's one of the times I had to say, look, I, um, and she actually understood and that cleared that, water under the bridge, thank goodness, but, yeah!

Um, yeah, as far as how it kind of affects me in my personal life, um I, with meeting new people, it's always, I mean, I can, how do I put this? Um, when I'm with large groups or anything like that, it, I've got a strong feeling of isolation, like even when I'm with somebody who I know is a friend or something like that I still feel like I'm distant or an outsider in some respect or something like that, like, and it's something I still struggle with to this day, I mean I always, like, it just feels like no matter how close I can get to a person, I, there's like a wall or something like that that I can't breach or something like that. Like a level of, and it's small things, like, even when I'm interacting with people, I can say something and it goes right over their head or their eyes glaze over. And that even happens with my own family sometimes, and. Like, I'll be explaining something I discovered in class and I'll be just going into it and getting really passionate and they'll just, their eyes will kind of glaze over, and I have to either explain it on a, I either have to drop the level of what I'm explaining or kind of just drop it because it's,

it's, it's over their heads, yeah, and it's not me trying to be rude, I just get passionate about something, like I mentioned the Titanic. Passionate things. Like when I was younger, I'm pretty sure I read every book in Titanic in the Library, every documentary. I mean, I know some obscure facts that people don't know how, why, just why do you know that? Like, for example, I know that there was seven dogs on the Titanic and that, critically, someone opened their cages before, the ship was sinking, so that they had a, had a chance, and stuff like that. It's just like little stuff like that. Yeah, and like, that's just, like that's the thing. It's ok to admit I'm a nerd. And I get really passionate about subjects and can get really into them on, verbatim, it's just some people, obviously, don't, I can get a little over passionate about that in that regard.

Interviewer: Can you describe your experiences in the special-education program at your school?

Participant: We talked about speech earlier. Speech was super helpful. I had a speech diagnosis in the second grade, so I couldn't pronounce the "th"es and the "s"es. The school didn't give me anything for my Asperger's at all. I mean, the school begrudgingly said, oh, he can use a laptop if he really wants to but, um, but like, yeah. And my teachers, didn't really want, they didn't go out of their way, they never really gave me tools to integrate that, so, um, like at first, I just tried to use notes and stuff like that on it [computer], but like when you're a sixth grader and you're still learning how to type, typing notes into a laptop does not compute. And especially since it wasn't connected to the internet or anything like that or a school service, it was basically a word processor with a, um, it was a fancy word processor. So, use was limited if you, it was not… completely bonkers. Eventually, my parents got me a netbook for like $150 and I used it at home for like, some things, homework, research, and stuff like that, but. And using technology, I actually got a little bit, our high school, um, Oasis did, for high school, allowed technology uses

and stuff like that, and that actually helped to a certain extent. Because they actually allowed us to use technology, shocking! I mean I know the teachers aren't exactly too fond of it because, obviously, iPads and games, and, guilty as charged on that front. But, I mean it's always par for the course, and kids, I mean, we were teenagers. We all did silly things, and, oh. I mean, I was mostly a good student, but I also did stupid things.

Interviewer: What types of things, if any, do you work on with your special-education teacher?

Participant: Just speech.

Interviewer: You mentioned that you never had access to special education class, with the exception of speech. What resources do you feel you have access to that help you manage the social aspects of your HFA/AS in the classroom? Do you have support making friends, maintaining friendships, collaborating with peers, etc.?

Participant: I got nothing.

Interviewer: What resources do you feel you are lacking that might help you manage the social aspects of your HFA/AS in the classroom?

Participant: The extended time would have been super helpful because I, I take a little longer. Sometimes, brain does not compute and it takes a few minutes, seconds, to, and this extends even into college, where I have to look at the problem a few times to figure out what's goin' on and what they're tryin' ta say. Which, thankfully on the college exams, on the engineering exams, you only have three questions on there so it's not the worst thing in the world. But, when you have like 20 questions and you don't understand one of them and your brain is not exactly like catching up, it's, it can lead to a few running out of time issues that, even to this day I cut it close on my exams and feel like I'll run out of time. So that's something that would definitely help. As far as technological access and stuff like that, um, organization is another, kind of, issue. Having

all my notes in one place would be, um, and I do this at school, where I'll, like, I do handwritten notes and stuff like that, but like, having access to the fact that teachers post things online and stuff like that, like their notes and stuff like that, gives me a huge advantage, because when I'm doin' homework I can have easy access and I don't have to flip through notes. Like, when I do notes in class it's more so I can get the concepts. Like that whole thing where you write somethin' down and you remember it better, better and stuff like that. And that type of stuff I keep in notebooks, the problem examples, and stuff like that. Like, having access to organized notes and what, organization has been sort of a key for me that I've had ta learn and build 'cause, I mean, when they don't, especially when I have these issues keeping organized, um I had to learn that myself and how ta plan and organize and how ta study effectively and stuff that, I don't know if they could have taught me some of that or provided support in that regard, but, stuff like that.

And, as far as like, socially and stuff like that, that's something that, I'm not sure if the school, like, that's not something, that's something that, in my opinion, stuff like that, I mean, yeah, the school could, but like, with like, friends, counseling strategies and stuff like that, but like, I don't necessarily think that's something that is practical to do on a large scale. Like, I can fully understand that they only had so many people that they could hire, and yeah, the teachers are already overwhelmed as it is. And, maybe the last thing is a bit more of an open dialogue with the teacher and having my teachers actually know that. It would have happened if it hadn't actually gone to the thing, but. If, I could have worked with my teachers and have been able to, and most of my teachers in high school were very accommodating. I had one particular teacher who didn't mind staying after and helping out and stuff like that. And that was more my positive impact and that teacher, I mean I was always more of a math kid and that teacher, I was that kid

that got it easily until calculus and that teacher, I had to actually struggle for the first time with math and stuff like that, but he helped me, um that particular teacher, would stay behind to help us, would go out of his way to be creative about ways to, and stuff like that. But he had a strong impact on my life and one of the reasons I was able to understand calculus on such a good level and taught me math tricks that I can actually use to this day, and he was amazing. And when I look at the ideal teacher, he's kind of what I bring up in my head, cause, like, a good example of this one day was like we were in statistics class and he was trying over and over again to get us to draw a picture. And finally, he's like, everyone close your eyes and do this problem. I'm going to read out this problem with your eyes closed, and I want you to try and come up with an answer and obviously no one could do it with their eyes closed. And he goes, ok, so if your eyes are closed and you can't do it, and you're not able to picture it, why are you trying to do math the same way? Without a visual reference? And it just clicked. And now as an engineer, I have to draw pictures because every single problem has a different point of reference and when you've got forces going 18 different directions, ya need to, so that's something that, it stuck. Even to this day I use word pictures to try to relate it to something else and that's a mental trick of mine. And that's great, 'cause like now I can, it also taught me ta attach certain knowledge that is not necessarily linked together and make connections. And it allows me to take the certain stuff I'm learning and apply it in ways that teachers don't, but like, you have to do in the real world. Talk about, be a real professional and like make connections and stuff like that.

Like, I got to do a shark finder project this year. Well, technically it was a fish finder project, but I asked if I could make it a shark finder project. So, there are things that are done that make it so I can manage in college, and stuff like that. And obviously college is a lot of technology and stuff like that.

Interviewer: You have described some of your experiences with the gifted program at your school. What is your general attitude about yourself and your intelligence with regard to your gifted classes?

Participant: As far as gifted, I am able to adjust my way of thinking to fit the scenario, for what I'm doing. This, actually, is one of the driving forces of why I chose my major within engineering. On the flip side, I have a very bad tendency to overthink things. As far as the Asperger's, I have a sense that I am isolated. I feel a lot that I am abnormal and am an outsider. I desperately want to be considered normal and belong, but always feel other. It takes me longer to understand things than my peers, sometimes, but when I do I can use that knowledge in more unique ways and make connections that are more outside of the box. My Asperger's actually makes me more gifted.

Interviewer: Who is your case manager?

Participant: Um, through middle school, um through elementary school, they had um, they didn't have a case manager, per se, they had a, um, they would do regular meetings with the, my teacher, the gifted teacher, and then the speech, speech teacher. And they all kind of coordinated on that front. There was, um not a specific person for each case. If there was a case manager in middle school I don't remember. And, to be honest, whatever happened after that meeting, like, yeah. In middle school, I went to speech once or twice and they said, oh you're finally good and then they stopped sending me after that. After that it was mostly interactions through the principal and stuff like that. And then that one specific teacher helping out and stuff like that. And when they pulled me out of like gym and stuff like that so I could help with that and stuff like that. But there wasn't a specific case manager or anything, unfortunately.

Interviewer: When you consider various programs (gifted, ESE, speech and language, social

skills, etc.), are there some that you find to be more or less helpful to you than others? If so, please explain.

Participant: The actual gifted program was more of an emphasis on competition, they were focusing as much as they could with academics and that's valid. But they would do stuff like post grades for the entire class. They wouldn't post names, like, they would give you the student number so there was some idea, but like, everyone kind of, you know, it doesn't take a kind of, it doesn't take a gifted kid to figure out who kind of, who's who.

Interviewer: As a 2e student, are you ever asked for feedback concerning which programs are helpful for you?

Participant: Uh, as far as like the gifted specialist when I was younger, um during the meetings they would ask me, like, where do you need help and stuff like that. Um, they would ask as far as like improvement and stuff like that, but like, as far as like tactics and stuff like that, they, I don't recall. Unfortunately, one of those details that did not stick.

Interviewer: When you describe your friends, what are their defining characteristics?

Participant: There's really just Katie [his sister]. She's one of the people, she, understands to a certain extent, what's happening with me a lot of the time. So, when I really need to talk to someone, I usually go to her, and she's kind of been the one to help, me, whenever I get into something, whenever I'm having trouble socially, or in school or something. She's someone I can turn to and she helps me out. I mean, we're siblings, so, you know, the usual sibling squabbles aside, she is probably, one of my biggest people I can fall back on. I'm gonna be eternally grateful to her for that because if it wasn't for her, for me being able to talk to her, I would be in a lot worse state than I am in now. I've been at that breaking threshold where social situations got that bad and she was able to talk to me and help me out through them. And so,

yeah.

Interviewer: What else can you share about your experiences in 2e programming?

Participant: I really liked the once-a-week program I did in elementary school. We were in most classes together and most of us got along pretty well. When I went to middle school, and stuff like that, at Caloosa it was full-time and that didn't fit. Then at Oasis, it was more of a class period, like an elective or something like that, and it was better. We would get, like, critical thinking problems and they would, like, be linked together with other classes and stuff like that. It was less forming the strategies than, like, thinking outside the box and implementing them.

Interviewer: Would you please describe your self-portrait to me?

Participant: I apologize in advance. I am not an artist. It looks like a goblin. But, I, um unfortunately have this thing, my parents call me the absent-minded professor sometimes. I'm where I'm really smart but my common sense sometimes is, is uh, oh boy.

Interviewer: How did you choose your setting or background?

Participant: It's just me. It's just plain, like me.

Interviewer: How did you choose your medium (drawing, painting, electronic)?

Participant: Honestly, I'm not an artist, so I used a pen because that's what I use most of the time.

Interviewer: Why did you position your Bitmoji/avatar/self the way you did?

Participant: I just put my face in the middle, because that's what a self-portrait is supposed to look like.

Interviewer: Is there anything else you would like to share with me about your self-portrait?

Participant: Um, no, it's terrible.

Interviewer: If you were to add a friend to your picture, who would you include and what

characteristics would they have?

Participant: Um, I don't know, to be honest, that's kind of hard for me. I don't know who I would, I don't know where I would put them, I don't know who I would even draw to be honest. Like drawing them is intimidating and where to put them is like, yeah. So, I don't know is the short answer on that.

Interviewer: Ok, you said you brought your three objects? Would you please show them to me? Will you please describe your first object? Why did you choose to show me this object?

Participant: Ok, so this was one of the books I read and reread as a child constantly. It was, I was originally gonna use the Titanic book, but this one, kind of, does the same purpose as far as like the obsession with shipwrecks. Uh, a book called *Dive,* it's a short thing, but it's about four kids who go to a internship and, in, uh, the Keys, and they're supposed to be helping, but the people who are supposed to be scientists they're working for are actually treasure hunters and they spend time on actually, mostly getting neglected, so they go in search of these treasure hunters and they're trying to actually find the ship and basically outsmart them because they're blowing up coral reefs to get access to this stuff and doing a whole bunch of amoral things. It's all about shipwrecks, and diving, and I was hooked on it as a kid and I reread this book, I swear I'm surprised it has a spine on it anymore. It's a series of three books and I'm surprised they have a spine on them anymore. But I was super obsessed with diving and shipwrecks and stuff like that and anything nautical when I was a kid, and like, I eventually became a scuba diver, and I got it as soon as I could, like at 11 or 12. As soon as I turned of age I immediately took the class to do it and stuff like that. It is by far one of my passions. I love everything under water and shipwrecks, and like I said, Titanic. And that Titanic obsession evolved into like I said, an obsession with shipwrecks in general, and that turned into a future. I actually want to work in

salvage, so, working on a shipwreck.

Interviewer: Will you please describe your second object? Why did you choose to show me this object?

Participant: Um, this is a trophy I did in middle school/high school, I was part of a swim team not just in high school, but I was on a club team, too. It was a big part of my life for a long time. I started in the seventh grade, I was actually fairly, um, I was on the bigger side, I was a bit overweight and stuff like that. I actually went to the level where I could compete on, I was on the club level, I was competitive. There was a while I was shooting for swimming in college, unfortunately, I didn't quite make the cut, so I settled for just doing and kind of swimming in my own time, but I was really into the sport. There's that, just, sol, when you're in the water, it's just you and your mind and stuff like that and for a couple hours a day you can just focus and kept your mind on you and, yeah, you were working out, and, um, physical exercise, but, you were also it was very peaceful, very comforting, you can just be in your own head for a few hours every day and kind of just be able to just, I loved it for that particular reason. That and, you know, I have a small competitive streak. I mean obviously I was never able to make Olympics and stuff like that, but I have, I was able to meet friends. When it focused on swimming I was able to be around people who I could get along with and that's a big part of me. For a large extent, I want to feel normal. I wanna be part of that group. I wanna fit in. That's how it goes at the end of the day, I mean, I've said it before. If I was less smart and was able to fit in and be a normal kid, I'd be ok with that at the end of the day. But I am where I am, so I have to make do with what I can. Like, and, like, one of my biggest desires is to find someplace where I can be, I don't wanna be the leader, I just wanna be part of the group and doing something where I am making an impact, and that's where I stand. Like, when I was on that team, like, I was part of the

team moving forward and I was around others who, we all were, we all were able to get along and respect one another because we were pushing and doing our best. So that's kind of that outlet that kind of the emotions for that, I just, I guess that's how I would describe that.

Interviewer: Will you please describe your third object? Why did you choose to show me this object?

Participant: Yeah, so this one's gonna, I'll turn the screen, this one's actually a college project. This was a robot I actually built for one of my classes in college. That runs off of a computer software that is in here, I don't know if you can see. See? That's the circuitry and stuff like that, that's a computer board in there and I programmed it. It's completely autonomous. You hit the go button and it runs by itself.

Interviewer: What does it do?

Participant: Um, it's kind of impressive. It goes into a square and drops a ball, which doesn't sound impressive, but is actually very complicated. The fact that it goes straight, and it sounds simple when you say it like that, but, like, it can receive, first of all, it can receive. It has an infrared receiver so it starts off. It's got several functions on it. First of all, you don't push a button on it, it's programmable with a remote. So, you actually activate certain programs on it, so there's a test mode on it for example that you can test different functions on it like, move the engines a certain amount, test the ball-drop mechanism. Um, it's got two different, um, types of motors on there, it's run off of a nine, nine-volt battery. Technically I wasn't supposed to use a battery unit on there, but it wasn't getting enough power, so I had to jerry rig it and solder the wires to override that. So, it runs on a full nine volts, which unfortunately for the motor processor on that means it gets a little hot sometimes and that component if you run it too much actually starts to overheat. But, I mean, I was workin' with what I had. And the ball-drop

mechanism is fairly simple, it's got a needle goin' through it and the other type of motor is a separate motor that you can control. So, each individual step is a portion of the circumference of a circle, so it's got a total of 2,048 steps as they put it and so one step is half of that, so 1,020, for example, so if you want to make it go 180 degrees, you would put the step amount for 1020. If you wanted to go 90, you would go 5/10. And it's a precision way of controlling how many turns it makes. It was the first time, a real engineering assignment where I built something from start to finish and it was, I'm, it was probably one of my prouder moments in college. It's the first time you actually do something in your major and make a real impact and it works, and it does what it's supposed to do perfectly. And on that project, I didn't only get an A on it, I got a 100 on it, so.

Interviewer: Is there anything else you would like to share with me about your objects?

Participant: I collect antique books. I've always been fascinated with history and stuff like that. For me, it's a way of connecting with the past and connecting with those who came before me and stuff like that. I'm big on collecting historical references or books of historical value. Not necessarily books that are worth, you know, $120,000. But more, one of my collections was a ship fitters manual on shipbuilding from 1941, right before they started, right before the US entered into world war. Right before things started changing because of the world war. That book represents the thought processes of what people were thinking, and um, to me, it's a look into how people were thinking at the time and that connection, and only knowing what they know. I mean, there's an entire portion of the book about using vacuum tubes in design. You know, the predecessor to transistor design. Like, it's stuff like that that I always find fascinating and I have a small collection going. I also do, obviously, the nautical with ships and stuff like that.

Interviewer: We've covered a lot of ground in our conversation, and I so appreciate the time you've given to this. One final question, what else do you think would be important for me to know about your experiences at school?

Participant: Just that I hope I was helpful. I know, I get the overthinking of the gifted with the absentmindedness of the Asperger's. I get the perfect storm of emotions at times, but also the think outside of the box and make connections. So, it's a double, there's good and bad aspects. It allows you to not just think in interesting ways, but take things, I was kind of touching on earlier of being able to pull from different sources, of pulling things from different sections that you normally wouldn't've. So, it's not just thinking of an out of box solution, but pulling something that you had no idea could even be applicable, and shoving it toward something you had no idea would even work that way. So, engineering is almost uniquely suited for my type of, my type of, thinking.

Appendix K

Data Analysis

Table 3
Data Collected from Each Participant

Pseudonym	*Survey*	*Self-Portrait*	*Bring Three Items*	*Interview*
Andrew	X	Photograph-style, mimics professional head-shot	*Macbeth script (my first Shakespeare play) *photos of family (they ground me and remind me of who I am) *magazine (my first print-job, represents my current and future potential for success)	X
Belinda	X	delicious blur of colors, centered on bed, sparse surroundings, elaborate Bitmoji	*18-inch tall stuffed xenomorph (soft, comfort item) *stupidly cool custom Kyrie Nike iD shoes (I created these and no one else in the world has them) *pink retro 1960s style stand mixer (represents creativity and style)	X
Charles	X	Wii style avatar in center of bedroom	*honor roll certificate *track and field first place ribbon in the 200 sprint *completed Lego Death Star (this is way harder than it seems and represents perseverance)	X
David	X	white computer paper, full-body self in center, detailed avatar, nothing else included	X	
Jerry	X	Bitmoji placed in center of city-scape	*Lego creation (investigative, created from spare parts, not a model) *Apple pencil (symbolizes creative side and the things that you can do with the right tools) *Mathematical Proofs book (desire to look at the world around and learn as much about everything as I can)	X
Luke	X	Elaborate electronic “painting,” left side,	*TV because I enjoy watching movies with my parents, sometimes	X

		looking into distance so I can see Creation	funny, sometimes educational (analogous to myself) *couch because I'm very comfortable with myself *lamp because I can see a bright future for myself and I have bright ideas	
Mark	X	white background, just face drawn in black ink	*Dive novel (about shipwreck and salvage, part of the reason for my degree choice) *swim trophy (represents being on a team and achieving something special) *first robot ever built as part of engineering program (represents super hard work and perseverance)	X
Mary	X	centered on white page, full body, like a portrait	*best friend (represents that there is someone out there who gets me) *pictures of family and friends (represent where I came from) *picture of my step-dad (for a really long time we didn't get along, but now things are better)	X
Ruben	X	white copy paper, self in center, watching sunset	*Bible (I'm super religious and this is a big part of my life) *computer (self-built, represents diligence and overcoming obstacles) *EMT certification (diploma, represents past, present, and future)	X
Tanya	X	off-center, turned away, watching sunset and "celestial bodies" rise	*camera (represents my love and future) *shrine to lost loved ones (grounds me) *old photos (I guess, kind of like the camera-shows where I came from and where I'm going)	X

Appendix L

Reflective Notes

I just finished my first interview and am so thankful that [Belinda's mom] was so willing to encourage [Belinda's] participation. I get the sense that [mom] is at her wit's end and is really struggling right now. [Belinda], on the other hand, seems to really be taking her whole situation in stride. While [Belinda] seems to be an ideal candidate for this study, I am apprehensive, as she is such a unique individual, she may not be representative of the 2e population. [Belinda's] IQ of 170+ is higher than anyone I've ever worked with. Most gifted students' IQs fall within the 130-150 range, and I am comfortable within those parameters. [Belinda], though, is a proper genius. I wonder if her responses and experiences will transfer. [Belinda] was focused and cooperative.

[Belinda]'s characteristic gifted behaviors are heavily overshadowed by her tics and behaviors characteristic of autism. I can't imagine how she navigated school and life without a diagnosis for so long. I am shocked and appalled that she was allowed to struggle for so long without someone advocating for her to be evaluated. She exhibits classic characteristics of a student with autism, it is unimaginable that no one noticed. [Belinda's] major characteristics are: elopement, pulling out her right eyebrow, rigid adherence to schedule, and discussion/completion of interest-only topics. Any one of these characteristics would be enough for most teachers with any ESE training to take note. Exhibiting all four behaviors through the age of 15 without a diagnosis is unthinkable.

It turns out that [Belinda] is a very likeable, funny, and typical teenager. She has particular tastes. It is clear that her mother has taught her that not everyone agrees with her all the time, but that [Belinda] is not interested in those with differing opinions. She is very artistic and loves to create. She thinks deeply and is impassioned by her projects.

I do wonder, based on past experience and having my interest renewed by this interview, if there is a correlation between students with a high IQ and increased characteristics and intensity of behaviors associated with autism. Specifically, [Belinda] exhibits extreme characteristics, eloping and pulling out her eyebrow, coupled with her profound IQ. In the past, I have noticed that my 2e students with more moderate IQs tend to have more moderate characteristic behaviors and my 2e students with higher IQs tend to have more pronounced characteristic behaviors. While this is not an area of focus for my study, I am curious to see if this is coincidental or if more research needs to be done in this area.

Table 6

Sample of Spreadsheet Used to Code and Categorize Individual Interview Data

Broad Categories	Categories	Properties/in vivo codes
Relationships	Family	"The only person that really gets me is my sister. Even my parents a lot of times don't get me…But with my sister, there's always a judgement free zone. Don't get me wrong, she'll tell me if she thinks I'm being an idiot. But she loves me unconditionally, without expecting anything from me in return. She's my only real friend and the only person I can really trust in my life."
		"No one understands me. Not even my family."
		"My parents have supported me unconditionally."
		"My parents always thought I was 'gifted weird,' but even so, they supported me no matter what."
		"I have worked really hard to learn to get along with my step-dad. We didn't get along for a really long time, but now things are better."
	Friends	"It was definitely a struggle fitting in socially through middle school. I often would act out in class and was bullied for it."
		"They're all really open and they're good at communicating their truth about their trust. I don't think there's any really defining factor beyond that I have a lot of varying people that I'm friendly with. They're all pretty eclectic, like none of them really share the same characteristics. Most of the people in my circle are not neurotypical. They have some sort of issues, but that makes them more open and more thoughtful in their communication. They share more."
		"In elementary and middle school, I would spend a lot of time outside of the classroom and met some long-time friends through speech and regular classroom settings."
		"I have a lot of friends, acquaintances really."
		"My best friend represents, for me, that there is someone out there who gets me."