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Twice-Exceptional Identification and Identity Formation: A Mixed Methods Study

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Abstract

This research study examined the parent perceptions of and relationships among intellectual potential, academic achievement, and the order of identification of exceptionality for twice-exceptional students. Twice-exceptional students exhibit both giftedness and a learning disability or difference. Consistently and equitably identifying and serving twice-exceptional students is a persistent problem of practice in the field of education (Artiles et al., 2010; Gentry et al., 2019; List & Dykeman, 2019; Moon & Reis, 2004; Webb et al., 2019). This study was supported by a community partner, a private educational testing and advocacy agency in a Western state.

This mixed methods study utilized a two-phase research design. The quantitative phase consisted of data analysis of assessment records of twice exceptional students. These data were collected by the community partner and de-identified and shared with the researcher. Quantitative data were analyzed with descriptive statistics and Welch t-tests. For the qualitative phase, participants were recruited through the community partner. Participants engaged in two hour-long interviews to share their perceptions of the experiences of their twice-exceptional child. Qualitative data were analyzed and presented in a narrative format to explore patterns and themes. Data were interpreted through the lens of identity formation, and the conceptual frames of intersectionality, stereotype threat, and self-concept.

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Robin Goldin Tobin

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Table of Contents

List of Tables

Chapter One: Introduction

Persistent Problem of Practice

Consistently and equitably identifying and serving twice-exceptional students, who are diagnosed as both gifted and having a learning disability is a persistent problem of practice in the field of education (Artiles et al., 2010; Gentry et al., 2019; List & Dykeman, 2019; Moon & Reis, 2004; Webb et al., 2019). While this research will refer to these students as twice-exceptional, they are known by other names in educational and research communities: smart kids with learning differences, uniquely gifted, and differently wired (Kay, 2000; Reber, 2020; Weinfeld et al., 2013). The most prevalent term is twice-exceptional, which will be used throughout this research, but these other names are helpful for illustrating the unique humanity of each learner. By any name, these students are vulnerable due to their asynchrony or uneven development (National Association for Gifted Children [NAGC], n.d.-a.; Silverman, 1997). This vulnerability should make finding and serving these students a priority in public education; unfortunately, consistent and equitable identification of twice-exceptional learners is not easily done (Moon & Reis, 2004; Silverman, 1997). Traits of twice-exceptional learners, issues within gifted identification, and issues within special education identification all inhibit the accurate and timely identification of twice-exceptional learners, leaving them unsupported and vulnerable (NAGC, n.d.-a).

Common traits of twice-exceptional learners that inhibit gifted identification include: frustration, learned helplessness, motivation issues, disruptive behavior, lack of organizational skills, and low self-esteem (Moon & Reis, 2004). These traits not only prevent twice-exceptional students from having their giftedness acknowledged, they can also lead to students being misunderstood and misdiagnosed (Mullet & Rinn, 2015). While there are many faces of giftedness, teachers and schools are most likely to recognize *Schoolhouse Gifted* students who perform at consistently high levels on IQ and other cognitive assessments as well as traditional achievement assessments (Callahan et al., 2018; Renzulli, n.d.). Masking, where the giftedness hides the disability or the disability hides the giftedness, is another phenomenon of twice-exceptional learners that makes identification challenging (Bell et al., 2015; Moon & Reis, 2004; Silverman, 2000). Masking can be the result of learned compensatory strategies or the magnitude of the disparities between strengths and weaknesses not being taken into account (Silverman, 2000). With the appropriate support, twice-exceptional students can do advanced work, but asynchrony and the traits listed above make twice-exceptional students less likely to have their potential recognized or developed (Kay, 2000). How giftedness is defined impacts who is included in identification and ultimately receives services (Callahan 2018). Understanding multiple definitions of giftedness and how they contribute to the inclusion or exclusion of twice-exceptional students is critical.

The Columbus Group defines giftedness as:

> Asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual

> capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally (NAGC, n.d.-d).

While many in the field of gifted education embrace the Columbus Group definition of giftedness, the federal definition, and definitions used by many states and districts derive from the 1972 Marland Report to Congress, and are more focused on high achievement (NAGC, n.d.-c).

> The federal definition of gifted is:
>
> Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (NAGC, n.d.-c).

This discrepancy in how giftedness is defined leads to inconsistent identification and services. The Columbus Group definition's inclusion of asynchrony as a hallmark of giftedness would lead to more twice-exceptional students being recognized, because asynchrony is a key component of twice-exceptionality (Kay, 2020; NAGC, n.d.-a; Silverman, 1997). On the other hand, the federal definition's focus on achievement leaves twice-exceptional students, who underachieve for a variety of reasons, to be left out (NAGC, n.d.-b).

The Individuals with Disabilities Education Act (IDEA), protects students with disabilities and requires that they receive a Free and Appropriate Public Education (FAPE) (U.S. Department of Education, 2017). IDEA recognizes and services students

under 13 disability types: specific learning disability, other health impairment, autism spectrum disorder, emotional disturbance, speech or language impairment, visual impairment, deafness, hearing impairment, deaf-blindness, orthopedic impairment, intellectual disability, traumatic brain injury, and multiple disabilities (U.S. Department of Education, 2018). Special education supports 7.1 million, or 14% of all public-school students in the U.S. in programs that are driven by federal mandates and federal funding (U.S. Department of Education, 2018). While this work is impactful and important, it is not without flaws. Students of color are over-identified for special education due to poverty, structural issues and bias of both educators and assessments (Artiles, et al., 2010). It is also worth noting that just as students of color are overidentified for special education, they are under identified for gifted education (List & Dykeman, 2019). As previously mentioned, being twice-exceptional creates vulnerability; understanding disparities within special education and gifted education are helpful when thinking about the additional marginalization of students of color who may be twice-exceptional.

Personal Context

My interest in twice-exceptional students began when I started my teaching career as a special education teacher with two twice-exceptional students on my caseload. Sam was a first-grade boy with a brilliant mind, a history of trauma, and severe ADHD. Rose was a second-grade bilingual girl with a creative mind and mild dyslexia. Meeting the needs of these students was what kept me up at night, as I didn't feel fully prepared by my schooling to do so. As I met more twice-exceptional students, my interest in gifted education increased, and I added a gifted endorsement to my license and took a position at a new school working half time each in special education and gifted education. Around

the same time, my own son was nominated by his preschool teacher to participate in testing for his school advanced kindergarten program, which he attended. He then received additional testing and qualified in our district as highly gifted. A few years later, after halting progress as a reader and speller in second grade, we learned he also has dyslexia. As a mom, I needed to learn all I could to advocate for my son. Thus, my professional interest as an educator and personal passion as a mom dovetailed into a strong desire to learn all I could about twice-exceptional students, how to find them, program for them, and advocate for them. My first twice-exceptional students are in high school now and my own son is about to enter high school; and I have met and supported dozens more twice-exceptional, or suspected twice-exceptional students over the last several years. Observations I have made over the years with these students have led me to pursue a Doctorate of Education for the opportunity to study twice-exceptional students and add to the current knowledge in the field. In particular, I have observed students who have similar twice-exceptional profiles but have significantly different school experiences, teacher perceptions, and self-concepts. Thus, I am interested in researching factors that impact school performance and identity. I wanted to explore the order of identification of each exceptionality as a potential factor impacting identity and achievement. To have the opportunity as a graduate student to explore questions that have intrigued me as a teacher is part of what led me to pursue a Doctorate of Education and motivated me in this research.

Community Partner

The community partner for this research is an organization who specializes in working with gifted and twice-exceptional students and their families. The organization

provides assessments, consultation, counseling, educational therapy, parent education, and parent support. They are an ideal partner because of their experience and knowledge serving gifted and twice-exceptional students and their families. They provide a continuum of services to students and their families. They have a large existing data set including achievement and ability measures. They shared a portion of this de-identified data set for the quantitative portion of this study and supported recruitment for the quantitative portion of this study.

Purpose Statement

The purpose of this mixed-methods study is to examine parent perceptions of and relationships among (1) intellectual potential, (2) academic achievement and (3) order of identification of exceptionality for twice-exceptional students who have received support from the community partner. Twice-exceptional students are defined as students exhibiting both giftedness and a disability or difference that impacts learning. Intellectual potential refers to measures of intellectual ability. In this study scores from the Wechsler Intelligence Scale for Children were analyzed. Academic achievement refers to measures of an academic skill. In this study subtest scores from three tests were analyzed. These included: Woodcock Johnson, Wechsler Individual Achievement Test, and Gray Oral Reading Test. Order of identification of exceptionality refers to which exceptionality was recognized or identified first.

Research Questions

This research will center around three quantitative and one qualitative research questions:

RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?

RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?

RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?

RQ4 – Qualitative: What are parents' perceptions of the experiences of twice-exceptional learners regarding school experiences before and since identification, identification experience, order of identification of exceptionality, and student identity and self-concept?

Methodology

This study utilized a mixed-methods design. Mixed-methods is a research approach that utilizes both qualitative and quantitative data analysis and methods in the research design (Creswell, 2015; Reis, n.d.). This study combined quantitative and qualitative research. The quantitative data collection and analysis occurred first and the qualitative data collection and analysis occurred second. The research questions included both closed-ended questions, ideal for quantitative research as well as an open-ended question, suited to qualitative research (Creswell, 2015). The first aim was to explore student assessment scores in the quantitative phase utilizing descriptive statistics and Welch *t*-tests; the second aim was to illustrate the lived experiences behind the numbers in the qualitative phase utilizing qualitative research (Creswell, 2015; Ivankova et al., 2006). The collective strength of collecting and analyzing both quantitative and

qualitative data provided a better understanding than either form of data alone and fulfilled the purpose of this research (Creswell, 2015).

Theoretical Framework

Identity formation was the theoretical framework for this research. This framework influenced the study design, the interview questions and guided the data analysis. Mixed-methods was selected because identity formation as a theoretical framework lends itself to both quantitative and qualitative inquiry (Creswell, 2015). The interview questions each supported narrative style research and connect with concepts of identity formation. Both the quantitative and qualitative data were analyzed using concepts of identity formation.

Within identity formation, three concepts were explored: intersectionality, stereotype threat, and self-concept. Intersectionality provided a lens to explore the seemingly conflicting identities of giftedness and a learning disability or difference. Stereotype threat provided a possible explanation for inconsistent performance. Self-concept explored parent perceptions of the beliefs students have about themselves.

The quantitative data were analyzed using descriptive statistics to understand the test scores for each group and Welch *t*-tests to compare the two groups: identified gifted first and identified by disability or difference first. For the qualitative portion, the interview participants shared about their child's experiences in school and answered questions about their child's self-concept and identity. In data analysis and reporting, responses to these questions were viewed through three lenses related to identity formation:

1. How does this experience relate to Crenshaw's concept of intersectionality?
2. How does this experience relate to the concept of stereotype threat?
3. What is the parent perception of their child's self-concept, and what factors have influenced it?

These concepts will be explored in greater depth in the literature review.

Summary

Twice-exceptional students being under identified and underserved is a persistent problem of practice in the field of education. Traits of twice-exceptional students, inconsistent gifted identification and services, and issues within special education all contribute to this complex problem. The researcher's personal experiences as a dually endorsed special education and gifted education teacher and the parent of a twice-exceptional student have been explored in this chapter to inform the following chapters of this Dissertation in Practice. In Chapter Two, the researcher will provide context, a historical overview and review current research to reveal a gap in the literature that this research aims to fill.

Chapter Two: Literature Review

Consistently and equitably identifying and serving twice-exceptional students is a persistent problem in the field (Artiles et al., 2010; Gentry et al., 2019; List & Dykeman, 2019; Moon & Reis, 2004; Webb et al., 2019). Traits of twice-exceptional learners, issues within gifted identification and issues within special education identification all inhibit the accurate and timely identification of twice-exceptional learners, leaving them unsupported and vulnerable (NAGC, n.d.-a). This chapter explores the factors that influence this complex problem of practice. Gifted education is examined first, followed by special education. The subsequent section explores twice-exceptionality. Next, existing research about twice-exceptionality is explored. To end, identity formation, as a theoretical framework, is discussed.

Gifted Education Overview

The field of gifted education is about 100 years old; it began in the 1920s with the works of Lewis Terman and Leta Hollingworth (Hernandez-Torrano & Kuzhabekova, 2020). There are many opinions as to the purpose of gifted education, and these have evolved over time. Terman and Hollingworth were interested in the development and characteristics of the gifted as well as the genetic and contextual factors of giftedness (Hernandez-Torrano & Kuzhabekova, 2020). The United States government became interested in gifted education as a means of competing globally after Russia's successful

launch of Sputnik in 1957 (Jolly, 2009). Currently, the National Association for Gifted Children (n.d.) cites many reasons gifted programming is a necessity including: gifted students' needs cannot be met through standard curriculum alone, gifted programming positively impacts students' future achievements and contributions to society. As the field has evolved, educators, policymakers and researchers have sought to define giftedness (Jolly, 2009).

Defining Giftedness

There are a variety of definitions of giftedness. This research used the definition that the community partner uses. This section will explore this and other definitions of giftedness. The community partner for this research utilizes a definition of giftedness and associated traits from A Parent's Guide to Gifted Children (Webb, Gore, Amend, Devries, 2007). They identify giftedness as advanced abilities in one or more of the following domains: intellectual ability, academic achievement, visual and performing arts, leadership ability, or creativity (Webb, Gore, Amend, Devries, 2007). Additionally, they provide a list of characteristics that a gifted student may display, including: rapid learner, good memory, easily frustrated, sensitive to injustice, self-critical, deeply curious, keen sense of humor, sophisticated use of language, intensity, asynchrony, long attention span, and divergent thinking (Webb, Gore, Amend, Devries, 2007). These characteristics can have positive manifestations as well as expressions that are challenging, or lead to vulnerability (Delisle & Galbraith, 2002; Silverman, 1997). Some of the gifted traits that are often advantageous in school are: rapid learning rate, strong memory, sophisticated use of language and long attention span (Webb, Gore, Amend, Devries, 2007). Despite the advantages of the traits listed above, gifted students often

underachieve in school due to some of the other traits on the list, namely asynchrony. Silverman (2007) explains underachievers are asynchronous with significant gaps between their strengths and weaknesses. Asynchrony or uneven development happens when a person's chronological age is different from their mental age; gifted children are more mentally advanced than their age mates which creates unique and challenging experiences (Silverman, 1997). The concept of asynchrony as a hallmark of giftedness is at the heart of the Columbus Group's definition of giftedness; the Columbus Group defines giftedness as:

> Asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally (NAGC, n.d.-c)

In addition to asynchrony, the concept of intensity or overexcitabilities is the other key component of this definition of giftedness. Silverman (1997) explores this aspect of giftedness by explaining Dabrowski's Theory of Positive Disintegration, the levels of human development and overexcitabilities (OE).

Polish psychologist and psychiatrist Kazimierz Dabrowski developed the Theory of Positive Disintegration (Daniels & Piechowski, 2008). While Dabrowski did not set out intending to create a theory of giftedness, his work has been embraced by the field as a means for defining and understanding gifted traits (Dodd, 2002; Finlay, 2002; Silverman, 1997; Tucker & Hafenstein, 1997). The concept of disintegration is the

evolution of the self through conflict or crisis, called positive disintegration because Dabrowski believed events in life are rich with potential for development and growth (Dodd, 2002; Finlay, 2002; Silverman, 1997; Tucker & Hafenstein, 1997). This theory has two main components: overexcitabilities and hierarchical levels of development (Daniels & Piechowski, 2008; Michelle-Pentelbury, 2002).

Dabrowski identified five OEs: psychomotor, intellectual, sensual, imaginational and emotional (Daniels & Piechowski, 2008). The psychomotor OE can manifest in an abundance of physical energy, impulsive behavior, nervousness, and an inability to stay still (Daniels & Piechowski, 2008). The intellectual OE is associated with love of learning, intense curiosity, and constantly asking questions (Daniels & Piechowski, 2008). The sensual OE is expressed as a heightened response to sensory stimuli for example relishing in the sound of rainfall or agonizing over the seams in your socks (Daniels & Piechowski, 2008). The imaginational OE is characterized by intense creativity expressed through art, fantasy play and expressive language (Daniels & Piechowski, 2008). The emotional OE presents in the most divergent ways of all OE; those with emotional OE can display intense range of emotional expression, exceptional memory for emotional events, heightened moral reasoning, anxiety, elevated fears and depressive symptoms (Daniels & Piechowski, 2008). Of all the OEs, emotional is thought to be the most consistently displayed in gifted people, both supported by theorists, and by feedback from gifted individuals and parents of gifted children (Tucker & Hafenstein, 1997). The OEs can be both positive and negative, as they allow for more intense experiences and understanding but can also put the individual at risk for mental health issues or being misunderstood or misdiagnosed (Silverman, 1997).

There are a variety of views and understandings about giftedness; ideally, these multifaceted views should be used in tandem to identify and serve gifted and twice-exceptional learners in American public schools (Callahan et al. 2018). Gifted identification and programming are important because gifted students' needs cannot be met through standard curriculum alone and gifted programming positively impacts students' future achievements and creative productivity (NAGC, n.d.-d).

The federal definition of gifted is:

> Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (U.S. Department of Education, 2004)

While there is a federal definition for gifted students, there is no federally committed funding nor mandate for how gifted students are served in school; those decisions are left to each state department of education (Gentry et al., 2019). The community partner for this research is located in a Western state that does not mandate identification or services for gifted students, nor is funding provided for gifted programming (Gentry et al., 2019). As such, this Western state ranks in the bottom half of the United States with regard to gifted identification rates overall; only 67.78% of all students attend a school that identifies students with gifts and talents. Further, Gentry et al. (2019) found that the disparity increased when looking at Title I schools, which is a designation for schools that serve students with 40% or more of the student body living in poverty (U.S. Department of Education, 2004). Students attending Title I schools are identified for

gifted services at 69% the rate of students who attend non-Title I schools. In addition, this Western state mirrors national trends of undeserving historically excluded groups for gifted identification and services. American Indian or Alaskan Native, Black, Latinx, and Native Hawaiian or Pacific Islander students are all identified at lower rates than their white counterparts (Gentry et al., 2019).

Disproportionality in Gifted Education: Racial and Ethnic Factors

As mentioned briefly above, gifted education fails to equitably identify and serve all groups for gifted identification and services. American Indian or Alaskan Native, Black, Latinx, and Native Hawaiian or Pacific Islander students are all identified at lower rates than their white counterparts (Gentry et al., 2019). Additionally, twice-exceptional students are missing from identification. List and Dykeman (2019) explored the complex issues impacting disproportionality in gifted education in the United States. Students are less likely to have their giftedness identified and nurtured if they are culturally and linguistically diverse, if they have learning disabilities or differences, or if they are from households with low socioeconomic status. Students with multiple of these factors are further marginalized. Ford et al. (2008) examined School Civil Rights Data from the U.S. Department of Education in 2002 and List and Dykeman (2019) and Gentry et al. (2019) examined existing federal Civil Rights Data Collection information from 2015 and 2016.

Racial composition of students identified for gifted education in the United States in 2002 show under identification of American Indian/Alaskan Native, Black, and Hispanic/Latino students (Ford et al., 2008). American Indian and Alaskan Native students make up 1.21 percent of all students, but make up only .93 percent of students identified as gifted (Ford et al., 2008). Black students make up 17.6 percent of all

students, but make up only 8.43 percent of students identified as gifted (Ford et al., 2008). Hispanic or Latinx students make up 17.8 percent of all students, but make up only 10.41 percent of students identified as gifted (Ford et al., 2008). Conversely, students who are White or Asian/Pacific Islander are over identified for gifted education (Ford et al., 2008). Asian/Pacific Islander students make up 4.42 percent of all students, but 7.08 percent of students identified as gifted (Ford et al., 2008). White students make up 59.42 percent of all students, but 72.59 percent of students identified as gifted (Ford et al., 2008).

Racial composition of students identified for gifted education in 2015 and 2016 show similar disparities, underrepresenting American Indian or Alaska Native, Black, Latinx, and Native Hawaiian or Pacific Islander students (Gentry et al., 2019). To analyze gifted education participation, Gentry et al. (2019) calculated representation indices to examine ratios across racial groups. A representation index of 1.0 indicated equity, or parity between a group percentage in the whole population and the same group percentage in the gifted education population (Gentry et al., 2019). The overall representation index for American Indian or Alaska Native students was 0.83 (Gentry et al., 2019). The overall representation index for Black students was 0.57 (Gentry et al., 2019). The overall representation index for Latinx students was 0.67 (Gentry et al., 2019). The overall representation index for Native Hawaiian or Pacific Islander students was 0.62 (Gentry et al., 2019). These reports, analyzing data 14 years apart, demonstrate that disproportionality is a persistent, ongoing problem in the field of gifted education.

While disproportionality in gifted education is a complex problem that needs to be addressed in multiple ways, Dixson et al. (2020) put forth suggestions to more equitably

serve all gifted learners, which would maximize opportunity for all marginalized groups in gifted education, including twice-exceptional students. Dixson et al (2020) argue for a proactive, fluid model, similar to that of Response to Intervention (RTI), but with a lens toward identifying and adequately challenging students who are underchallenged. This model de-emphasizes identification and focuses instead on meeting domain specific learning needs in a consistent, ongoing matter, utilizing systematic assessment, for all students; if this approach became commonplace, the need for identification would be minimized (Dixson et al., 2020; Hughes & Rollins, 2009). To successfully implement this, teachers would need time, training, and resources for ongoing evaluation of student learning and needs. The potential for using RTI to be responsive to student need and readiness is great.

Additionally, Callahan (2010) put forth comprehensive suggestions to address disproportionality in gifted education. She suggests a range of solutions that address this complex problem from multiple angles. Her solutions include: expanding conceptions of giftedness, exemplars to address educator bias, talent development, early identification, authentic assessments, multiple data points for identification, and aligning gifted programming with the tools used for identification (Callahan, 2010).

Giftedness is only half of the twice-exceptional experience. Twice-exceptional students also have a disability or difference that impacts learning. Next, special education will be explored as the other component of twice-exceptionality.

Special Education

The Individuals with Disabilities Education Act (IDEA), protects students with disabilities and requires that they receive a Free and Appropriate Public Education

(FAPE) (U.S. Department of Education, 2017). In this section, aspects of special education will be explored including: models for identification, disability categories, and disparities in special education.

Overview

In contrast to the lack of federal mandates or funding for gifted education, special education is mandated and funded through the Individuals with Disabilities Education Act (IDEA), which protects students with disabilities and requires that they receive a Free and Appropriate Public Education (FAPE) (U.S. Department of Education, 2017). IDEA first became law in 1975 and was reauthorized in 2004; IDEA identifies students under 13 disability types and supports 7.1 million, or 14% of all public-school students in the U.S. (National Center for Education Statistics, 2020; U.S. Department of Education, 2018).

Disability Categories

The US Department of Education (2018) Special Education Regulations identifies disabilities in thirteen categories:

- specific learning disability
- other health impairment
- autism spectrum disorder
- emotional disturbance
- speech or language impairment
- visual impairment
- deafness
- hearing impairment
- deaf-blindness
- orthopedic impairment
- intellectual disability
- traumatic brain injury
- multiple disabilities (US Department of Education, 2018).

The way twice-exceptional students are categorized in some past research does not align perfectly with these categories of disabilities. The twice-exceptional profiles that will be examined in this study include: gifted with Specific Learning Disabilities (SLD) such as processing disorders, gifted with Other Health Impairment (OHI) including ADD, ADHD, and Auditory Processing Disorder (APD), gifted with autism spectrum disorders (ASD), and gifted with Emotional Disturbance (ED) which includes anxiety and depression as well as other, less common mental illnesses.

Models for Identification

Since 2004, when IDEA was reauthorized, the qualification for specific learning

disability has shifted from a discrepancy model to a response to intervention model (Horowitz, n.d.; Ihori & Olvera, 2015; O'Donnell & Miller, 2011). Specific learning disability is defined as:

> A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia (U.S. Department of Education, 2018)

Specific learning disability is the largest, most inclusive category for special education, making up 33% of all students who receive special education services (National Center for Education Statistics, 2020). Prior to 2004, in this disability category, students were identified using a discrepancy model (Horowitz, n.d.). A discrepancy model collected student data from both ability or IQ and achievement assessments; if a discrepancy was found between the student's ability and current level of achievement, they qualified for identification and services. This model benefitted twice-exceptional students, for whom asynchrony between ability and achievement is common (Ihori & Olvera, 2015; Horowitz, n.d.). Additionally, these discrepant scores could provide helpful information about underlying issues that may contribute to a child's academic struggles and provide insight about how to support them (Horowitz, n.d.). Despite this advantage for twice-exceptional learners, the discrepancy model has fallen out of favor and become controversial. One argument against the discrepancy model is that it leads to a *wait to fail* situation; by the time a discrepancy is large enough to merit identification, the student has

already fallen significantly behind and missed opportunities for early intervention (Horowitz, n.d.; Ihori & Olvera, 2015; O'Donnell & Miller, 2011). The discrepancy model also differs from response to intervention in that the discrepancy model relies on, and thus requires extensive testing from school psychologists, whereas response to intervention relies on ongoing data collection by the classroom teacher (Assouline et al., 2010).

The response to intervention, or RTI model has replaced the discrepancy model in identifying students for a specific learning disability (Ihori & Olvera, 2015; Morin, n.d.). RTI requires teachers to track student progress and provide targeted interventions for struggling students in a systematic manner (Ihori & Olvera, 2015; Morin, n.d.). Classroom teachers, and sometimes specialized intervention teachers provide targeted instruction under three tiers (Morin, n.d.). Tier one is whole group instruction (i.e., meets the needs of the majority of the class), tier two is small group instruction (e.g., leveled reading, spelling, or math groups who receive differentiated instruction), and tier three is specialized intensive intervention (Morin, n.d.). For both tier two and tier three, teachers must track student progress and use evidence-based strategies or curricular tools targeted to the student's area of need (Morin, n.d.). If a student is tested for special education services, the RTI data are a critical part of the body of evidence. Some advantages of this model for special education identification include: RTI is a fluid process that is responsive to student need, tracking or progress monitoring provides documentation for what interventions have been successful or not, and students needing support receive it without needing a documented disability first (Morin, n.d.). Because of their advanced cognitive abilities, twice-exceptional students are quick to learn compensatory strategies

and show great progress from targeted interventions (Silverman, 2000). While this progress is to be celebrated, it is a double-edged sword because it can prevent the student from qualifying for special education that would ensure they continue to receive the support they need (Silverman, 2000). Although specific learning disability is the most common, it is one of thirteen categories of federally recognized disabilities (US Department of Education, 2018).

Disparity in Special Education

Disproportionality in special education is a persistent, multifaceted problem (Artiles et al., 2010; Fish, 2019; U.S. Department of Education, 2016). Since 1968, the Office for Civil Rights has tracked special education identification by disability type and ethnic group (Artiles et al., 2010). There are several factors that influence this disproportionality. First of all, poverty plays a role, both directly and indirectly, in the overrepresentation of students of color in special education (Artiles et al., 2010). The stressors of poverty include: inadequate access to health care, parental stress, and environmental factors (Artiles et al., 2010). These stressors influence health and learning and explain why poverty is associated with lower academic achievement (Artiles et al., 2010). Secondly, institutional discrimination such as underfunded schools, schools with high levels of teacher turnover, or high numbers of inexperienced teachers can negatively impact a student's academic performance (Artiles et al., 2010). Finally, teacher bias is a significant factor in special education identification, as teachers refer students for special education testing. When teachers fail to use culturally responsive lenses, they experience *interpersonal misunderstandings* that can lead to incorrect, negative perceptions of their students (Artiles et al., 2010). The ratio of students from different racial backgrounds

being nominated for, and ultimately staffed into special education is influenced by the racial balance of the classroom and school (Fish, 2019). In educational settings where there are more White students, the rate of Black, Latinx, and Native American students being identified with lower-status disabilities, such as intellectual disabilities, increases (Fish, 2019). The U.S. Department of Education (2016) tracked disability categories, educational environments, and discipline measures by race for students attending public school in the United States from 2011 to 2014. They calculated risk ratios for these student categories: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, two or more races, and White (U.S. Department of Education, 2016). Risk ratios illustrate the proportion of students with a certain label or experience, relative to their percentage in the whole population; ratios above 1.0 indicate overrepresentation and ratios under 1.0 indicate underrepresentation (U.S. Department of Education, 2016). Every state had disproportionality in one or more category, as indicated by risk ratios for one or more group exceeding two median absolute deviations above the national median (U.S. Department of Education, 2016). These factors are important to consider when thinking about finding and serving twice-exceptional learners because twice-exceptional learners from historically marginalized groups are further vulnerable.

Twice-Exceptionality

Twice-exceptional students are defined as students exhibiting both giftedness and a disability or difference that impacts learning (Moon & Reis, 2004; Silverman, 1997). In this section, aspects of twice-exceptionality will be discussed including: twice-

exceptional profiles, asynchrony, masking and compensation, executive functioning, misdiagnosis, and strengths of disabilities.

Profiles of Twice-Exceptional Students

Moon and Reis (2004) organized twice-exceptional students into three categories: learning disabled (LD), emotionally or behaviorally disabled and physically disabled. By using the umbrella term *learning disabled*, specific learning disabilities were not explicitly discussed, but the characteristics and recommendations for this population suggested a discrepancy model where a student displays a significant range between their relative strengths and weaknesses. Although not explicitly named, disabilities that would fall under this category include dyslexia, dyscalculia and dysgraphia which are characterized by difficulty reading, performing math calculations, and writing, respectively. The next group Moon and Reis examined is emotionally or behaviorally disabled students, the most common being ADHD. Researchers warn about gifted individuals sometimes being misdiagnosed with ADHD because the observed behavior could be the result of a poor fit with their learning environment, not the disorder itself (Antshel et al, 2007; Daniels & Piechowski, 2008; Lee & Olenchak, 2015; Moon and Reis, 2004; Mullet & Rinn, 2015). The final disability category explored by Moon and Reis (2004) is students with physical disabilities. The research on this group is sparse, but includes blind students and students with motor delays or disabilities. Teacher perceptions differ for students with physical disabilities versus learning or behavioral disabilities. It is assumed that asthma, diabetes, allergies, using a wheelchair or being deaf have no impact on intellectual or academic ability. So, while students with physical disabilities certainly face challenges, they are less likely to have their giftedness denied or

go unserved. Perhaps this explains why additional research about twice-exceptional students with physical disabilities is lacking.

National Education Association (2006) explained the ways that twice-exceptional students are missing from formal identification and created three categories to explain these students.

- formally identified as gifted, no identified disability
- formally identified as having a disability, not identified gifted
- not formally identified as gifted or having a disability.

Twice-exceptional students in each of these categories are vulnerable for various reasons. Students who are formally identified as gifted, but who do not have their disability identified may be considered underachievers, or may only be able to compensate up to a point and face significant difficulty when the curriculum becomes more complex (National Education Association, 2006). Students who are identified as having a disability, but not identified as gifted may receive instruction and services that only address remediation leading to boredom, or have underestimated intellectual ability (National Education Association, 2006). Twice-exceptional students who have had neither exceptionality identified may be wrongly assumed to be of average ability but show areas of difficulty or underachievement (National Education Association, 2006).

Asynchrony

As previously mentioned, using the Columbus Group's definition of giftedness, asynchrony is a key component of the gifted experience (NAGC, n.d.-a). Silverman (2000) examines the role that asynchrony plays in identifying and serving twice-exceptional students. Just as asynchrony is a hallmark of giftedness, it is also a hallmark

of the twice-exceptional experience. Asynchrony increases as IQ increases, so gifted individuals will demonstrate significant differences between their strengths and weaknesses (Silverman, 2000). Therefore, twice-exceptional students may be most in need of gifted identification and services, despite being less likely to receive identification and services. Further, discerning between asynchrony and diagnosable disability can be challenging, making an understanding of asynchrony and multifaceted identification of both exceptionalities critical (National Education Association, 2006).

Masking and Compensation

Masking and compensation are two phenomena that make twice-exceptional students difficult to recognize as such. Children who are twice-exceptional are often misdiagnosed or don't qualify for special education or gifted education because of masking: where the disability hides the giftedness and/or the giftedness hides the disability (Bell, 2015; Moon & Reis, 2004; Silverman, 2000). As mentioned previously in the context of RTI, twice-exceptional students use their relative strengths to compensate to learn new, challenging skills. Silverman (2000) points out that compensation is a "two-edged sword" (p. 154) because it is both "a miracle of the mind" (p. 154) but also prevents accurate recognition of diagnosis of disabilities. Additionally, "compensation requires extra physical, emotional, and cognitive energy" (p. 155) and occurs on both a conscious and unconscious level (Silverman, 2000). Further, compensation strategies do not work in all domains all of the time and may be impacted by stress, nutrition, tiredness, illness, or maturation (Silverman, 2000). Silverman (2000) posits that diagnosticians are trained to look at test scores from a normative perspective, asking "how does this child's performance compare to the norm?" (p.158). Instead, Silverman

(2000) argues that, when working with twice-exceptional students, diagnosticians should instead ask "to what extent does the discrepancy between this child's strengths and weaknesses cause frustration and interfere with the full development of the child's abilities?" (p. 158) and argues this shift would prevent frequent misdiagnosis due to these issues:

- Student scores are averaged, masking both strengths and weaknesses.
- Students are compared to the norms for average children, instead of the discrepancy between their areas of strength and weakness.
- Student's lower scores may not be significantly below the norm.
- Student's ability to compensate inflates their lower scores.
- The magnitude of the disparities between strengths and weaknesses is not taken into account.

Executive Functioning

Well-developed executive functioning skills often separate neurotypical or gifted alone students from twice-exceptional learners (Moon & Reis, 2004). Executive function and self-regulation skills are the mental processes that support planning, memory, multitasking and more (Center on the Developing Child, n.d.). Children are not born with these skills, they have the potential to develop them; while some children are slower to develop these skills, they can be increased through training and support (Center on the Developing Child, n.d.). The three types of brain function required for executive function skills are: self-control, working memory and mental flexibility (Center on the Developing Child, n.d.). Because they may be late to develop in twice-exceptional learners, executive functioning skills should be considered when working to identify or program for a twice-exceptional learner. Lack of strong executive functioning skills should not preclude a twice-exceptional student from participating in gifted services and support for developing executive functioning skills should be included in gifted and twice-exceptional programming (Moon & Reis, 2004; National Education Association, 2006).

Misdiagnosis

Webb et al. (2019) explored the misdiagnosis of gifted people (both children and adults) due to health care professionals' limited knowledge of gifted characteristics. Some of the common misdiagnosis include: attention deficit hyperactivity disorder (ADHD), Oppositional Defiant Disorder (OD), obsessive compulsive disorder (OCD), and Mood Disorders. Webb et al. (2019) investigated internal factors such as intensity and sensitivity. Situational factors were also explored, such as misbehavior that results from a mis-match between the student's learning needs and the current classroom

environment where the student may be stuck waiting to learn (Webb at al., 2019). These mis-diagnosis leads to improper treatment and support which can result in poor self-esteem (Webb at al., 2019). While under identification of twice-exceptional students is a significant concern, mis-diagnosis due to lack of understanding gifted characteristics is also an issue (Webb et al., 2019).

Strengths of Disabilities

Eide and Eide (2012) investigated the phenomenon of people with dyslexia overachieving in certain creative and spatial fields and explored the "hidden" side of a disability mostly associated with difficulty with reading, spelling, and writing. Eide and Eide (2012) claim that 20% of the human population is somewhere on the spectrum of dyslexia. In addition to needing specific, systematic, multi-sensory, phonics-based instruction to become competent readers and writers, people with dyslexia hold incredible capacity for creativity, big-picture thinking and planning, seeing connections others may miss and many types of reasoning (Eide & Eide 2012). Reframing dyslexia for its strengths help explain the stealth dyslexia seen in bright students in schools, who often compensate well enough to never qualify for special education, making twice-exceptional identification a challenge. Silverman (2020) also acknowledges the following gifts of dyslexia:

- People with dyslexia can alter and create perceptions.
- People with dyslexia are keenly aware of the environment.
- People with dyslexia are especially curious.
- People with dyslexia think in images rather than words.
- People with dyslexia are intuitive and insightful.
- People with dyslexia think and perceive using all of their senses.

- People with dyslexia have vivid imaginations.

Silverman (2000) argues that these strengths exist not in spite of the disability, but because of it and emphasizes the importance of teachers and caregivers looking for and celebrating these strengths.

This review of twice-exceptional profiles, asynchrony, masking, compensation, executive functioning, misdiagnosis, and strengths in disabilities illuminate the complex nature of twice-exceptionality and explain the difficulty in identifying and serving them.

Assessments to Identify Twice-Exceptional Learners

Of the many assessments available to assess both giftedness and learning disability, the following assessments will be examined in this study, based on their reliability and the data available from the community partner.

Table 1 ***Assessments Used to Identify Twice-Exceptional Learners***

Type	Name	Publisher	Rationale
Ability	Wechsler Intelligence Scale for Children Fifth Edition (WISC-V)	Pearson	Comprehensive intellectual ability assessment for children (Pearson, 2018)
Ability	Wechsler Intelligence Scale for Children Fourth Edition (WISC-IV)	Pearson	Helps measure a child's intellectual ability (Pearson, 2003)
Academic Achievement	Wechsler Individual Achievement Test Third Edition (WIAT-III)	Pearson	Individually administered achievement test for use in clinical, education and research settings (Pearson, 2009)
Academic Achievement	Woodcock-Johnson Tests of Achievement Fourth Edition (WJIV-TOA)	Riverside Insights	Accurately evaluate learning problems for children and adults (Riverside Insights, n.d.)
Academic Achievement	Gray Oral Reading Test Fifth Edition (GORT-5)	Pearson	One of the most widely used measures of oral reading fluency and comprehension (Pearson, n.d.)

These assessments were selected because they are frequently administered by the community partner, who collected the data used in the quantitative section of this study. The assessments are described in greater detail in the methodology chapter.

Why Identification Matters: Current Research

Most of the research on the twice-exceptional population is fairly recent, occurring in the last ten to twenty years. Moon and Reis (2004) asserted

> "Empirical research on twice-exceptional children has accumulated slowly, in part because educators have been slow to recognize that gifted children can have co-occurring disabilities, and in part because the small number of persons in the

> various subpopulations of twice-exceptional students creates logistical problems for researchers" (p. 109).

In "A Nation Deceived" (Moon & Reis, 2004) explained there is a small body of research about the twice-exceptional population, but more conceptual research than empirical research. Furthermore, twice-exceptional students are particularly vulnerable in school and require educational interventions and extensions to fully develop their talents (Moon & Reis, 2004).

A review of current research follows, organized by identification, underachievement, student voice, parent perceptions, and serving the twice-exceptional learner. The identification section will explain issues that impact identification: masking, misunderstanding the twice-exceptional learner due to lack of educator knowledge, racial disparities in both the gifted and special education identification processes and lack of a clear universal definition of twice-exceptionality. The underachievement section will explore the pattern of twice-exceptional students' underachievement in school, despite their strong cognitive abilities. The student voice section will highlight the value of narrative research and the importance of learning about this population and their unique experiences. The parent perception section will explore the experiences of parents and caregivers of twice-exceptional students. The section about serving the twice-exceptional learner will serve as a reminder of why this research is important. The ultimate goal is to learn more about twice-exceptional learners to better meet their needs in the future.

Identification

Masking is defined as the disability masks the giftedness or the giftedness masks the disability, and creates a challenge in properly identifying twice-exceptional students (Moon & Reis, 2004). Thus, many researchers are interested in developing innovative ways to effectively find these students. Bell et al. (2015) conducted a quantitative study to analyze student achievement data in a Tennessee school district for the purpose of comparing the performance of prospective twice-exceptional students with non-twice-exceptional peers on high-stakes tests. The study pulled existing data on 1,242 third grade students over three years and looked at both curriculum-based measures (MIR) as well as the high-stakes annual test in the state of Tennessee (TCAP). The researchers matched prospective twice-exceptional students, flagged for discrepant scores on the curriculum-based measures, with non-twice-exceptional peers who demonstrated similar strengths in one area (math or language arts). When comparing the performance of these two groups on TCAP, there was a difference in performance, with the non-twice-exceptional students scoring higher, not only in the area of weakness for the prospective twice-exceptional learners, but across most skills measured. The implications of this work suggested the possibility of using data like this, which exists in many school districts, for the purpose of screening for twice-exceptional students who are notoriously hard to find due to the phenomena of masking.

Dynamic assessment is another pathway available for finding twice-exceptional students (Al-Hroub & Whitebread, 2019). Dynamic assessment is an interactive testing approach that measures the ability of a student to respond to instruction or intervention (Al-Hroub & Whitebread, 2019). Dynamic assessment can be useful in finding twice-

exceptional students because it measures the ability to respond to instruction, revealing cognitive strengths that may otherwise be obscured (Al-Hroub & Whitebread, 2019).

While existing student data including curriculum-based measures, state-mandated assessments, and dynamic assessment all hold promise for improved twice-exceptional identification, Assouline et al. (2010) posits comprehensive assessment as the ideal method for finding twice-exceptional learners. Assouline et al. (2010) analyzed student data for fourteen twice-exceptional students with a specific learning disability in writing. Students were recruited and screened for twice-exceptionality using ability or intellectual potential assessments as well as academic achievement assessments. These scores, in addition to two additional assessments were analyzed. The additional assessments were the Behavior Assessment System for Children (BASC) which measures behavioral and emotional difficulties and the Piers Harris which is used to measure self-concept (Assouline et al., 2010). They found that the twice-exceptional children in their study demonstrated emotional and behavioral difficulties that required attention and support (Assouline et al., 2010).

Another approach to properly identifying twice-exceptional students is more comprehensive teacher training on the nature and needs of twice-exceptional students. Two studies confronted the issue from this angle. Bianco and Leech (2010) sought to examine the difference in referrals for gifted evaluations made by three populations of teachers: special education teachers, general education teachers and gifted education teachers. In this mixed-methods design, 277 participants including 52 special education teachers, 195 general education teachers and 30 teachers of the gifted were randomly assigned to one of three groups. All three groups received the same vignette describing a

student, A.K. with many gifted traits. One group received the description with no label, one with a label of learning disability (LD) and the third with a label of emotional or behavioral disorders (EBD). All groups declared the student suitable for gifted services at higher rates when there was no label attached to the child, but interestingly, the three groups of teachers responded at different rates when the labels accompanied the vignette. The findings indicate that teacher preparation, specifically developing an ability to recognize potential giftedness or twice-exceptionality in their students is a factor in gifted referrals and could have the potential to influence teacher preparation programs or training for existing teachers. Foley-Nicpon et al. (2013) utilized a 4-point rating scale in an online survey to examine the depth of knowledge of various professionals in education with regard to the nature and needs of twice-exceptional students. The participants included 317 individuals from 40 states completed the survey making a fairly large and diverse sample size. The participants included: gifted education teachers, classroom teachers, licensed psychologists, special education teachers, school administrators, school counselors and school board members. While the results demonstrated knowledge of twice-exceptional students across all participant groups, the gifted education teachers possessed significantly more knowledge about these learners and how to best support them. These data lead to a call to action for gifted specialists to both educate other stakeholders who participate in identifying and educating twice-exceptional students as well as look for systemic support for these learners, such as RTI. These studies demonstrate a need for further research about twice-exceptional identification.

Complex issues of poverty, inconsistent instruction and assessment and cultural bias all create issues for equitable identification in both special education and gifted

education. Issues within these separate systems naturally impact twice-exceptional students as well. According to Artiles et al. (2010) students of color have historically been over-identified for special education. According to List & Dykeman (2019) students of color have historically been under-identified for gifted education programs. Thus, twice-exceptional students of color are particularly vulnerable to being missed for twice-exceptional identification.

Asynchrony and Potential Underachievement

Due to their divergent learning needs, school can be frustrating for twice-exceptional learners; despite their advanced cognitive abilities, twice-exceptional learners often underperform in school, compared with gifted alone peers (Maddocks, 2019; Wang & Neihart, 2014). Maddocks (2019) analyzed assessments of 3,865 students that included both ability and achievement tests, specifically the Woodcock-Johnson Test of Cognitive Ability and the Woodcock Johnson Test of Achievement. This sample included neurotypical students, gifted alone, and twice-exceptional students. Maddocks (2019) grouped the students based on their assessments as follows. General intellectual ability (GIA) scores of 120 or higher were flagged as potentially gifted. Within the potentially gifted group, Maddocks (2019) identified students as potentially twice-exceptional if they met one of the following criteria: students with 1.5 standard deviation or greater difference between ability score and an academic achievement score, or students with evidence of a processing speed, short-term working memory, long-term retrieval, or auditory processing issue, based on a scaled score at or below 90. Using these criteria, 683 students in the sample were identified as potentially gifted and 99 students were identified as potentially twice-exceptional. Using descriptive statistics, Maddocks (2019)

compared the neurotypical, gifted alone and twice-exceptional groups and found interesting differences. The gifted and twice-exceptional groups both had *High Average* scores in verbal abilities, fluid reasoning, and comprehension-knowledge. The twice-exceptional group performed similarly to the neurotypical group in processing ability including short-term working memory, long-term retrieval, and auditory processing. On achievement measures overall, the twice-exceptional group earned scores in the *Average* range for all domains; however, when looking at the achievement clusters without a fluency component, the twice-exceptional students earned significantly higher mean scores (Maddocks, 2019). This study demonstrates the asynchrony in twice-exceptional learners and the potential for underachievement due to deficits in processing speed, short-term working memory, long-term retrieval, or auditory processing issues.

Student Voice

The research that has students self-reporting about their experiences is sparse but extremely valuable. Willard-Holt et al. (2013) conducted a mixed-methods study that sought student input on which interventions they received and how helpful they were. The researchers mined the literature to identify the strategies supported in the literature, both strategies to enhance giftedness and compensation strategies to support the disability/area of need. The study only included 16 participants but gained in-depth insights from all of them from an on-line survey and an interview. The range of ages of participants was 12 to 22. The disabilities included Asperger's/Autism Spectrum, Learning Disability, Sensory Disability, Emotional Disability, and Neurological Disability. Most participants felt that the strategies used to support their giftedness had been helpful and had been their most beneficial learning environment, but the participant

responses about the compensating strategies were more mixed.

Dole (2001) conducted a narrative study to explore the identity formation of four twice-exceptional college students. She was interested in how their seemingly paradoxical exceptionalities impact their identity formation (Dole, 2001). The findings from this study were organized into two categories: contextual and personal (Dole, 2001). The themes that were contextual were relationships and extracurriculars (Dole, 2001). Relationships were defined by a support network that included family, peers, teachers, and mentors (Dole, 2001). Extracurriculars were activities outside the classroom such as summer programs and jobs that helped the students' confidence (Dole, 2001). The themes in the personal category were: self-knowledge, self-acceptance, self-advocacy, and self-determination (Dole, 2001). These studies are very compelling due to the personal narratives of the participants and the detail provided. These studies demonstrate a need for further research that explores the lived experiences of twice-exceptional learners.

Parent Perceptions

Just as being a twice-exceptional student is a unique and challenging experience, parenting a twice-exceptional student is unique and challenging as well. Hayes (2014) found that parents of twice-exceptional students see themselves as a distinct special needs group who experience high levels of stress as they work to navigate their child's academic and social needs. This stress stems from a lack of knowledge about twice-exceptional individuals in academic, medical and therapeutic professionals that leaves the twice-exceptional student and their caregivers lacking support and guidance (Hayes, 2014). Dare and Nowicki (2015) found similar challenges navigating twice-exceptional differences both academically and socially; they interviewed the parents of twice-

exceptional students, aiming to understand the parent perceptions of twice-exceptional identification. The participants in the Dare and Nowicki (2015) study all sought out private testing to better understand and support their child; this highlights the need for increased awareness and supports for twice-exceptional students in public schools. If private intervention remains necessary to find and support twice-exceptional learners, underserved students who are twice-exceptional will continue to be further vulnerable. These studies demonstrate the unique experiences of not only twice-exceptional students, but their caregivers as well, and the need for equitable identification practices and comprehensive support for twice-exceptional students and their families.

Parent perceptions of the gifted label are complex. Matthews et al. (2014) interviewed 106 parents of gifted children about their feelings and experiences, especially as they relate to talking about their child's giftedness. Most participants reported reluctance to using the gifted label and additional responses were sorted into themes: explain/educate, upfront/honest, sensitivity/understanding, language, and avoidance/no discussion (Matthews et al., 2014). Parent communication in the explain/educate category made up 34% of responses and parents reported a desire to share their knowledge of giftedness and debunk stereotypes (Matthews et al., 2014). Parent communication in the upfront/honest category made up 20% of responses and parents reported a desire to be completely honest and shared that their children were also (Matthews et al., 2014). Parent communication in the sensitivity/understanding category made up 32% of responses and parents reported a desire to make other parents comfortable, either by downplaying their own child's giftedness or by complementing the child of the other parent (Matthews et al., 2014). Parent communication in the language category made up 66% of responses

and parents reported using other words to describe giftedness and avoiding the label (Matthews et al., 2014). Parent communication in the avoidance/no discussion category made up 23% of responses and parents reported not talking about, or telling their children not to talk about their giftedness (Matthews et al., 2014).

Serving the Twice-Exceptional Learner

There is still much work to be done with understanding the twice-exceptional population and serving them in school. The suggestions put forth by Moon and Reis (2004) are comprehensive. They suggest:

- academic strategies
- self-regulation and compensation strategies
- social-emotional strategies
- talent development strategies (Moon and Reis, 2004).

Many of the strategies suggested would be considered best-practice by most educators, for all students. The self-regulation and compensation strategies are especially unique to the twice-exceptional learner and include:

- avoiding remediation through a resource room model
- exploring the benefits of assistive technology
- fostering self-awareness and self-determination (Moon and Reis, 2004).

Assouline et al. (2006) explored two case studies of twice exceptional students and put forth suggestions for supporting twice-exceptional students. These include:

- Careful review of school and assessment records to discern patterns of strengths and weaknesses
- Support the student and caregivers through the special education or 504 process
- Provide strengths-based programming

- Encourage participation in university talent search programs
- Support student self-awareness, self-advocacy and problem-solving skills
- Social and emotional supports
- Support groups
- Counseling with a lens toward twice-exceptional needs
- Collaborate across school teams to support twice-exceptional students
- Build capacity for other educators to understand and serve twice-exceptional students through training and professional development.

These suggestions create a roadmap for the important role school counselors can play in creating more positive school experiences and outcomes for twice-exceptional learners (Assouline et al., 2006).

Brody and Mills (1997) explored programming models that could serve the unique needs of twice-exceptional students. They proposed a continuum of services to adequately address the specific academic needs of each twice-exceptional student, but emphasize that programming should be designed around the student's strengths with scaffolds like assistive technology to address areas of relative weakness (Brody & Mills, 1997). The academic settings they explored included: the general education classroom, a gifted class, a special education resource room, and a class specifically for twice-exceptional students (Brody & Mills, 1997). The services they explored included: acceleration, enrichment, individualized instruction, and grouping with intellectual peers (Brody & Mills, 1997). They also emphasized the importance of affective support (Brody & Mills, 1997). Twice exceptional students experience conflict due to the discrepancies between their strengths and weaknesses and managing their own expectations, as well as the expectations of others (Brody & Mills, 1997). Group and individual counselling are

recommended; groups counseling allows twice-exceptional students to feel less alone in the experience of being twice-exceptional, and individual counseling addresses the unique manifestations of twice-exceptionality (Brody & Mills, 1997).

Olenchak (2009) studied the impact of *Talents Unlimited* counseling on twice-exceptional students in middle school. Twice-exceptional students were recruited by the following qualifications: they had an IQ score of 120 or above, they had a history of disruptive behavior, they exhibited academic underachievement in one or more domain, and they received services under an Individualized Education Program (Olenchak, 2009). Overall, 57 students participated in the intervention of *Talents Unlimited* counseling and demonstrated significantly improved attitudes toward school (Olenchak, 2009). Together, the findings of Olenchak (2009) and (Assouline et al. (2006) underscore the important role that school counselors can play in supporting twice-exceptional children. Additionally, the findings of Willard-Holt et al. (2013) suggested that programming for the twice-exceptional learner's strengths is particularly beneficial. These studies demonstrated a need for further research that explores the best ways to support twice-exceptional learners.

Identity Formation Theory

There are many theories of identity formation within educational psychology and sociology (Cote & Levine, 2002). One of the most influential theories of identity formation is Erik Erikson's theory of psychosocial development (Cote & Levine, 2002; Cross, 2011). Cross (2011) provides an overview of Erikson's theory and insights about how it can help parents and teachers guide gifted students through each stage successfully. Erikson theorized that each stage presents a crisis in the way a person

interacts with their environment and must be resolved before moving on to the next phase, and that failing to do so could result in issues from previous stages carrying over into adulthood. There are small changes in language from Erikson's original theory to Cross' explanation of it (Cross, 2011; Erikson, 1980). The eight stages of Erikson's theory are:

1. basic trust versus basic mistrust, birth to 1
2. autonomy versus shame and doubt, age 1-2
3. initiative versus guilt, ages 3-5
4. competence or industry versus inferiority, elementary age
5. identity versus role confusion or diffusion, adolescence
6. intimacy versus isolation or self-absorption, young adulthood
7. generativity versus despair or stagnation, middle adulthood
8. integrity versus despair and disgust, older adulthood

While this theory is foundational in the field of educational psychology, and Cross (2011) has utilized it in understanding giftedness, it was dismissed as the central theoretical framework for this study. Erikson's theory was based on neurotypical children, not the twice-exceptional. Erikson's theory does not account for the asynchrony of twice-exceptional children which led to exploring other identity formation theories.

Dole (2001) is an existing study that utilized identity formation as a theoretical framework for understanding the experiences of twice-exceptional college students. This qualitative study explored the lived experiences of four college students who are both gifted and have a learning disability, utilizing narrative inquiry to explore identity formation (Dole, 2001). This is the first study of its kind, in that it examined twice-exceptional students and identity formation (Dole, 2001). The narratives were either

contextual or personal (Dole, 2001). The contextual category has two themes: relational support systems and extracurricular activities (Dole, 2001). The personal had four themes: self-knowledge, self-acceptance, self-advocacy and self-determination (Dole, 2001). Dole (2001) explored the issue of no formal definition of twice-exceptionality, and the issues with both gifted and special education identification processes, which often made twice-exceptional students particularly vulnerable.

Intersectionality

Crenshaw's (1989) concept of intersectionality originated as a means of understanding multiple marginalized identities, specifically race and gender; it has since been embraced by multiple fields and applied in other contexts beyond race and gender (Carbadox et al., 2013). Artiles (2014) explored intersectionality as it relates to special education; the intersection of race and disability resulted in magnified marginalization of students. Giftedness is also a marginalized identity; using the Columbus Group's definition of giftedness, vulnerability is a key component of the gifted experience (NAGC, n.d.-d). In the context of exploring twice-exceptional identification, intersectionality can provide a lens for understanding how these multiple, seemingly conflicting marginalized identities of giftedness and learning disability or difference co-exist and create unique experiences for the twice-exceptional learner.

Stereotype Threat

Stereotype threat is a situation when people are, or feel themselves to be at risk of conforming to stereotypes about their social group and can result in a fear of being judged, or diminished performance (Zhao et al., 2019). Similar to intersectionality, the concept originated to explore race and has since been applied to other contexts including

gender, e.g., studying math performance in girls (Zhao et al., 2019). In the context of exploring twice-exceptional identification, stereotype threat can provide a possible explanation for different levels of academic achievement and different self-concepts among twice-exceptional students with similar strengths and needs. Within the context of this study are the questions: Does the order of identification of exceptionality influence the group in which the twice-exceptional student sees themselves? Does this potential group identity trigger stereotype threat? (Zhao et al., 2019) Zhao et al. (2019) examined stereotype threat with students with disabilities, and found that stereotype threat is negatively predictive of academic performance. Attitudes and beliefs about both giftedness and learning disabilities or differences influence how twice-exceptional people see themselves.

Self-Concept

Academic self-concept and self-beliefs play a primary role in motivation and academic achievement (Wang & Neihart, 2015). Wang and Neihart (2015) researched academic self-confidence and self-efficacy in six academically successful twice-exceptional students to explore factors that led to their success including self-awareness and focusing on strengths and interests. In the context of exploring twice-exceptional identification, self-concept can provide a lens for understanding how twice-exceptional students view themselves, and how those views are influenced by their multiple exceptionalities.

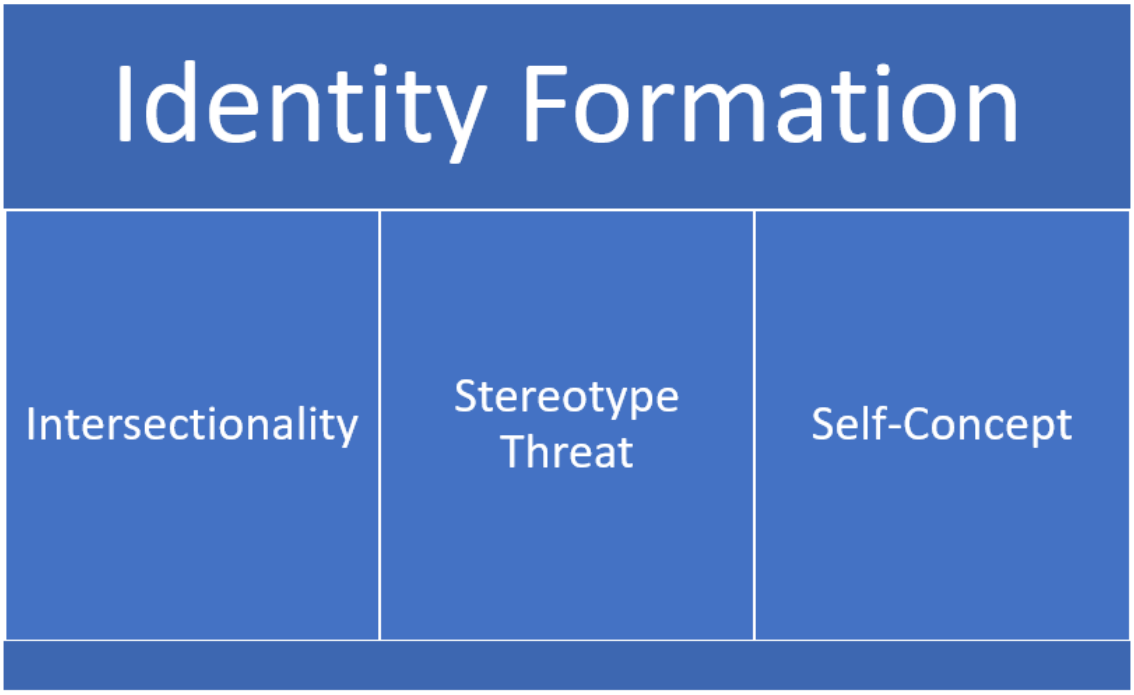
Identity Formation in Twice-Exceptional Students

This study utilized multiple concepts within identity formation to analyze twice-exceptional students. Multiple, seemingly conflicting identities of giftedness and learning

disability or difference co-exist, creating an intersectional identity in the twice-exceptional learner. Stereotype threat can result in a fear of being judged or through diminished performance. Self-concept influences motivation and achievement. The feedback and labels a student receive can all influence each of these aspects of identity formation.

Figure 1

Theoretical framework and conceptual frames



This figure provides a visual representation of the theoretical framework and the three conceptual frames. Identity formation is the theoretical framework and the conceptual frames are intersectionality, stereotype threat, and self-concept.

Summary

Twice-exceptional learners are those who exhibit both giftedness and a learning disability or difference. While much is known about giftedness, disabilities, and twice-exceptionality, there is still much to discover about these diverse and multifaceted learners and how to better find and serve them. While there are studies about twice-exceptional identification and studies about identity formation, there are no studies that focus on order of twice-exceptional identification, presenting a gap in the research and an opportunity for further investigation. This research seeks to address that gap.

Chapter Three: Methodology

Purpose of Research

The purpose of this mixed-methods study was to examine parent perceptions of and relationships among (1) intellectual potential, (2) academic achievement, and (3) order of identification of exceptionality for twice-exceptional students who have received support from the community partner. Twice-exceptional students were defined as students exhibiting both giftedness and a disability or difference that impacts learning.

Research Questions

This research centered around three quantitative and one qualitative research questions:

RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?

RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?

RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?

RQ4 – Qualitative: What are parents' perceptions of the experiences of twice-exceptional

learners regarding school experiences before and since identification, identification experience, order of identification of exceptionality, and student identity and self-concept?

Rationale for Methodology

This study utilized a mixed-methods design. Mixed-methods is a research approach that utilizes both qualitative and quantitative data, analysis and methods in the research design (Creswell, 2015; Reis, n.d.). This study combines quantitative and qualitative research, by collecting and analyzing the quantitative research first and the qualitative second. The research questions include both closed-ended questions, ideal for quantitative research as well as an open-ended question, suited to qualitative research (Creswell, 2015). The first aim was to uncover trends in the quantitative phase utilizing descriptive statistics and *t*-tests. The second aim was to illustrate the lived experiences behind the numbers in the qualitative phase utilizing qualitative research (Creswell, 2015; Ivankova et al., 2006). The collective strength of collecting and analyzing both quantitative and qualitative data will provide a better understanding than either form of data alone and will fulfill the purpose of this research (Creswell, 2015).

The quantitative portion utilized descriptive statistics and *t*-tests. The community partner database included assessment data for twice-exceptional students. The student profiles were grouped by order of identification of exceptionality and descriptive statistics were used to analyze the assessment results for RQ1 and RQ2 (Frankfort-Nachmias & Leon-Guerro, 2018). For RQ3 Welch *t*-tests were used to determine if there was a difference between the groups of twice-exceptional students who are identified gifted first versus twice-exceptional students who are identified by their learning

difference or disability first. The data analyzed for RQ1, RQ2, and RQ3 were percentile ranks on a variety of ability and achievement subtests. Percentile rank, rather than raw or scaled scores allowed data from students of different ages to be compared together in the sample, because all of the assessments used are normed by age. A Welch *t*-test was selected because it measures a difference between groups, can address unequal sample size, and unequal variance. Additionally, Welch *t*-tests utilize a non-directional research hypothesis. The theoretical framework suggests that there may be a difference between these two groups, but since it has not been studied before, the direction of the potential difference is unknown (Frankfort-Nachmias & Leon-Guerro, 2018).

The qualitative phase utilized parent interviews and elements of both narrative and case study qualitative research. Narrative research is used to gain insights to lived experiences by collecting, examining, analyzing and sharing the stories of one or more individuals (Creswell & Poth, 2018). The sample size of a narrative study is small, because the depth and level of detail is comprehensive (Creswell & Poth, 2018). The researcher in a narrative study must earn the trust of the participant(s) because personal information is shared in this style of research (Creswell & Poth, 2018). Narrative research often focuses on an event or turning point in the life of the subject, in this case the twice-exceptional identification was the turning point (Creswell & Poth, 2018). The interview questions were designed to elicit the experience of the identification, how it influenced the life of the student, and their family both before and after identification of exceptionality.

Case study research is used to study a case "within a real-life contemporary context" (Creswell & Poth, 2018, p. 96). Identifying case themes is a critical component

of case study research (Creswell & Poth, 2018). Case study research topics can be instrumental, intrinsic, or collective and are oriented within a bounded system (Creswell & Poth, 2018). For this study, the bounded system is: parents of twice-exceptional students whose exceptionalities were identified at different times, who sought support from the community partner. This is a collective case study; the same interview protocol was used with all six participants to illustrate the experiences and issues collectively faced by twice-exceptional students and their caregivers.

To address the research questions, a mixed methods approach was selected. The existing database provided by the community partner was used in the quantitative portion of this study: RQ1, RQ2, and RQ3. To date, no research studies have looked specifically at the order of twice-exceptional identification. The existing database from the community partner provided an opportunity to fill this gap in the research with generalizable quantitative research. The experiences of every twice-exceptional learner are unique. Exploring the parent perceptions of the experiences of twice-exceptional students added value to the study. Interview data were analyzed using the theoretical framework of identity formation. Additionally, three conceptual frames were also used for analysis: intersectionality, stereotype threat, and self-concept. Mixed-methods were selected to capitalize on the strengths of both quantitative and qualitative research (Creswell, 2015).

Community Partner and Data Source

The community partner for this research is an organization who specializes in working with gifted and twice-exceptional students and their families. The organization is a private educational testing and advocacy group in a Western state. The community

partner is an ideal community partner for this research because of their extensive experience and knowledge serving twice-exceptional students. The community partner provides educational and psychological assessments, consultations, and counseling for children, their parents, and families. The community partner serves students who are gifted, those with learning challenges, and those who are both gifted and have challenges. The community partner employs an expert team of Psychologists and learning specialists.

For the quantitative phase of this project, the community partner provided a database of de-identified data that included both ability and achievement assessments used to identify and serve twice-exceptional learners. From the existing data set, 54 student profiles were selected. Scores for 17 measures of both intellectual potential and academic achievement were entered into a spreadsheet for analysis using both descriptive statistics and Welch *t*-tests.

The community partner supported recruitment for the qualitative phase as well. After the 54 student profiles for the quantitative phase were identified, the community partner sent an email to those 54 contacts including the recruitment letter (appendix A). Seven parents completed the recruitment survey and six agreed to be interviewed, they each engaged in two interviews. Of the six participating parents, all were mothers. Each mother had only one child who was assessed by the community partner, but two had another twice-exceptional child who met the other parameters of the study and they agreed to share about the experiences of that child as well. Each participant received the interview questions for both interviews ahead of time, along with an informed consent form. The interviews were scheduled for one hour each, approximately a week apart. The interviews with parents of multiple twice-exceptional children were slightly longer. With

the exception of one participant, all the interviews were recorded. All participants were given the opportunity for validity check of the transcripts (5 of 6) or the family summary below (6 of 6). One participant approved the transcript and all participants approved the family summary for their family. All participants selected a pseudonym for both themselves and their child(ren) and spouse, where applicable.

Study Design

This study had two phases. This first phase was quantitative and the second was qualitative. The researcher collaborated with the community partner in both phases of this research. In the quantitative phase, data were analyzed to answer three questions:

RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?

RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?

RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?

The community partner has a large existing data set, from years of assessing, advising and serving gifted and twice-exceptional students and their families. The data set includes de-identified assessment data including both measures of intellectual potential and measures of academic achievement for twice-exceptional students The researcher mined the data set to select participants for this study. The participants were selected because they all have both an ability assessment and an academic achievement assessment in their body of evidence. Additionally, all participants had one exceptionality

discovered before the other(s). The participants were then sorted into two categories: identified gifted first, and identified disability or difference first. The researcher included all student profiles that met the inclusion criteria. The researcher hoped to identify a minimum of 60 student profiles to meet a minimum N=30 for each of the two categories, necessary for robust analysis (Gliner et al. 2017). The data set included 40 students who had their disability or difference identified first, but only 14 who were identified gifted first. The student profiles included students of multiple ages, based on when they were evaluated by the community partner. All of the assessments analyzed were age-normed and student scores included a percentile rank. This study used the percentile rank scores to accommodate the different ages of participants and the different ways each measure was scored.

In the qualitative phase, interviews were conducted to answer RQ4: What are parents' perceptions of the experiences of twice-exceptional learners regarding school experiences before and since identification, identification experience, order of identification of exceptionality, and student identity and self-concept? Six parents of students who were clients of the community partner were recruited to participate in two interviews each. All six were current or former clients of the community partner, parents of children who were identified as twice-exceptional, and have one exceptionality identified before the other. Racial or ethnic diversity in the sample would have been preferable, but only one participant was Asian and the other five were White. Both interviews consisted of six open ended questions and gave the interviewee the opportunity to reflect and share their perceptions of the experiences of their twice-exceptional child. The number of participants for this phase was selected to allow for

each story to be explored in-depth to illustrate the lived experiences of the twice-exceptional student and their family (Creswell & Poth, 2018).

For both quantitative and qualitative portions, the following student profiles and potential participants were excluded: children who exhibit no exceptionalities, children who exhibit only one exceptionality, children who were identified as twice-exceptional as adults, and clients whose multiple exceptionalities were identified in the same assessment.

Target Population and Recruitment

Participants for both phases were recruited in collaboration with the community partner. For the quantitative phase, student profiles were selected that met the following criteria:

- Student was assessed by the community partner with WISC-IV or WISC-V as part of their testing data
- Student was assessed by the community partner with one or more of the following achievement measures: WIAT-III, Woodcock Johnson or Gray Oral Reading
- One exceptionality was identified before the other, prior to the assessment by the community partner; this data was compiled by analyzing client intake notes for diagnoses from schools or previous testing agencies

For the qualitative phase, parents or caregivers whose child met the criteria above were sent a recruitment email. Three parents or caregivers were interviewed from each of the following categories:

- Student was identified gifted first
- Student was identified with disability or difference first.

Explanation of Quantitative Phase

First the student profiles were selected, then the data were analyzed using SPSS software. The statistical analysis was as follows:

RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first? Descriptive statistics included:

- N
- Range
- Mean
- Standard Deviation
- Variance
- Skewness (and standard error)
- Kurtosis (and standard error).

RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first? Descriptive statistics included:

- N
- Range
- Mean
- Standard Deviation
- Variance
- Skewness (and standard error)
- Kurtosis (and standard error).

RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality? Welch *t*-tests compared the percentile rank scores on measures of both intellectual potential and academic achievement comparing gifted first group to the disability or difference first group.

Table 2 *RQ1: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?*

Statistical Analysis	Descriptive Statistics: N Range Mean Standard Deviation Variance Skewness (and standard error) Kurtosis (and standard error)
Group	Giftedness Identified First
Measure of Intellectual Potential or Achievement Percentile Rank	WISC-IV or WISC-V Verbal Comprehension Subtest WISC-V Visual Spatial Subtest Score WISC-V Fluid Reasoning or WISC-IV Perceptual Reasoning Subtest Score WISC-IV or WISC-V Working Memory WISC-IV or WISC-V Processing Speed WISC-IV or WISC-V General Intellectual Ability (GAI) WISC-IV or WISC-V Full Scale IQ WIAT-III - Oral Reading Fluency WIAT-III - Reading Comprehension GORT-5– Fluency GORT-5- Comprehension WJIV-TOA - Oral Reading Fluency WJIV-TOA - Reading Comprehension WIAT-III - Math Problem Solving WIAT-III - Numerical Operations WJIV-TOA - Applied Problems WJIV-TOA - Math Facts

This table shows the measures, group and assessments analyzed to answer RQ1.

Table 3 *RQ2: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?*

Statistical Analysis	Descriptive Statistics: N Range Mean Standard Deviation Variance Skewness (and standard error) Kurtosis (and standard error)
Group	Disability or Difference Identified First
Measure of Intellectual Potential or Achievement Percentile Rank	WISC-IV or WISC-V Verbal Comprehension Subtest WISC-V Visual Spatial Subtest Score WISC-V Fluid Reasoning or WISC-IV Perceptual Reasoning Subtest Score WISC-IV or WISC-V Working Memory WISC-IV or WISC-V Processing Speed WISC-IV or WISC-V General Intellectual Ability (GAI) WISC-IV or WISC-V Full Scale IQ WIAT-III - Oral Reading Fluency WIAT-III - Reading Comprehension GORT-5– Fluency GORT-5- Comprehension WJIV-TOA - Oral Reading Fluency WJIV-TOA - Reading Comprehension WIAT-III - Math Problem Solving WIAT-III - Numerical Operations WJIV-TOA - Applied Problems WJIV-TOA - Math Facts

This table shows the measures, group and assessments analyzed to answer RQ2.

Table 4 *RQ3: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?*

Statistical Analysis	Welch *T*-test
Groups	Comparing Giftedness Identified First to Disability or Difference Identified First
Measure of Intellectual Potential or Achievement Percentile Rank	WISC-IV or WISC-V Verbal Comprehension Subtest WISC-V Visual Spatial Subtest Score WISC-V Fluid Reasoning or WISC-IV Perceptual Reasoning Subtest Score WISC-IV or WISC-V Working Memory WISC-IV or WISC-V Processing Speed WISC-IV or WISC-V General Intellectual Ability (GAI) WISC-IV or WISC-V Full Scale IQ WIAT-III - Oral Reading Fluency WIAT-III - Reading Comprehension GORT-5 – Fluency GORT-5- Comprehension WJIV-TOA - Oral Reading Fluency WJIV-TOA - Reading Comprehension WIAT-III - Math Problem Solving WIAT-III - Numerical Operations WJIV-TOA - Applied Problems WJIV-TOA - Math Facts

This table shows the measure, groups and assessments analyzed to answer RQ3.

Assessment Protocols

The quantitative analysis included subtests from five different assessments of either intellectual potential or academic achievement. A brief explanation about each follow.

The Wechsler Intelligence Scale for Children Fifth Edition (WISC-V) published by Pearson in 2014, is a comprehensive intellectual ability assessment for children (Pearson, 2018). It is administered 1:1 by a trained psychologist or diagnostician. The norming population included 2,200 children between six years, zero months and 16 years,

11 months old. It includes the following subtest categories: Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed. Relative to previous versions of this assessment (WISC-IV), it features "advances in structural models of intelligence, cognitive neuroscience, neurodevelopmental research, psychometrics, and contemporary practice clinical demands" (Pearson, 2018, p. 6). This assessment has been tested to ensure three quality indicators: validity, reliability, and fairness (Pearson, 2018). Regarding validity, "test scores can be interpreted as measures of intelligence in children and can be used for identification, placement, and resource allocation" (Pearson, 2018, p. 7). Regarding reliability: "test scores are consistent over time and over multiple raters" (Pearson, 2018, p. 7). Regarding fairness: "test scores can be interpreted the same way for test-takers of different sub-groups" (Pearson, 2018, p. 7). Studies evaluating the validity, reliability and fairness of the WISC were carried out both internally, included in the WISC technical manual and externally (Pearson, 2018, p. 9).

The Wechsler Intelligence Scale for Children Fourth Edition (WISC-IV), also published by Pearson "helps measure a child's intellectual ability" (Pearson, 2003). It was published in 2003, the norming population also included 2,200 children between six years, zero months and 16 years, 11 months old. Like the WISC-V, it is administered 1:1 by a trained psychologist or diagnostician. Relative to the previous version, it features improved assessment of Fluid Reasoning, Working Memory, and Processing Speed (Pearson, 2003). Subtests are grouped to create scores in the following categories: Verbal Comprehension, Perceptual Reasoning, Working Memory, and Processing Speed (Pearson, 2003). For both versions of the WISC, this study will examine the scores for Verbal Comprehension, Visual Spatial, Perceptual Reasoning/Fluid Reasoning, Working

Memory, Processing Speed, General Ability Index, and the Full-Scale score.

The Wechsler Individual Achievement Test Third Edition (WIAT-III) is an individually administered achievement test for use in clinical, education, and research settings (McCrimmon & Climie, 2011; Pearson, 2009). The WIAT-III was published by Pearson in 2009; an updated version, the WIAT-IV was published in the Fall of 2020. Like the WISC, it is administered 1:1 by a trained psychologist or diagnostician. The subtests include: Listening Comprehension, Early Reading Skills, Reading Comprehension, Math Problem Solving, Alphabet Writing Fluency, Sentence Composition, Word Reading, Essay Composition, Pseudoword Decoding, Numerical Operations, Oral Expression, Oral Reading Fluency, Spelling, and Math Fluency (Pearson, 2009). This assessment has been evaluated to ensure validity and reliability (McCrimmon & Climie, 2011). Regarding validity: "the final items used in the WIAT-III aligned closely with the theoretical framework of the measure and adequately measure the intended constructs within each domain" (McCrimmon & Climie, 2011, p. 154). Regarding reliability, the assessment was measured for internal consistency, test-retest reliability, and interrater reliability (McCrimmon & Climie, 2011). Internal consistency scored .83 to .97 (good to excellent), test-retest reliability for the subtests included in this study scored .82 to .94 (average to excellent), and interrater reliability scores .87 to .96 (good to excellent) (McCrimmon & Climie, 2011).

Woodcock-Johnson Tests of Achievement Fourth Edition (WJIV-TOA) is designed to accurately evaluate learning problems for children and adults (Riverside Insights, n.d.). Like the other assessments, it is administered 1:1 by a trained psychologist or diagnostician. The WJIV-TOA can be used to assess people from two years old to 90-

plus years old. It is made up of eleven subtests, each taking only five to 10 minutes to administer, they are: Letter-Word Identification, Applied Problems, Spelling, Passage Comprehension, Calculation, Writing Samples, Word Attack, Oral Reading, Sentence Reading Fluency; Math Facts Fluency, and Sentence Writing Fluency (Riverside Insights, n.d.). An additional nine test extended battery is available for more in-depth diagnostic assessment of a student's strengths and weaknesses (Riverside Insights, n.d.). This assessment has been evaluated to ensure validity and reliability (Villarreal, 2015). Four areas of validity were assessed to ensure validity: content validity, construct validity, concurrent validity, and clinical validity (Villarreal, 2015). Reliability was established through evaluation of internal consistency and test-retest consistency (Villarreal, 2015).

Gray Oral Reading Test Fifth Edition (GORT-5) is one of the most widely used measures of oral reading fluency and comprehension in the United States (Pearson, n.d.) Like the other assessments, it is administered 1:1 by a trained psychologist or diagnostician. It tests oral reading fluency specifically, so administration only takes 20 to 30 minutes. It can be administered on individuals from six years zero months old to 23 years, 11 months old (Pearson, n.d.). This assessment has been evaluated to ensure validity and reliability (Hall & Tannebaum, 2012). Regarding validity, content, construct and criterion-related validity were assessed and demonstrate strong evidence of validity (Hall & Tannebaum, 2012). Reliability of the GORT-5 is reported as consistently high, suggesting that test users can have high levels of confidence in test results (Hall & Tannebaum, 2012).

Each of these assessments are widely used in both therapeutic and educational settings to determine the learning profiles and needs of students (Pearson, n.d.; Riverside

Insights, n.d.). The community partner uses the WISC-V for testing of intellectual potential or ability and the WIAT-III, WJIV-TOA, and GORT-5 for achievement testing. Together, testing for intellectual potential or ability and testing for current academic achievement provides a comprehensive look into a child's strengths and needs.

Explanation of Qualitative Phase

For the qualitative portion, data were collected through parent interviews. The interviews utilized aspects of both narrative and case study qualitative research approaches. Data were collected via interviews with open ended questions. The researcher was interested in the stories and individual experiences of the parents of twice-exceptional learners. Narrative research lends itself well to this study because the twice-exceptional identification process can be viewed in a chronology. It also explored turning points and consequences, all of which are defining features of narrative study (Creswell & Poth, 2018). The researcher was also interested in examining similarities and differences among experiences to gain a deeper collective understanding of the experiences of the participants. Case study research lends itself well to this study through a collective case study of six families, bounded by their experiences with twice-exceptionality and interaction with the community partner (Creswell & Poth, 2018). The interview questions were as follows.

Table 5 *Interview Questions*

Interview Question	**Rationale**	**Citation**
Tell me about your child's academic experiences prior to identification of any exceptionalities.	Examine parent perception of students' lived experience prior to the turning point of identification	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014

Tell me about your child's academic experiences after their first exceptionality was identified.	Examine parent perception of students' lived experience prior to the turning point of identification	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
Tell me about your child's academic experiences after they were identified as twice-exceptional.	Examine parent perception of students' lived experience after to the turning point of identification	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
Tell me about the process of your child being identified as twice-exceptional.	Examine parent perception of students' lived experience during the turning point of identification	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
The language around exceptionalities can be tricky and sometimes misleading. The term gifted often has a positive connotation, whereas disabilities can have negative connotations. What kind of language (positive, negative, or neutral) did/do you use to discuss your child's exceptionalities?	Contextualize parent feelings and family communication about exceptionalities	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
In relation to the previous question, how do you think the language your family uses about your child's exceptionalities has contributed to their self-concept?	Contextualize parent feelings and family communication about exceptionalities	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
How do you think the order of identification of exceptionality impacts how your child sees themself?	Contextualize order of identification with parent perception of student self-concept	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014

What differences do you see in your child in various settings?	Examine parent perception of student's identity	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
Tell me about your child's confidence and how it has been influenced by their exceptionalities.	Examine parent perception of student's confidence	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
What other aspects of identity do you think have influenced your child's academic identity?	Examine parent perception of student's identity regarding gender, race, familial interests, birth order	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
Is there anything else you would like to tell me, related to the topics we have covered?	Opportunity to uncover parent perceptions related to their twice-exceptional student, not explicitly asked	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014
What, if any reflections or additions would you like to add to our first conversation?	Opportunity to uncover parent perceptions related to their twice-exceptional student, not explicitly asked	Creswell & Poth, 2018; Dare & Nowicki, 2015; Dole, 2001; Hayes, 2014

This table shows the questions the researcher asked each participant in the qualitative phase of the research. The first six questions were asked in the first interview, the last six were asked in the second interview. The rationale for each question is included.

Data Analysis

The quantitative data descriptive statistics and *t*-tests were run in SPSS. For RQ1 and RQ2, the descriptive statistics output was used to describe the intellectual potential and achievement for twice exceptional learners, in two groups: identified gifted first, and identified disability or difference first. For RQ3, the Welch *t*-test was used to determine if there are statistically significant differences between the two groups on many

assessments including both ability or intellectual potential and academic achievement tests.

Qualitative data were collected through interviews conducted via Zoom. Zoom interviews were recorded and saved to the University of Denver's Zoom cloud recordings. The recordings were uploaded to Trint, a password-protected, web-based text editing and transcription service. One uploaded, the researcher listened to each interview two or more times each and edited the transcript for accuracy. The interview transcripts were shared with the participants to ensure accuracy, only one participant approved her transcript. The responses to interview questions one, two, three, and four were told through a family summary narrative, describing the participants' experiences in a chronology with attention paid to the turning point of the student's twice-exceptional identification. The family summaries were also shared with the participants to ensure accuracy, all six participants approved their summary. Responses to the remaining interview questions were further analyzed for themes and shared experiences utilizing the Creswell & Poth (2018) data analysis spiral. The researcher read the interview transcripts three or more times while taking notes and highlighting quotes. The researcher's notes were then analyzed for common experiences and themes. Each transcript was reread and hand coded for themes. The themes were divided into inductive and emergent themes. Inductive themes directly related to the interview questions and emergent themes were derived from collective experiences shared by participants. The interviews were further analyzed through the theoretical framework of identity formation. In addition, three conceptual frames were also utilized in analysis, they were: intersectionality, stereotype threat, and self-concept.

Timeline

Table 6 *Timeline for Completion of Dissertation in Practice*

Step in Dissertation Process	Month of Completion
Proposal of Dissertation in Practice	June 2021
IRB Submission	August 2021
Quantitative Analysis	January 2022
Participant Selection for Qualitative Portion	January 2022
Participant Interviews	January-March 2021
Compilation of Data and Findings	March-April 2022
Defense of Dissertation in Practice	May 2022

This table shows the timeline for this research project. Participant selection for the quantitative analysis took longer than anticipated, so this timeline was amended from the initial research proposal.

Institutional Review Board Requirements

This study was a systematic investigation intended to contribute to generalizable knowledge about twice-exceptionality, and therefore is considered research. The quantitative portion analyzed private information and the qualitative portion obtained and analyzed identifiable private information through parent interviews; thus, both phases constituted human subject research, and required Institutional Review Board approval. To protect the participants in the study, all information in the quantitative portion was de-identified. The researcher made no effort to match student data in the quantitative phase with the participants in the qualitative phase. For the qualitative phase, all participants were recruited to participate voluntarily via email (appendix A) and informed consent

language was shared via email prior to the interviews, and a signed copy was collected prior to each interview (appendix B). Participant identities were protected multiple ways. Each participant selected pseudonyms for both themselves and their child(ren), and spouse, where applicable. Additionally, the researcher intentionally excluded the names of specific schools and other organizations mentioned by participants.

Summary

This chapter described the methodology used in this project to inform the reader of the process of data collection and analysis. This study is centered on four questions:

RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?

RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?

RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?

RQ4 – Qualitative: What are parents' perceptions of the experiences of twice-exceptional learners regarding school experiences before and since identification, identification experience, order of identification of exceptionality, and student identity and self-concept?

This chapter provided an overview of the research design. The purpose of the research, and the rationale for a mixed-methods approach was explored. The role of the community partner, who provided data for the quantitative phase and supported recruitment for the qualitative phase was explained. The study design, including recruitment, assessment

data, interview questions, and data analysis were explained. The following chapter will describe the results of the study.

Chapter Four: Results

Introduction

The purpose of this study was to explore the parent perceptions of and relationships among intellectual potential, academic achievement and order of identification of exceptionality for twice-exceptional students who were evaluated by the community partner for this study. This study employed a mixed-methods approach to utilize the collective benefits of both quantitative and qualitative research. The research questions for this study were

- RQ1 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?
- RQ2 - Quantitative: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference is identified first?
- RQ3 - Quantitative: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?
- RQ4 – Qualitative: What are parents' perceptions of the experiences of twice-exceptional learners? Specifically, what are parents' perceptions related to the identification experience, order of identification of exceptionality, school experiences both before and since identification, and student identity and self-concept?

Research questions one, two, and three were explored with statistical analysis and are described below with SPSS outputs and explanations. Research question four was

explored through participant interviews with six parents about their twice-exceptional children. A brief summary of each participant is shared followed by themes, both based in the interview questions and emergent themes.

Quantitative Analysis

The data analyzed in research questions one, two, and three was provided by the community partner supporting this study. As a resource for assessment and support of students who are gifted and twice exceptional, the community partner has performed assessments on countless students. On the parent intake form, there is an option for parents to allow their child's test scores to be de-identified and used in future research. All student data used in this project was collected by the community partner and approved by parents for use in future research. In addition to these requirements, participants also met the requirements of this study which were: must be twice-exceptional, must have both intellectual potential and academic achievement assessment scores in the profile, and must have had one exceptionality identified before the other(s). In total, there were 54 student profiles included in the analysis including 14 who were identified gifted first and 40 who were identified by their disability or difference first. No single data point had a score for every student, resulting in N values ranging from two to 39 for the 17 different items measured.

Twice-exceptional students are students who exhibit both giftedness and a learning disability or difference. By this definition, test data measuring both intellectual potential and academic achievement for twice-exceptional students would predictably have scores in the extreme ranges. The data in this study confirmed that assumption.

RQ1: What is the intellectual potential and academic achievement of twice-exceptional students who are identified as gifted first?

Table 7 *Measures of intellectual potential, expressed in percentile ranks, for twice-exceptional students who were identified as gifted first*

Assessment	N	Range	Mean	Std. Deviation
WISC Verbal Comprehension	12	79.0-99.9	96.83	5.88
WISC Visual Spatial	9	42.0-99.7	88.63	18.11
WISC Fluid Reasoning	12	55.0-99.6	90.80	12.60
WISC Working Memory	12	50.0-99.0	82.50	15.56
WISC Processing Speed	12	23.0-96.0	69.25	24.58
WISC Full-Scale	12	73.0-99.9	94.91	7.53
WISC GAI	8	87.0-99.9	97.14	4.42

Measures of intellectual potential included subtests of both the WISC-IV and WISC-V due to students being assessed by the community partner over time and different versions of the assessment being used. Additionally, not all scores were included in all student profiles. For these reasons, the N varies for this set of assessments. The maximum N of 12 is below the ideal N of 30 for robust analysis so these results are not generalizable (Gliner et al. 2017).

For twice exceptional students whose giftedness was identified first, all scores on the WISC are positively skewed. For working memory and processing speed, the scores are moderately skewed, for all other measures they are highly skewed. The scores that were highly skewed, verbal comprehension, visual spatial, fluid reasoning, full scale, and GAI also have kurtosis measures above 3, indicating a heavy tail or more scores in the higher ranges.

The highest mean was for GAI (M=97.14, SD=4.42), which is a composite score from subtests in the verbal comprehension, visual spatial, and fluid reasoning sections,

eliminating working memory and processing speed. Conversely, the lowest means were these two subtests alone, processing speed (M=69.25, SD=24.57) and working memory (M=82.50, SD=15.56).

Table 8 *Measures of academic achievement in reading skills, expressed in percentile ranks, for twice-exceptional students who were identified as gifted first*

Assessment	N	Range	Mean	Std. Deviation
WIAT-III ORF	2	81.0-86.0	83.50	3.54
WIAT-III Reading Comprehension	4	86.0-99.5	94.63	6.26
GORT-5 Fluency	4	9.0-98.0	62.00	41.19
GORT-5 Comprehension	4	25.0-91.0	70.50	31.26
WJIV-TOA ORF	4	58.0-99.0	83.50	19.02
WJIV-TOA Reading Comprehension	4	79.0-95.0	87.50	7.00

Table 9 *Measures of academic achievement in mathematics skills, expressed in percentile ranks, for twice-exceptional students who were identified as gifted first*

Assessment	N	Range	Mean	Std. Deviation
WIAT-III Math Problems	5	66.0-99.9	90.16	14.53
WIAT-III Numerical Operations	5	27.0-99.9	82.12	31.57
WJIV-TOA Applied Problems	4	97.0-99.9	98.95	1.37
WJIV-TOA Math Facts Fluency	4	32.0-99.9	77.98	31.69

Measures of academic achievement included subtests of the WIAT-III, the Woodcock Johnson and Gray oral reading. Because each student took different assessments, the number of students who took each test is low. With a maximum N of 5, these data lack an N size large enough for statistical analysis or generalizability (Gliner et al. 2017).

RQ2: What is the intellectual potential and academic achievement of twice-exceptional students whose learning disability or difference was identified first?

Table 10 *Measures of intellectual potential, expressed in percentile ranks, for twice-exceptional students whose learning disability or difference was identified first*

Assessment	N	Range	Mean	Std. Deviation
WISC Verbal Comprehension	39	14.0-99.9	86.78	19.57
WISC Visual Spatial	33	34.0-99.9	79.44	21.42
WISC Fluid Reasoning	38	16.0-99.9	81.14	24.16
WISC Working Memory	39	2.0-99.8	59.59	33.32
WISC Processing Speed	39	1.0-98.0	46.67	30.00
WISC Full-Scale	38	7.0-99.9	82.10	23.24
WISC GAI	29	19.0-99.9	87.04	21.71

Measures of intellectual potential included subtests of both the WISC-IV and WISC-V due to students being assessed by the community partner over time and different versions of the assessment being used. Additionally, GAI was not included for all student profiles. For these reasons, the N varies for this set of assessments. The maximum N of 39 meets the threshold of 30 for robust analysis so these results are generalizable (Gliner et al. 2017).

For twice exceptional students whose learning disability or difference was identified first, all scores on the WISC are positively skewed. For visual spatial, working memory and processing speed, the scores are moderately skewed, for verbal comprehension, fluid reasoning, full scale and GAI they are highly skewed. Verbal comprehension, full scale, and GAI also have kurtosis measures above 3, indicating a heavy tail or more scores in the higher ranges.

The highest mean was for GAI (87.04, SD=21.71), which is a composite score from subtests in the verbal comprehension, visual spatial, and fluid reasoning sections,

eliminating working memory and processing speed. Conversely, the lowest means were these two subtests alone, processing speed (M=46.67, SD=30.00) and working memory (M=59.59, SD=33.32).

Table 11 *Measures of academic achievement in reading skills, expressed in percentile ranks, for twice-exceptional students whose learning disability or difference was identified first*

Assessment	N	Range	Mean	Std. Deviation
WIAT-III ORF	11	4.0-87.0	59.55	22.95
WIAT-III Reading Comprehension	15	3.0-99.0	73.27	27.98
GORT-5 Fluency	26	1.0-91.0	39.65	28.86
GORT-5 Comprehension	26	1.0-91.0	43.77	27.26
WJIV-TOA ORF	12	5.0-94.0	59.08	25.97
WJIV-TOA Reading Comprehension	12	27.0-91.0	70.83	21.22

Table 12 *Measures of academic achievement in mathematics skills, expressed in percentile ranks, for twice-exceptional students whose learning disability or difference was identified first*

Assessment	N	Range	Mean	Std. Deviation
WIAT-III Math Problems	21	2.0-99.9	64.61	33.24
WIAT-III Numerical Operations	21	1.0-99.7	54.99	35.93
WJIV-TOA Applied Problems	14	53.0-98.8	85.45	14.61
WJIV-TOA Math Facts Fluency	14	1.0-81.0	36.93	23.87

Measures of academic achievement included subtests of the WIAT-III, the Woodcock Johnson and Gray oral reading. Because each student took different assessments, the number of students who took each test is low. With a range of 11-26 N, these data lack an N size large enough for generalizability (Gliner et al. 2017).

The range for these measures is large, including minimum scores in the single digits and maximum scores above 90 for seven of ten assessments. This is noteworthy

because these are not raw scores, but percentile ranks, demonstrating that these twice-exceptional students scored along nearly the whole continuum on these measures. Gray oral reading fluency and Woodcock Johnson math facts fluency were both negatively skewed, all other measures were positively skewed.

The highest mean for assessments measuring reading skills was WJIV-TOA reading comprehension (70.83, SD=21.22). The lowest mean for assessments measuring reading skills was Gray oral reading fluency (39.65, SD=28.86). The highest mean for assessments measuring math skills was WJIV-TOA applied problems (85.45, SD=14.61). The lowest mean for assessments measuring math skills was WJIV-TOA math facts fluency (36.93, SD=23.87). There is a parallel between the scores in table 11 and the scores in tables 12 and 13. On the WISC, these students scored lowest on processing speed, likewise the lowest scores in academic achievement measures are those which require speed and visual-symbolic processing.

RQ3: What are the differences between the intellectual potential and academic achievement for twice-exceptional students, based on the order of identification of exceptionality?

To compare the data in RQ1 and RQ2, Welch *t*-tests were used to address the difference in both sample size and variance of the data (Delacre, 2017). RQ1 included data from 14 students, RQ2 included data from 40 students. The data for intellectual potential, measured by WISC is more robust than the data for academic achievement, measured by WIAT-III, Woodcock Johnson, and GORT-5 for both groups due to achievement being measured by multiple assessments, and thus a smaller N for each. Significance for Welch, is typically set at either .05 or .01; because of the small sample size, significance was set at .01 for this study (Delacre, 2017). For all comparisons, the null hypotheses proposes that there is no significant difference between percentile rank scores on a variety of measures for twice-exceptional students whose giftedness was identified first, compared with twice exceptional students whose disability or difference was identified first.

Table 13 *Comparing measures of intellectual potential, expressed in percentile ranks, for twice-exceptional students based on order of identification*

Assessment	Gifted First		Disability First		*p*
	M	**SD**	**M**	**SD**	
WISC Verbal Comprehension	96.83	5.88	86.78	19.57	.007
WISC Visual Spatial	88.63	18.11	79.44	21.42	.215
WISC Fluid Reasoning	90.80	12.60	81.14	24.16	.079
WISC Working Memory	82.50	15.56	59.59	33.32	.002
WISC Processing Speed	69.25	24.58	46.67	30.00	.015
WISC Full-Scale	94.91	7.53	82.10	23.24	.005
WISC GAI	97.14	4.42	87.04	21.71	.026

Twice exceptional students whose giftedness was identified first performed better on the verbal comprehension subtest (M = 96.83, SD = 5.88) than twice-exceptional students whose disability or difference was identified first (M = 86.78, SD = 19.57), p = .007, thus, the null hypotheses is rejected. Similarly, twice exceptional students whose giftedness was identified first performed better on the working memory subtest (M = 82.50, SD = 15.56) than twice-exceptional students whose disability or difference was identified first (M = 59.59, SD = 33.32), p = .002, thus, the null hypotheses is rejected. In addition, twice exceptional students whose giftedness was identified first performed better on the entire WISC, as measured by the full-scale score (M = 94.91, SD = 7.53) than twice-exceptional students whose disability or difference was identified first (M = 82.09, SD = 23.24), p = .005, thus, the null hypotheses is rejected. For all other measures of intellectual potential: visual spatial, fluid reasoning, processing speed and GAI, no statistical significance between groups was detected and the null hypothesis is accepted.

Table 14 *Comparing measures of academic achievement in reading skills, expressed in percentile ranks, for twice-exceptional students based on order of identification*

Assessment	Gifted First		Disability First		*p*
	M	**SD**	**M**	**SD**	
WIAT-III ORF	83.50	3.54	59.55	22.95	.008
WIAT-III Reading Comprehension	94.63	6.26	73.27	27.98	.015
GORT-5 Fluency	62.00	41.19	39.65	28.86	.363
GORT-5 Comprehension	70.50	31.26	43.77	27.26	.186
WJIV-TOA ORF	83.50	19.02	59.08	25.97	.083
WJIV-TOA Reading Comprehension	87.50	7.00	70.83	21.22	.033

Twice exceptional students whose giftedness was identified first performed better on the WIAT-III ORF subtest (M = 83.50, SD = 3.54) than twice-exceptional students whose disability or difference was identified first (M = 59.55, SD = 33.32), p = .008, thus, the null hypotheses is rejected. For all other measures of academic achievement in reading, no statistical significance between groups was detected and the null hypothesis is accepted. The sample size is too small for these findings to be generalizable.

Table 15 *Comparing measures of academic achievement in mathematics skills, expressed in percentile ranks, for twice-exceptional students based on order of identification*

Assessment	Gifted First		Disability First		*p*
	M	**SD**	**M**	**SD**	
WIAT-III Math Problems	90.16	14.53	64.61	33.24	.019
WIAT-III Numerical Operations	82.12	31.57	54.99	35.93	.139
WJIV-TOA Applied Problems	98.95	1.37	85.45	14.61	.004
WJIV-TOA Math Facts Fluency	77.98	31.69	36.93	23.87	.074

Twice exceptional students whose giftedness was identified first performed better on the WJIV-TOA applied problems subtest (M = 98.95, SD = 1.37) than twice-

exceptional students whose disability or difference was identified first (M = 85.45, SD = 14.61), p = .004, thus, the null hypotheses is rejected. For all other measures of academic achievement in math, no statistical significance between groups was detected and the null hypothesis is accepted. The sample size is too small for these findings to be generalizable.

Summary of Quantitative Results

The descriptive statistics provide an overview of group performance and reveal differences in scores for twice-exceptional students, based on the order of identification of exceptionality. Students who were identified gifted first had higher overall scores in measures of intellectual potential and academic achievement. Students whose disability or difference was identified first had lower scores overall, but a larger range of scores, suggesting that these students have a larger discrepancy between their areas of strength and areas of need. The Welch *t*-tests reveal statistically significant differences between groups on the full-scale WISC, and the verbal comprehension and working memory subtests of the WISC.

Qualitative Analysis

The qualitative research phase was conducted next to add depth and texture to the findings. The community partner distributed a recruitment survey to the email on record for the 54 student profiles used in RQ1, RQ2, and RQ3. The recruitment survey collected potential participant data using Qualtrics. The survey consisted of 11 items including demographic information and contact information. Seven participants completed the recruitment survey and six participated in two interviews. Of the six participating parents, all were mothers; four shared the experiences of one child, and two shared the

experiences of two children. Each participant received the interview questions for both interviews ahead of time, along with an informed consent form. The interviews were scheduled for one hour each, approximately a week apart. With the exception of one participant, all the interviews were recorded. All participants were given the opportunity for validity check of the transcripts (5 of 6) or the family summary below (6 of 6). One participant approved both her transcript and her family summary, the other five approved the family summary. All participants selected a pseudonym for both themselves and their child(ren) and spouse, where applicable.

Table 16 *Information about interview participants*

Parent	Child	Disability	Age of assessment	Current Age	Gender Identity	Ethnic Identity
Buddha	Buddha 2.0	Dyslexia	7	12	Male	Asian
Jen	Bobby	APD and Anxiety	15	20	Male	White
Jen	Tommy	Dyslexia and Dysgraphia	9	18	Male	White
Naynay	Donut	Dyslexia	6	15	Male	White
Naynay	Gummybear	Stealth Dyslexia	6	11	Female	White
Josie	Sierra	Dyslexia	20	25	Female	White
Hannah	Robert	ASD, Dyslexia, ADHD	12	17	Male	White
Nancy	Dave	ASD, ADHD, Dyslexia, and Dysgraphia	17	19	Male	White

The table above shows the pseudonyms of the mothers and their child(ren), the diagnosed disability, the age of the assessment with the community partner for this study, the current age, and the gender and ethnic identities of the children. All of the children are gifted, and have different disabilities; seven have dyslexia, two have dysgraphia, two have attention deficit hyperactivity disorder (ADHD), two have autism spectrum disorder (ASD), one has auditory processing disorder (APD), one has anxiety, and four have multiple disabilities. The range for age of assessment was 6 to 20 years old. The range for current age was 11 to 25 years old. The participants shared about their two female

children and six male children. One parent participant is Asian and the other five are white, all six mothers have the same ethnic identity as their children.

Participant narratives

In the first interview, each participant shared the story of her child(ren) experiences in school before and since being identified as twice-exceptional. They shared observations from early childhood, each school setting, any previous diagnosis of exceptionality, as well as what prompted them to do an assessment with the community partner for this study. Their stories are shared below.

Buddha and Buddha 2.0.

Buddha and her husband have one child, Buddha 2.0 who is currently 12 years old and was assessed by the community partner for this study when he was 7. Buddha 2.0's giftedness was identified first, but he also has stealth dyslexia. The community partner for this study also did an assessment on Buddha when she made connections between her own experiences in school and what she was helping Buddha 2.0 navigate. They have similar profiles of strengths and areas of need, with a large discrepancy between their general ability index (GAI) and their processing speed and working memory on a WISC. Buddha grew up in Singapore where the education system is drastically different from the US and has been especially thoughtful and resourceful navigating Buddha 2.0's education. She explained "I took it upon myself to be very, very involved right from the beginning in terms of making sure that he was getting great education, the right fit. So that's the basis of a very enthusiastic parent."

Buddha 2.0 showed signs of precociousness and intense curiosity at a young age. Buddha explained, "he started talking about nine months babbling about, like starting

putting things together. He was very high energy." She continued "it was exhausting for nannies or for family who was trying to help out. It was just like, here, take your kid back, I cannot handle(him). Not because he was a difficult child in terms of temperament. They just could not keep up with the number of questions. It was frustrating for them." Buddha didn't see the intensity or curiosity negatively, "I was like, I think we want to encourage the curiosity." To support his development and curiosity, Buddha 2.0's parents enrolled him at age 18 months in a Jewish Community Center preschool, which was a positive experience.

After preschool, Buddha 2.0's parents went through a rigorous application process for a prestigious private school where he started at age 4. Buddha 2.0 immediately endeared himself to the adults in his new school; when prospective parents would tour, Buddha 2.0 would choose to come talk to the adults about his school and why he liked it there. He enjoyed talking with adults in other settings also, the family attends philosophy classes with their Hindu community, Buddha 2.0 always had questions for the Swami. In addition to intellectual intensity, he also began to demonstrate physical intensity, Buddha describes him as "quite athletic" and would sometimes get passive aggressive comments about how energetic and intense he was after playdates with other families.

Also at age four, Buddha 2.0 attended a summer science program at a local museum that Buddha thought he would love. He became reluctant to go and Buddha discovered that there was another child who was being bullied in the camp. Buddha's strong sense of justice led him to protect the student who was being targeted, and ended up being picked on as well. The camp was run by high school students who downplayed

these interactions and did not intervene. Buddha was proud of Buddha 2.0 for standing up for a classmate, but was unhappy with how it was handled by the counselors.

These and other experiences led Buddha to question if they were meeting Buddha 2.0's needs, she explained "so by age four or five, I was really getting concerned that there was something else, are we making sure we're meeting him where he is in terms of his academic and emotional development." At age five, Buddha 2.0 was assessed by a psychologist who determined he was gifted, but also "was quite frustrated by having to deal with him for three hours."

In the elite private school, Buddha 2.0 was the only student of Indian descent, no one there looked like him, "he was the one brown kid in the class." In a poorly executed attempt at diversity and inclusion, one of the teachers read a book to the class about how "everyone is beautiful" celebrating children from different cultural backgrounds. There was no Indian child in the book. Buddha 2.0 came home and told his parents matter-of-factly that he was not beautiful. Buddha explained "he really internalized that at four." When Buddha approached the school about it, she explained "these things get really touchy with the school super-fast. It went up to the head of the school." Buddha explained "my son thinks he doesn't have a place or a reason to believe that he's worthy of beauty, of being perceived as that. So that became a very difficult conversation for them to handle." After this incident, they left the school.

Buddha 2.0 was enrolled in a public school. From the initial meeting, the school leader could see that Buddha 2.0 was a very capable child and ensured that his giftedness was being addressed and his needs were being met. The years spent there were overwhelmingly positive. Because of a work opportunity for Buddha, the family moved

to another state. After their move, Buddha 2.0 was enrolled in a public school. There was no gifted program, “no additional resources, no enrichment, no pull out, nothing.” Buddha asked the school about it, and was told ”there's no testing done for gifted kids because they believe that it it's unfair to kids of color.” Buddha was shocked, she explained “I'm telling you as a person of color that there are some of us who have kids who are gifted, who need the support.” She was unable to get any traction with the school so she sought the evaluation with the community partner for this study. The evaluation confirmed Buddha 2.0’s giftedness, but also revealed stealth dyslexia and a significant discrepancy between his general ability index (GAI) and his working memory and processing speed. Buddha then enrolled Buddha 2.0 in an experimental school for gifted children. The experimental school was not a fit either; Buddha was less asynchronous than other students in the school and felt pressure from frequently being held up as an example or asked to compromise in ways that were unfair. Reluctantly, they went back to the initial public school in their new state. Back at the public school, Buddha 2.0 began getting in trouble for sitting in the back of the class reading with a friend. Buddha continued to advocate for Buddha 2.0 in this school, and others because of two more moves.

Now the family has settled into a new city and Buddha 2.0 has started middle school. It is going very well, Buddha explained “this has been the best thing we found. I mean, to the point where we're just like, please nothing screw up, like no teacher leave. Our son's coming home excited about every subject he's learning.” The school is private and requires an assessment for admission and the academics are rigorous, and they also honor his learning needs with an individualized plan to support his stealth dyslexia,

processing speed, and executive functioning challenges. In addition to the academics, it has been the best match socially as well. Buddha explained about her son's classmates "most of them are these quirky oddballs, who you know are going to go on to do something really fantastic at some point. Each of them is so unique, and he's found a circle of people who are more equivalent. They get him. They get his weird. And so far, that's awesome."

At 12 Buddha 2.0's identity is still developing. Buddha describes him as an "absent minded professor" type who needs reminders to brush his teeth, but has brilliant ideas. She also shared that he has a passion and talent for tennis, which he plays regularly and derives confidence from. She also shared that for the first time he is thinking about how he looks and dresses and has become a cool/popular kid in his new school. Buddha is watchful and hopeful that his confidence continues to come from within, and for substantive things.

Jen, Bobby and Tommy.

Jen and her husband are the parents of two twice-exceptional sons, Bobby and Tommy. Bobby is 20 years old currently and was assessed by the community partner at age 15. Tommy, who is currently 18 was not assessed by the community partner for this study, but was assessed elsewhere at age 8 and Jen agreed to share about both of her sons to add additional insights and experiences to this research. Both Bobby and Tommy had their giftedness identified before their learning differences. Bobby has stealth dyslexia and Tommy has auditory processing disorder (APD) and generalized anxiety disorder (GAD). They had significantly different school experiences, despite attending the same schools; the degree that these differences shaped their educational experiences is evident

in the discrepancy between the ages their twice-exceptionality was discovered. Despite these differences, they also have many commonalities with regard to their identity formation and how they have coped with their twice-exceptionality.

Jen described Bobby as "super confident," explaining "he always knew he was smart." He attended a private Jewish day school from kindergarten at age four until the end of seventh grade. He had such effective compensatory strategies that studying Hebrew in sixth grade was the first time Bobby or his parents suspected there may be a problem with his reading. He was studying Hebrew in preparation for his Bar Mitzvah, a rite of passage for Jewish children at age 12 or 13 where they lead a religious service and read from the Torah, which is written in Hebrew. Another clue to Bobby's dyslexia was his preference for graphic novels and reluctance to read challenging text, especially relative to his parents and his younger brother who are all avid readers. Jen has a close friend who is a child psychologist and also a parent of twice-exceptional children and she encouraged Jen to have Bobby tested. Bobby moved schools in 8th grade, mostly because he wanted to attend the school where his younger brother had moved.

Prior to moving schools, however Bobby did have a negative experience related to his yet to be discovered twice-exceptionality. He participated in the seventh-grade science fair and wrote a meticulous report about which he was extremely proud. Despite his hard work and the quality of the report, he received a poor grade from the teacher. When Jen inquired about the grade, the teacher explained that not everything from his report was on the science fair board. Nowhere in the rubric did it explain that all the information must be included on the board, it was only mentioned in class; thus, the teacher was measuring executive functioning skills more than the scientific method.

In high school, as work got more complex, Bobby's compensatory strategies which had carried him so far, were no longer adequate and his school performance was no longer on par with his ability. Jen took Bobby to the community partner for this research for an evaluation, where his giftedness was affirmed and his stealth dyslexia was discovered. For Bobby and his parents, the diagnosis was a relief, it "explained a puzzling thing" about the struggles he was experiencing. His high school did not immediately accept the private diagnosis because his school performance, despite being discrepant from his ability, was still on or above grade-level expectations. Despite the school's initial hesitation, they eventually agreed to provide accommodations after Jen advocated for a 504 plan which would give Bobby one and a half time on assessments. In addition, Jen got Bobby a Learning Ally account to support his reading of textbooks. These additions to his learning plan were adequate to close the gap between Bobby's ability and achievement. As a college student today, he still utilizes Learning Ally and listens to his textbooks while he reads them and takes notes on another device.

After graduating high school, Bobby made the decision to take a gap year. During his gap year, he attended National Outdoor Leadership School (NOLS) Emergency Medical Technician (EMT) training. Bobby has always been young for his grade, starting kindergarten at four instead of the typical five so this provided some additional time to mentally and emotionally prepare for college, and it also worked out because he graduated in 2020 when COVID shutdowns were changing schooling and life for everyone.

Bobby currently attends a competitive public college in the Midwest where he is thriving. He was able to perform to his ability on the ACT because of his extra time

accommodation provided by his 504 plan. His university also honors his 504 plan and Jen explained they have "been really awesome about it" and she suspects there are a lot of twice-exceptional students there. The best thing about his college 504 plan is the ability to choose classes during pre-registration in order to get into classes and sections that are set up with supports such as recording of the lectures and professors who host extra office hours.

Jen framed Bobby's twice-exceptionality as an asset, explaining "we all have something, LD kids just find out sooner." She describes Bobby's work ethic and outlook as incredible strengths. Learning about his stealth dyslexia made him learn and use compensatory strategies and also lean in harder to his natural strengths and abilities.

Jen's younger son Tommy also has a late birthday and started kindergarten at age four, attending the same Jewish day school as his brother. His multiple exceptionalities include giftedness, APD and GAD. His school experiences, especially his early experiences were different from his brother's. Tommy is very competitive and as a young child was striving to keep up with his older brother. He was very focused and persistent in learning to read and also demonstrated an early aptitude for mathematics. He is also an exceptionally gifted athlete. Despite these strengths, he struggled with regulation and developed a "bad kid" identity at school. The school, and his class in particular was very stimulating which proved to be a very poor fit for his needs.

Jen shared several examples of Tommy getting overstimulated by his school environment and the teachers or school leaders blaming Tommy for his behavior, claiming "he should know better." At one point, he used his physical aptitude and actually climbed the brick fence on the perimeter of the school grounds, so great was his

need to escape that environment. Jen was persistent in figuring out what was going on and asked both their au pair and a psychologist to each separately do classroom observations of Tommy at school. Both encouraged her to choose a new setting for him because it was immediately apparent that he was overstimulated, coping with undesired behavior, and then receiving punitive consequences; a cycle that was not serving him.

The new setting, in a local public school resulted in a dramatic change for Tommy. From his early educational experiences, Tommy still had a deep suspicion of authority so Jen continued to advocate for his needs, and teachers were for the most part receptive. Quiet classrooms better allowed Tommy to regulate and prevent overstimulation; one teacher even started each class with a moment of silence to allow students to settle in, a suggestion from Jen that the teacher reflected helped Tommy and other students as well. Teachers allowed and encouraged his physicality which helped his engagement, for example his 5th grade teacher had him do planks while she read poetry to the class. His teachers acknowledged his strengths and allowed him to change environments if he didn't need the instruction that was happening, for example, a middle school math teacher let him leave the room for his independent work with other students with similarly high math aptitude.

In the new school, Tommy also had educational opportunities for his giftedness. He participated in a gifted and talented program and took accelerated math classes. In the gifted program, he did a project about athletes with physical disabilities and created a field day to simulate playing sports with various disabilities. He later turned this interest into his Bar Mitzvah project, raising money and awareness for an adaptive skiing program. His athletic ability has always been a strength, a source of confidence and self-

efficacy for him, and he wanted others to experience the joy he feels participating in sports.

Tommy had a 504 plan in middle and high school to ensure his needs were met. The school was very understanding about the APD, but advocating for his anxiety proved to sometimes be challenging. Upon graduation, Tommy went to a selective liberal arts college in the Eastern United States. He also plays baseball for his college. The school is a match for both his desire to be in a rigorous academic environment and also utilize his athletic gifts

Tommy had a "turning point" experience his freshman year of high school when a friend confessed his drug use to Tommy. Concerned for his friend, Tommy told Jen who sought support; Tommy ultimately saved his friend's life. His own experiences with anxiety helped him understand the seriousness of his friend's drug use. Jen explained that Tommy and his friends talk about mental health and have a high degree of awareness of these issues, especially when compared with previous generations.

Jen described Tommy as a "very smart Jewish athlete" and someone to whom everyone is drawn. Tommy joined our interview briefly and when asked about his twice-exceptionality responded "I don't know what my identity would be without that, but it is something I have to adapt to and be more conscious about things I struggle with."

For both boys, Jen identified other experiences and identity markers that have influenced the self-concept of each. Despite imperfect experiences at the Jewish day school, the whole family has a very strong Jewish identity. The family visited Israel when the boys were ten and eight and it was an impactful experience. The family celebrates Shabbat weekly with homemade challah and dinner and the children's' friends often join

the celebration. Both boys have good friends, but are best friends with each other. To hear Jen describe her children, it is evident how connected and loving their family is; she explained that she and her husband wanted their children to feel safe to take risks and their strong family unit will always be there to love and support them.

Naynay, Opie, Donut, and Gummybear.

Naynay and Opie are the parents of two twice-exceptional children, Donut who is 15 and Gummybear who is 11. Only Gummybear was assessed by the community partner for this study, but Naynay agreed to speak about both of her children to add additional insights and experiences to this research. Both children are gifted and have dyslexia; in both, the giftedness was identified first, they were given IQ tests prior to starting kindergarten because they attend(ed) a private school that serves gifted students from kindergarten through eighth grade. Naynay and Opie sought out this school after observing gifted traits in both children. Opie is also twice-exceptional, his dyslexia was identified when he was in first grade, which was unusual in that time, so he and Naynay have a heightened awareness about dyslexia and sensitivity toward understanding and serving their children's needs. Opie's educational experiences were difficult and the services he received in the 1970s and 1980s were very deficit based, he and Naynay want better educational experiences for their children.

Donut attended Montessori style preschool where his giftedness was readily apparent. Naynay explained "he was very bright, highly verbal, super interested in understanding things and asking questions, a very adept, extremely empathetic human being." A nanny who worked with the family told Donut about her house burning down when she was young, his response at only three or four years old was "that must have

been really hard for your mom." The nanny was blown away by his insight and empathy, and shared the story with Naynay. Donut has an October birthday and is the eldest in his class, most of his preschool friends went to kindergarten a year before him. He attended pre-k for one year at a private gifted school, where Opie attended for a year in the 1970s. Donut then went to a different private gifted school for kindergarten through eighth grade. Because of Opie's experiences, Naynay and Opie were vigilant watching for signs of dyslexia; Donut's pre-k teacher is the parent of a dyslexic child and did not see dyslexic traits in Donut at that time.

When Donut began kindergarten, he was a quiet, focused, hardworking student. When Naynay and Opie directly asked, teachers still did not see dyslexic traits in Donut at this time, but at home they observed a reluctance to reading where Donut seemed physically uncomfortable when trying to read. He began playing chess, which he excelled at and it was through another chess parent that Naynay was encouraged to do testing for Donut, she urged "if you think he is at all, do the testing sooner than later." The testing did reveal that Donut has dyslexia and also an auditory processing delay that makes him miss the beginning sounds of words. His decoding skill tested at a kindergarten level, but his verbal comprehension score was eighth grade level, revealing a huge discrepancy.

Naynay and Opie were initially reluctant to tell Donut's school about his dyslexia diagnosis, partly because of Opie's negative school experiences, and partly because at that time the school's twice-exceptional support was nonexistent. Naynay was able to tap into a 2E parent support group which helped her navigate accessing appropriate supports and tutoring. Donut did the Wired for Reading program in a pull-out group with a tutor

during his school day; eventually 8 of his 32 classmates participated with him, which led the school to develop integrated dyslexia supports later on.

Donut finished Wired for Reading in third grade but continued with a tutor to reinforce and practice reading and writing skills as he progressed through school. Donut is extremely hard working and is reluctant to use accommodations, because he doesn't want to do things differently from his peers. He has strong compensatory strategies and is willing to work longer and harder, but Naynay worries that he is making things unnecessarily hard on himself. She also worries that he is not making a habit of using accommodations and will exhaust himself doing more complex work as he gets older.

Donut's work ethic and determination made him a favorite of many teachers in his K-8 school and gave him a strong academic foundation for high school. He attends a private high school that is rigorous but not a gifted-specific school. Being in a more heterogenous group of students has built his confidence. Naynay shared a metaphor that the gifted K-8 was like being on the Olympic team, Donut struggled thinking he was the slowest on the team because the non-dyslexic students at his school were all reading Harry Potter in kindergarten. Now it is like he joined a rec league and is suddenly aware of his strengths in a powerful new way. Naynay asserts that the gifted K-8 was still the right choice because the injury-based curriculum was a match for Donut's curiosity and aptitude for building and constructing. She explained "he got to take advantage of all the things he was super strong with and feel very successful."

Naynay describes Donut as "so hardworking, so kind and helpful, the whole package" and credits both his strengths and struggles for developing his mindset and work ethic. She worries that Donut's giftedness sometimes makes him disinclined to use

accommodations for his dyslexia, explaining “he's not building the habits of using the supports that he's going to need when it really gets hard.” She further explains “the giftedness in a way is hampering us in terms of helping him.”

Gummybear is Naynay and Opie’s younger child, and despite also being gifted and dyslexic, she has had significantly different school experiences from her older brother. After their experiences with Donut, Naynay and Opie did not hesitate to have Gummybear evaluated, and did not wait for any traits to emerge before doing so. The community partner for this research did Gummybear’s evaluation when she had just turned six years old. The evaluation confirmed her giftedness and also revealed she has stealth dyslexia and a visual processing issue called convergence spasm.

Gummybear attended the same school as Donut and by this time, they had Wired for Reading tutoring available after school. Naynay explained “She loved going to tutoring, it was her superpower. She was getting all this inside info that her friends didn't have. And she just picked it up, she just started reading.” In addition to responding well to reading support, she has also become a prolific writer. Naynay explained “Gummybear is just like page after page after page, it's just a different experience.” Despite her successful trajectory with literacy, Gummybear’s stealth dyslexia does impact her learning in math. Automaticity of math facts is a struggle as is explaining her thinking. Naynay explained “Gummybear struggles with constantly feeling like she's bad at math because the boys are all fast” and worries that she is developing some gender-based math anxiety. Additionally, she has developed perfectionistic thinking and is “super upset about not being perfect.” She is currently in sixth grade and doing well academically, but Naynay worries about her perfectionism.

With both children Naynay and Opie made a conscious decision to not tell them they were gifted. At the private school, their affective and gifted learning needs were met, so talking about giftedness was unnecessary. Opie's negative school experiences also made him wary of using the dyslexia label. When each child was determined to be twice exceptional, at age six, the parents focused on taking about traits and strategies rather than the labels gifted or dyslexic.

Naynay believes that having their giftedness identified first was impactful because they were given a framework for success and capability, with teachers, there was never the question of "can they?" Naynay also framed their giftedness as both capability and hard work. She explained "you're at a school where everybody's taken a test that says they have the intellectual capacity to perform well if given the opportunity and the resources and they try hard. They call that giftedness." Naynay was a gifted kid who grew up in poverty with a single mother and credits her giftedness and hard work for her success. It is important to her that her children understand their own giftedness more as an opportunity than an innate trait.

In addition to having different manifestations of their dyslexia, Naynay explained other divergent ways Donut and Gummybear's identities have developed. Naynay describes Donut as the "classic eldest child, a rule follower, super careful, reserved, safety conscious." Naynay explained that he is different at school versus home, quiet and compliant at school and bossy to his little sister at home. She describes him as the kindest kid, he's the sportsman award winner and very humble. He is a nationally ranked runner and keeps those accomplishments close to the vest. Gummybear similarly embodies many traits typical for her birth-order. She has an "I can do it, bring it on" energy and is

adventurous, competitive and confident. She is fearless and has broken multiple teeth and multiple bones, which have yet to slow her down. She is also extremely confident, dismissive of gender stereotypes and is uninterested in tween girl interests like clothing or makeup.

The manifestations of their giftedness are more similar. They both have a highly attuned sense of justice and an awareness of right versus wrong. They are both curious and hardworking. They are both "top of their class type of students." They are both well-liked by peers and are active, vocal participants in the classroom. With Donut, Naynay and Opie worry about him not using accommodations because his giftedness and work ethic can make him successful without accommodations. With Gummybear, they worry about her perfectionism because they have observed her avoiding things if she is not going to win or be her best. Both children are talented athletes which has been an outlet and source of confidence for each.

Josie, Muir and Sierra.

Josie and Muir have one child, a daughter named Sierra. Sierra is currently 25 years old and was evaluated by the community partner for this research when she was 20. Her twice-exceptional profile includes giftedness and dyslexia.

Josie explained "it was always clear that she was bright and had incredibly high emotional intelligence." Josie was completing her PhD when Sierra was a preschooler and they would go to coffee shops for Josie to write and Sierra could pick snacks and play; Josie would marvel at Sierra's confidence finding free chairs, asking people if she could have them, and moving them together, sometimes before Josie was even finished getting their drinks and snacks. Josie also described Sierra's ability to pick things up

quickly; “you only had to tell or show her something once, maybe twice, and she would get it.”

Sierra attended several different preschool programs, for logistical reasons, all of which were more arts and play based rather than highly academic. Sierra thrived in preschool, in particular in the Waldorf setting. She learned all of her letters and could sing the alphabet and name the letters in isolation, but if she wrote them, they were often flipped either vertically, horizontally, or both. She also knew some words, including her name, but in retrospect Josie explained “it was more like a form, than a word made up of individual letters.”

For elementary school, Sierra attended the school where Muir is a teacher. She immediately became friends with students who were also really bright. These students were bright in different ways than Sierra and specifically were very skilled early readers. Josie started to question the difference between Sierra’s lukewarm interest in reading and her friends’ enthusiasm and skill. Muir is a third-grade teacher and, because of Sierra’s easily identifiable strengths as well as his own pedagogical beliefs, was not concerned. Josie explained “he said, I don’t have any question that she’s going to be capable (of reading), we don’t need to push it, she can play and be a kid.”

Sierra continued through first and second grades as a somewhat reluctant reader, performing on “grade level” but far below what one might expect from her verbal and social precociousness. In third grade, she had a teacher who was also a parent of a dyslexic child. This teacher was the first to suggest Sierra have a full evaluation to determine her learning needs. She was assessed in the winter of third grade and she had a five standard deviation difference between her ability and her academic achievement in

early reading skills. From the evaluation, she was staffed into special education and Josie and Muir also hired a private tutor to further support Sierra. Despite demonstrating her high potential in the evaluation, she was not added to the gifted program at her school. Josie explained, this is a community of successful, affluent parents, all the parents think their kid is gifted, thus, the program is more exclusive than most. Muir, as a teacher at the school knew the program and also knew he and Josie could provide Sierra with enriching opportunities outside of school, which they did. One such enriching opportunity was hiking the John Muir trail, a 230-mile backpacking trip, the summer she was nine years old. The trail gave her an emotional boost, she got a perspective that was outside of reading.

Over the years, there were some teachers who were reluctant to accommodate for Sierra's needs. Josie shared about a social studies teacher who initially refused to provide guided notes to support students' understanding of her lecture, eventually did and then reflected that it helped Sierra and other students too. Learning a foreign language also was a hurdle; after the teacher shamed Sierra for misspellings in her Spanish classwork, Josie and Muir pulled her from the class. Another teacher told them, Sierra's the worst speller I have seen in 22 years of teaching. Despite these setbacks, after five years of special education resource support and private tutoring, Sierra was exited from special education in 7th grade, but retained testing accommodations because of her dyslexia and text anxiety.

Toward the end of middle school, Sierra began touring high schools with her parents. After one of the tours, she explained to her parents "I would do fine there, but I won't flourish." Her self-awareness prompted her family to try homeschooling together

with an array of learning opportunities through local homeschool groups, universities and cultural institutions. It was the right decision: Sierra thrived in these environments. Sierra worked in a marine mammal center throughout high school and not only learned a great deal, but met incredible mentors, engaged in work that was meaningful and rewarding for her, and started her on a path toward her future career in veterinary medicine. Josie explained there was a project Sierra was the lead person on when she was only sixteen. The contact for the project only communicated with Sierra over the phone or email and assumed she was a graduate student and was shocked to learn that Sierra was so young.

After high school, Sierra attended a small liberal arts school on the East coast. It was a perfect fit because of the size, structure and philosophy. Some examples of the supports she received there: Sierra went to office hours when she needed support, had 1:1 conversations with professors instead of taking written tests, and pursued independent projects to extend her learning in class. As she was finishing undergrad and preparing to apply to graduate school for veterinary medicine, she was assessed by the community partner for this study. This assessment affirmed much of what they learned in her third-grade special education evaluation and also helped Sierra understand her strengths and needs as she prepared for the rigors of vet school.

Josie views Sierra's twice-exceptionality as an asset. Because of her struggles, she became unafraid to fail and bounces back quickly from mistakes. Her exceptional social ability has enabled her to connect with adults who have served as incredible mentors and teachers. Because she has always been well loved, and well received by others, her confidence didn't sink because of her dyslexia. Her biggest struggle has been text anxiety and yet she recently passed her veterinary medicine board exams. Other aspects that have

influenced her identity are being an only child and the first grandchild in a tight-knit extended family, playing violin, singing, and sports, particularly running.

Hannah and Robert.

Hannah has one son, Robert who is 17 years old. Robert is twice-exceptional and was assessed by the community partner for this study when he was 12. His twice-exceptional profile includes giftedness as well as dyslexia, autism spectrum disorder, and attention deficit hyperactivity disorder that result in processing speed and executive functioning deficits. Hannah is a teacher and was especially attuned to Robert's strengths and needs from her experiences supporting diverse learners over her career. Although signs of his giftedness were apparent in his early childhood, his learning differences were formally identified before his giftedness was.

Hanna described Robert in early childhood as "always a super bright, inquisitive, interested kid, just interested in everything in nature and anything mechanical and very verbal, he really enjoyed conversations with adults." As he transitioned into preschool, Hannah noticed Robert seemed overwhelmed and withdrawn, like he was shutting down to get through it, so she moved him to a hiking preschool. The hiking preschool was run by "a wise, wonderful woman" who took 6-8 students to different outdoor environments where they would hike and play and read; Robert flourished in this setting. The teacher understood him and he was able to engage at his own pace which was a good fit for him. Unfortunately, Hannah reflected that this "lovely experience" may have made the transition into traditional school more difficult. Many other students who attended more academic programs were already reading writing and drawing and "just seemed way ahead of the game academically." Robert struggled with fine motor tasks and he

immediately became aware of not being at the same skill level as other students on these tasks. He was still bright and inquisitive and a great conversationalist for his age 1:1, but the whole class dynamics and tasks where he did not feel as successful as his peers started to erode his confidence and he began showing significant signs of stress.

Hannah brought Robert for an academic evaluation at age six which revealed Robert's dyslexia. Robert was really suffering in school and Hannah connected with a homeschool group that was a better fit for Robert's needs. The teacher who ran the group was previously a first-grade teacher but became a homeschool teacher for several students who were twice exceptional. When Robert joined the group, there was another student close in age with Robert and a few students who were much older, five students in all. The small size of the group allowed Robert to received targeted instruction that was "joyful and organic" four days per week. One day per week, Robert continued in a nature program for homeschoolers since his hiking preschool had been such a positive experience for him. Hannah explained "we were trying to just recognize that he had different needs and that his emotional well-being seemed to be really negatively impacted by traditional school, (so we) cobbled together what seemed like the best fit."

After three years in the homeschool group, Robert had grown out of it and he transitioned to a private school serving students with language-based learning disabilities. He didn't love the school but he did receive "lots of targeted, intensive instruction" as well as adjust to attending school daily and being in a larger more traditional setting. He finished elementary school there and that is when Hannah brought him to the community partner for this study for an evaluation; she wanted to get a better sense of his learning

profile and current strengths and needs to help them make a decision for middle and high school.

For middle school, Robert and his parents made the decision to homeschool again, but with different resources. Robert attended math three days per week in a homeschool group, Hannah taught language arts, and Robert enrolled in various science and social studied courses through gifted homeschool groups. This combination of resources was ideal for Robert, Hannah explained it was “learning for fun, the teachers were great, the curriculum was great, it was so interesting.” She added “we're not worried about grades, we’re learning, we're learning history or we're learning geology.” This focus on learning for the sake of learning engaged Robert’s gifted traits of extreme curiosity and removed the obstacle of his anxiety about school performance.

Hannah teaches high school and by the end of their time doing homeschool middle school, Hannah felt Robert was ready for traditional school for high school. Robert started high school at a private high school that is known for having robust supports for students with disabilities. Robert did not enjoy his experience and made the decision to transfer to the large public high school for his sophomore year. Hannah recalled “I was terrified, there are twenty-five hundred students. It's huge. And I just thought it would be overwhelming. I thought he'd get lost. I was ready for a crash and burn.” Thankfully, it turned out far better than she anticipated. He explained “his case manager was just a great guy; the teachers were lovely. I think he also had enough maturity and skills built up that he could engage.” Robert is a senior now and preparing to graduate; he has found success in the large high school, earning all As and Bs in his classes with the support of an individualized education program (IEP) for sophomore and

junior year and a 504 plan in his senior year. The family made the decision to move from the IEP to the 504 because that is the only way students can take electives; for students on an IEP, the open period is automatically a resource class. The elective he chose is AP Psychology, and he has enjoyed the challenge.

In addition to his schooling, Robert also works a part time job at a bike shop. His passion is cycling, which is excels at and is very connected to others in the cycling community. He has been admitted to several four-year colleges and universities and is still weighing what he will do after graduation. He has recently been asking to see his academic evaluation reports and wants to know his IQ. Hannah thinks that he is grappling with "what is possible for me?" at this turning point in his life. The family lives in a very affluent area and the pressure to succeed in very specific ways is overwhelming. Robert also struggles to reconcile the ways that he feels behind or less capable than his peers with the ways that he excels and seems to wonder where he will fit.

Nancy and Dave.

Nancy and her husband are the parents of twins. One twin, Dave was assessed at age 17 by the community partner for this study and is currently 19. Nancy suspects Dave's twin is also twice-exceptional, but has not been formally assessed. Dave and his twin were born prematurely and placed in a federally funded head start program to support their developmental needs. Dave's twice-exceptional profile includes giftedness, autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), dyslexia, dysgraphia, and sensory processing challenges.

Dave began experiencing fetal distress at 24 weeks gestation and was born at 31 weeks. Dave and his twin were in the neonatal intensive care unit (NICU) for seven

weeks after birth. They began the federally funded head start program at the time of their due date (nine weeks after birth) and received intensive support until age 3. Through the head start program, 14 different specialists supported Nancy and both her children with developmental support and occupational therapy. Nancy emphasized that the language used by all the therapists was that of ability and meeting needs, never of deficit or disability. Nancy praised the efficacy of the head start program, explaining that her children responded well to the early interventions and she learned about meting their needs with a high degree of specificity.

When the head start program ended at the twins' third birthday, Nancy enrolled them in a Montessori preschool program. She selected it because of the similarity to the structure of the head start program. At the time, they were living in a rural area and she had to drive them an hour each way to attend a three-hour preschool program. Dave and his twin attended a second Montessori preschool program because of a move; in the second program, Dave and his twin were separated in different classrooms. Dave was more impacted than his twin and the separation made obvious how much Dave's twin was helping him regulate and communicate. This was eye opening for Nancy; she had been taught so much by the head start program, and she had been physically present with her children full-time their whole lives and Dave's twin was modeling Nancy's responsiveness. Although they were not formally identified at this time Nancy explained "I knew they were gifted when they left preschool."

Unfortunately, finding a great fit for grade school and beyond proved more challenging. Nancy spent weeks touring schools, observing classes and speaking with school leaders to find an ideal school and sensory environment for her children.

Ultimately, Dave and his twin attended a public school with a combined kindergarten and first grade classroom and spent both kindergarten and first grade in the combined room. In second grade, they moved to a Montessori charter school, where they stayed for less than a year. At that point they began an independent study homeschool program. Nancy explained, “it was more than homeschooling, our entire lifestyle was structured around meeting his needs.” She was resourceful in finding curricular materials and breaking things down; for example, if a curriculum combined literacy analysis and essay writing, she would push Dave’s strength with the analysis piece, but provide a lot of scaffolding for his area of need, the writing. She also planned a lot of learning experiences outside the home, in nature and museums. Nancy continued to homeschool through the rest of elementary school and most of middle school, but concerned for their social development, began searching for a high school they could attend, and in eighth grade Dave decided he didn’t want to wait for high school, he wanted to attend school right away. Nancy found a K-8 project based learning charter school. Nancy explained “it was not an academic, rigorous environment” and “the students had been together for years and years” so it was hard for Dave to fit in socially, entering so late and “because he was too smart.” Despite not feeling socially successful, he completed public middle school “at the top of his class.” Nancy hoped that starting in a public-school setting in eighth grade would allow Dave to have a special education or 504 plan in place before high school, but his academic success prevented him from being eligible.

The public Waldorf high school that Nancy carefully selected turned out to be a challenge for a variety of reasons. The school left a small beautiful campus for a large industrial building, which significantly changed the sensory experience of the school.

Wildfires in the area delayed school starting and displaced hundreds of people, including some of the teachers, who moved away abruptly. These disruptions led to Dave never getting special education support from the school. The disruptions also led to Dave's academic performance being far below his ability. Nancy was ready to homeschool again, and have Dave and his twin take junior college classes, but Dave was very reluctant to leave his high school. He set a goal after eight grade that he would be popular in his high school, and he was successful. He had friends, he had long hair and played guitar, and sold soda and candy to all the students. His social success was important to him and Nancy struggled with balancing his developmental, social and academic needs. In the middle of his sophomore year, he was failing all of his classes and experiencing fainting spells from stress and Nancy pulled him from the school. For the rest of high school Dave attended a combination of junior college classes, classes at a different public high school and private tutoring. Nancy advocated for him to get an additional year of high school, based on the unmet needs of his disabilities, but was denied because his IQ was too high. Additionally, Dave's last two years of high school were impacted by the pandemic; he graduated in 2021. Dave recently started college at a school on the east coast designed for students with learning differences. He had hoped to attend a specific program in his home state, but may try to transfer to that program at a later date.

Beyond his exceptionalities, Nancy explained that Dave being a twin is one of the most impactful parts of his identity. Dave's twin is suspected to be highly to profoundly gifted and has experienced mental health challenges related to gender dysmorphia. Being a twin meant Dave had constant companionship and his twin helped him with regulation

as well. Nancy also shared that Dave was able to develop deep empathy through his relationship with his twin.

Themes from interview questions

In addition to their child's school experiences and the process of identification of exceptionalities, the participants were also asked to reflect on other aspects of their child's experiences and add additional context to frame their experiences (full interview protocol, appendix C). There were both singular and common experiences among the participants.

Language/framing around neurodiversity.

From a root word analysis, the very terms disability and gifted denote value. Broken down into a root word (able: having power, skill, or means) and a prefix (dis: apart, or reversing), disability has a negative connotation. On the other hand, colloquially a gift is to receive something, thus the term gifted has a positive connotation. This study sought to uncover the language participants used to talk about their child's exceptionalities and explore if the language chosen influenced the child's identity. All six participants reported thoughtfulness and sensitivity when talking about twice-exceptionality. None of the participants reported embracing the term gifted; they all used other words to describe their child's precociousness: bright, curious, driven, capable, smart. Even when talking about non-academic aspects of giftedness, they still chose words other than gifted: quirky, intense, a handful. When talking about disabilities, there were more diverse opinions. Some families took a similar approach to how they viewed the gifted label, to name the traits and needs of the disability, but not necessarily use the name of the disability. Still others embraced the label of the disability, because of the

services or protections that came with it. Jen said that all people have strengths and weaknesses, twice-exceptional children just become aware of them much sooner, which is actually not a bad thing. Other parents shared similar sentiments and worked at using neutral rather than positive or negative language to describe their child's strengths and needs. Josie shared that Sierra received the email with the recruitment survey, and when they spoke later asked her "what is twice-exceptional?" From the parent descriptions, all eight of the children could easily describe their learning profile including strengths and needs, but the terms gifted and even twice-exceptional are not commonly used.

Influence of order of identification.

Identification of exceptionality in a school setting usually comes with a label as well as some type of services, be it programming, accommodations, or enrichment. These experiences could influence a student's identity and self-concept. This study sought to explore if the order of identification of exceptionality influenced how the students in this study saw themselves. There was not a singular theme among the eight students in this study. For the four who were assessed at 12 or older (Bobby, Robert, Dave, and Sierra) there was a sense of, "ok, this makes more sense" as the testing confirmed their experiences with regard to what things came very easily to them versus what required more attention and perseverance. For the students identified younger, it had more influence on how parents and educators saw them. Naynay shared "I think it has a huge impact that the identification happened in the way it did. I think it's much less likely that they would have been identified as gifted had they been on the opposite end because they would have been struggling." Both of her children attend a private school for gifted children and were assessed and scored in the gifted range before kindergarten. Both of

her children were further assessed and diagnosed with dyslexia at age 6, which is still quite young. She continued, “I do think that it impacted so much about the way they've approached education or been approached by educators because they had a given framework that these kids could and would succeed already. So, when they had struggle, it was an element of, how do we help this kid figure it out, but not, can they?” Educator bias is a related topic beyond the scope of this study, but Naynay’s point was echoed by the other parents of students whose giftedness was identified first; already knowing their extreme potential made parents and teachers frame school struggles more positively. One exception was Tommy, whose teachers would say “he should know better” when he became overstimulated and dysregulated.

Presentation in various settings.

This study sought to explore how twice-exceptional children present in different settings, and if those different settings have influenced the identity development of the child. Parents reported every child in this study has one or more settings where they shine and thrive, which has bolstered their confidence and positively impacted their identity formation. The first setting, for all eight children is their home and family life. The care and thoughtfulness evident in each mother in this study, when she spoke about her child(ren) was a clear asset. All six families in this study are healthy and intact: parents are married and the child(ren) are connected with each parent. Multiple participants also named the influence of harmonious sibling relationships, the love and care of involved grandparents, aunts, and uncles as important aspects of their child’s life and identity.

Each child also has one or more hobbies that have afforded them opportunities for connection and community. Sierra is a runner and a musician, both vocal music and

violin, Dave is a rock climber and plays guitar, Robert is an avid cyclist and also works in a bike shop, Buddha 2.0 plays the saxophone and tennis, Bobby and Tommy are both outstanding multi-sport athletes, Donut is a competitive runner, and Gummybear is an athlete as well. Every parent named these activities as positive elements of their child's life and development.

Parents' descriptions of their children's school experiences are more mixed: each parent named one or more aspects of school that was positive for their child, and each parent also named one or more aspects of school that was negative for their child. All of the families in this study were both willing to advocate for their child in school as well as flexible to make changes to schooling if appropriate.

Findings in this study connect with previous findings of twice-exceptional identity formation (Dole, 2001). Dole (2001) identified the importance of two contextual factors: relationships and hobbies. These contextual factors are echoed in this study through the importance of relationships with family and the value of hobbies and extracurriculars.

Confidence.

This study sought to explore how the identification of both giftedness and disability or difference have influenced the confidence of twice-exceptional children. This interview question was the most difficult for parents to answer. Confidence is complex, evolving over time and in various situations so parents struggled to articulate if or how the twice-exceptional identification specifically impacted their child's confidence. The one unifying theme in the responses to this interview question goes back to the language and framing question. All families were careful to frame their child's twice-exceptionality in traits, strengths and needs which enabled each child to see issues,

particularly school issues, as problems of fit, rather than an inherent deficit. This framing seems to have served as a protective measure for the confidence of the students in this study. Additionally, the positionality of the families: healthy, educated, and well-resourced also seems to have played a role. Parents were able to seek support from entities outside of school, including the community partner for this study and others to better understand and support their child. Parents describe high confidence in six of the students in this study (Donut, Gummybear, Tommy, Bobby, Buddha 2.0, and Sierra) and varying, situation-dependent confidence in the other two (Robert and Dave).

Intersectionality with other identify markers.

This study sought to explore aspects of identity that have influenced twice-exceptional children; specifically, what are parents' perceptions of the salient identity markers of their twice-exceptional children. The interview protocol specifically asked about gender, race, familial interests, and birth order. Some participants also shared about economic privilege and extended family dynamics that have shaped identity. The experiences shared by parents have many unique observations and some overlap of experiences.

Regarding gender, Naynay explained about her son and daughter being influenced by gender stereotypes. She worries that gender stereotypes influence both how children see themselves and also teacher bias and are contributing to math disengagement in her daughter. Buddha explained how Buddha 2.0 has a confidence her husband attributes to being male "the gift of being a guy." Hannah explained that Robert has "always been drawn to typically boy things." Nancy explained that Dave's gender is an important part

of his identity, specifically in contrast to his twin who was assigned female at birth but who is transgender.

Parents' perceptions about the influence of race were more similar. Buddha, who is East Indian said that while they are "part of a global community of 1.6 billion people" they are often in spaces where they are unique. She explained that they have consciously leaned into their Indian identity and culture more than they may have if they lived in India, because they want Buddha 2.0 to have pride in his culture. The other five participants are white and all specifically named the privilege their children experience because of being white.

All participants reported one or more hobby or interest that has shaped their children's identities. There were shared experiences around finding and cultivating talent. Josie shared about Sierra's passion for music. She has natural talent for it, and has also worked hard to cultivate it. She gave up music when her teacher moved away, but hopes to pick it back up later in life. Jen shared about the love for sports that Tommy and Bobby share, and how their natural aptitude and hard work have made it a big part of their lives.

Most of the parents interviewed named birth order as a significant influence on the identity of their child. Both only children: Sierra and Buddha 2.0 enjoy all of the love and attention of being an only. Josie shared that Sierra is very happy being an only and has specifically told her parents so. Buddha shared that Buddha 2.0 enjoys the security of all the love and resources, but also has the pressure of all the high expectations. Dave is a twin, which is a unique birth order experience. Nancy explained that when Dave and his twin were little, Dave was more impacted than his twin and his twin took care of Dave,

but as they got older, they traded and now Dave is the more independent twin. Naynay explained that she believes birth order is the strongest influence on a child. Her children Donut and Gummybear have personalities that align with the stereotypes of their birth order roles as careful, responsible big brother and confident, adventurous little sister.

Some parents also named socio-economic factors that have influenced their child's identity. Naynay grew up with a single mom on welfare and was the first in her family to attend college. She and her husband are successful and her children enjoy a life with significant privilege but she makes a point to educate them about their privilege through her experiences growing up in poverty. She explained "I need them to know their life is not normal." Both Hannah and Jen also named economic advantage as a part of their children's identity. Hannah, Jen and their husbands are highly educated which they explained creates an expectation for their children to also pursue higher education. While they both see their children as capable, they didn't want their own success to narrowly define success for their children. Jen explained that just because she and her husband went to elite schools, doesn't mean they expect their children to apply to the same schools.

Finally, parents also named dynamics with extended family as an influential factor to identity. For Nancy, it was a negative experience: she explained that she has relatives who saw her children as disabled, so she intentionally limited contact with those people to protect her children from negative ideas about themselves. For Josie, it was a positive experience: Sierra was the first grandchild in their large, tight-knit family so she was able to form relationships and receive love from many wonderful adults.

Emergent themes

Beyond the themes explicitly asked and discussed above, there were several experiences and observations that were shared by multiple participants in their interviews. These themes were discovered through hand coding of participant interview transcripts using the Creswell and Poth data analysis spiral activities (2018, p. 186). These shared experiences illustrate more fully the parent perceptions of the experiences of twice-exceptional children.

Difficulty finding right educational fit.

Five of the six parents interviewed moved their child or children into a different educational setting because of lack of fit at least once. These moves are outlined in the family narratives shared earlier; each decision was unique but the commonality of the experience illustrates the dissatisfactory school experiences shared by twice-exceptional children. In each of these decisions, one or both exceptionality was not being honored or supported by the school. For Sierra, Buddha 2.0, and Robert, their giftedness was not acknowledged or served. For Tommy and Bobby, their giftedness masked their disability and the school was reluctant to provide accommodations or services. Dave's giftedness also prevented him from getting special education support, but he did not receive gifted support either.

Decision to homeschool.

In the previous section, difficulty finding the right educational fit was discussed. One alternative educational setting explored by three of the six parents interviewed was homeschool. Robert was homeschooled in a homeschool group during elementary school and by Hannah during middle school. Dave and his twin were homeschooled by Nancy

all of elementary, most of middle and on and off during high school. Sierra was homeschooled by Josie for all of high school. All of the homeschooling parents sought out additional classes and resources for their children. The parents who homeschooled describe it as an overwhelmingly positive experience. They were able to attend to the academic and emotional needs of their children and their children were able to find success and explore their personal passions more readily. The only challenges named were the workload for the homeschooling parent and the lack of built-in peer socialization.

Importance of community.

All of the parents interviewed named the community partner for this study as an incredible support for understanding the needs of their twice-exceptional child. Many parents also became involved in advocacy groups, homeschool groups or other educational experiences with connections made through the community partner or within their school communities. Parents report these connections as crucial for their own learning. Having a friendship with another parent of a twice exceptional child or joining a parent group for twice exceptional children made the experiences navigating an atypical educational journey less lonely. All of the parents also shared that they agreed to participate in this study because they were eager to share their experiences in the hopes of increased knowledge leading to better experiences for twice exceptional children in the future.

Twice-Exceptionality as an asset.

While all parents articulated challenges their child has experienced related to their twice-exceptionality, most also named assets to the experience as well. The most

commonly named assets were self-awareness and perseverance. Many of the older children in this study (Tommy, Bobby, Sierra, Donut, and Robert) were described by their mothers as especially self-aware and hard working. Additionally, when compared with gifted-alone peers, parents reported they are better able to bounce back from a setback and try again because their learning disability or difference forced them to learn perseverance. The younger students (Buddha 2.0 and Gummybear) were also described as hardworking but were not described as especially self-aware or resilient, but that may be due to their age and stage of development. Only Nancy did not articulate any positive outcomes from Dave's twice-exceptionality; she explained that masking made both exceptionalities impossible for schools to identify and was never able to get his needs met in an educational setting besides homeschool which was deeply frustrating for her and Dave.

Advocacy.

Every parent interviewed reported having to advocate for their twice-exceptional child in school. Parents shared that the community support and relationships discussed previously were instrumental in developing their own advocacy skills. Sometimes it was a matter of knowing what to ask for, like services or accommodations. Sometimes it was a matter of knowing how to ask. Jen shared several examples of how she advocated for Tommy and Bobby. She was most successful when she asked specifically for what her children needed: for example, allowing Tommy who gets overstimulated easily to work in the hall and setting specific parameters for when and why this should happen. This need for specificity and being solution-oriented was echoed by other parents. The

commonality of this experience illustrates the lack of twice-exceptional supports that are provided by schools without family request.

Parent experiences.

Five of six parents in this study shared about their own or their spouse's exceptionalities and how those experiences have influenced their parenting of their twice-exceptional child. Both Muir and Opie are dyslexic and their experiences have influenced how they navigated supporting their child(ren). Muir was diagnosed dyslexic as a child, received resource instruction and was most impacted trying to learn foreign languages. He was able to relate with Sierra and support her through her school challenges. Opie was also diagnosed dyslexic as a child, and was separated from his peers and made to feel inferior. Despite his eventual academic and career success, he still harbors negative feelings about being dyslexic and is sensitive about his own and his children's dyslexia. Nancy was a gifted child who was unable to meet her potential because of a traumatic childhood. She was in foster care in high school and had a caring teacher offer to sponsor her to attend Yale, but was unable to go. She worries that despite her children's advantages, compared with her childhood, their twice-exceptionality may prevent them from fulfilling their potential. Buddha and Buddha 2.0 share a similar profile with high IQ and discrepant working memory and processing speed. Buddha grew up in Singapore and often felt less capable than her peers. She came to college in the United States and eventually earned a terminal degree from an Ivy League school but only came to fully understand her own capability through supporting her son. Naynay grew up in poverty and was in gifted programming as a child and asserts her giftedness and hard work pulled her out of poverty. Jen did not speak to her or her husband's early educational

experiences, but shared that they have multiple advanced degrees, from elite institutions between them. While Jen specifically said she does not expect her children to go to the same institutions, both Jen and Naynay named their success as a roadmap for what is possible for their children.

Physical giftedness/heightened athletic ability.

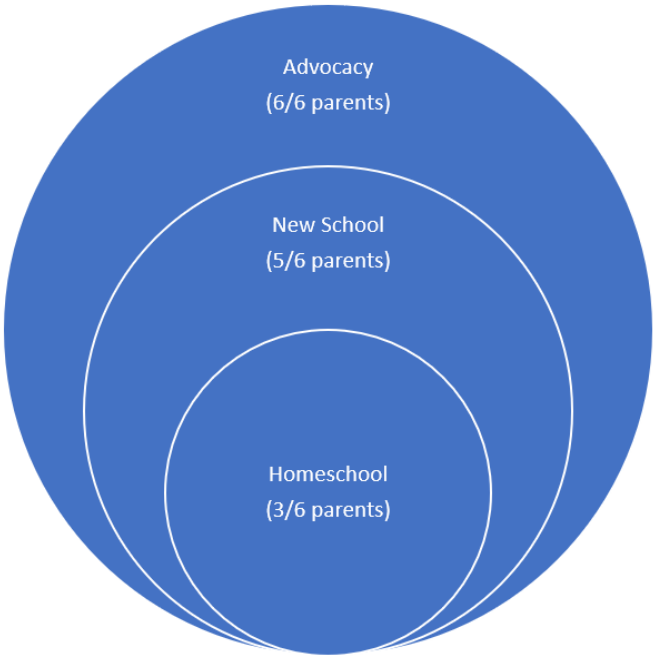
Every child in this study was described as being athletically gifted. Robert is a cyclist and though he is still in high school he rides with adult cyclists regularly. Donut is a distance runner and has been nationally ranked since he was seven years old. Gummybear at 11 is still trying to find her sport, but is athletic, competitive, and fearless. Sierra is a runner and was described by her coach as "impossible to exhaust." Dave has tried various athletic experiences for occupational therapy and thrived in rock climbing. Bobby and Tommy are both strong athletes who played multiple sports in high school and Tommy is playing college baseball. Buddha 2.0 is a strong tennis player. This common experience may suggest physicality or athleticism as a component of the twice-exceptional experience.

Summary of Qualitative Results

The following figures were created to synthesize findings from the parent interviews. Figure two illustrates measures taken by parents to meet the educational needs of their twice-exceptional child. This is important because no participants reported ideal accommodations and services for their child without advocating for them, switching educational settings, or homeschooling them. Figure three illustrates protective measures taken by the parents in this study, to support their twice-exceptional child. This is important because it demonstrates the power parents have to help and support their child.

Figure 2

Solutions to school challenges for twice-exceptional students



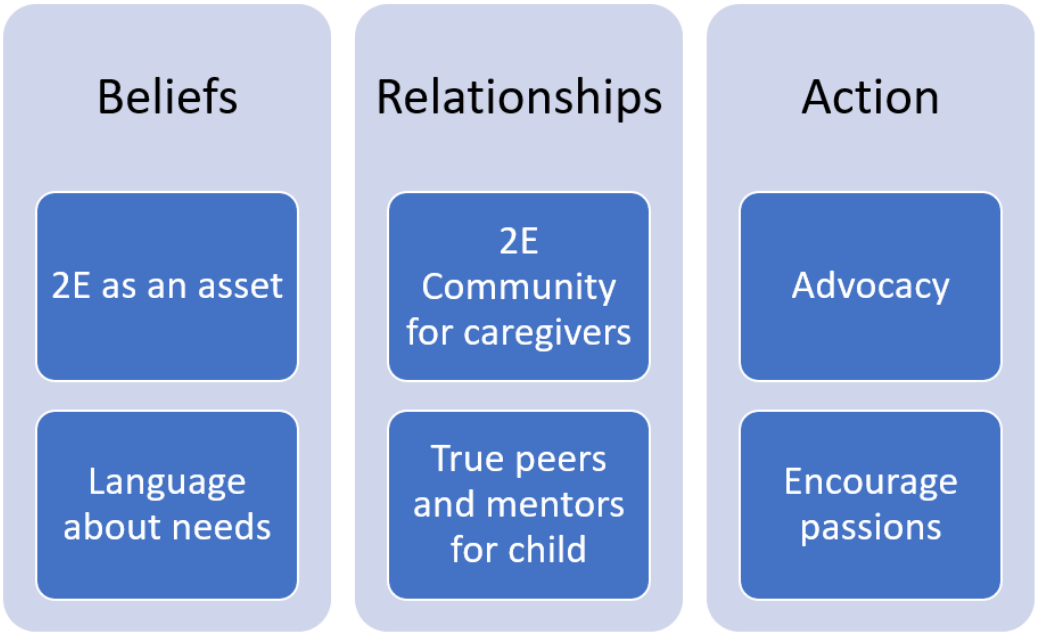
This figure illustrates the actions that parents in this study took to address challenges their child was facing in school. All participants reported needing to advocate on behalf of their child. Parents advocated for acceleration and enrichment opportunities, modifications or accommodations, and social emotional supports. Five parents reported changing schools to better address the learning needs of their child. Half of the parents in this study homeschooled their children for some part of their K-12 education. These choices illustrate that the educational promise of a free and appropriate public education under IDEA is not being fulfilled for the twice-exceptional population.

These findings connect with previous research by Dole (2001). The findings of the Dole (2001) study identified four personal categories: self-knowledge, self-acceptance, self-advocacy, and self-determination as integral to the identity formation of

twice-exceptional college students. The findings of this study illustrate the importance of knowledge, awareness, advocacy, and determination, however in this study these traits were examined in the experiences of the parents, not the students themselves. These traits empowered the parents in this study to seek solutions to support the healthy development of their child.

Figure 3

Protective measures for twice-exceptional students



This figure illustrates the protective measures taken by parents in this study to help their twice-exceptional child thrive emotionally and academically. Participants' stories illustrated that parent beliefs influence the identity of their child. Parents in this study used careful language to discuss their child's needs and framed twice-exceptionality as an asset rather than a deficit. The parents in this study prefer to speak in terms of strengths and needs, rather than specific labels. This affirms previous research about parents'

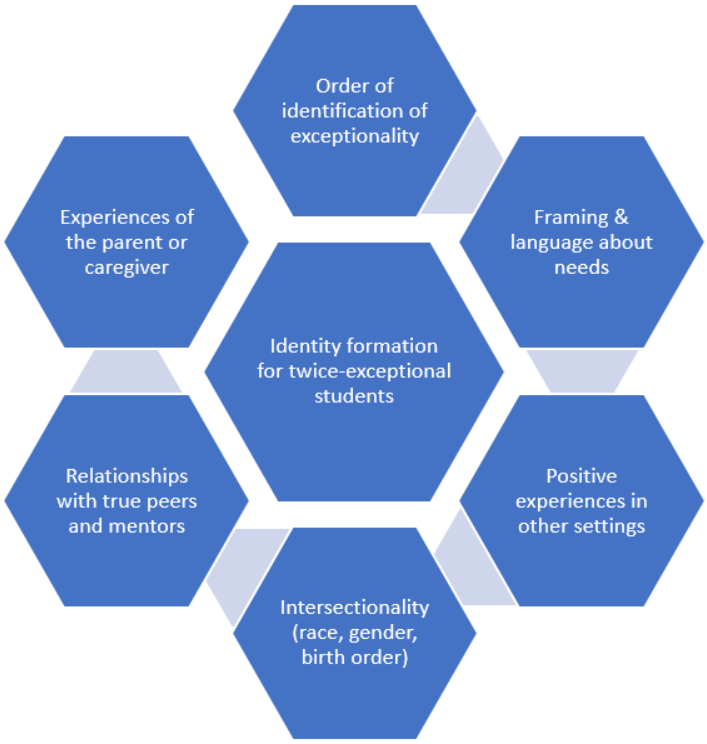
reluctance to use the gifted label (Matthews et al., 2014). Participants shared about the importance of relationships when navigating twice-exceptionality. Parents shared about the importance of their own community of parents as well as relationships with true peers and mentors for their child. This affirms previous research by Dole (2001) who named the contextual factor of relationships, specifically with family, peers, teachers, and mentors as critical to twice-exceptional identity formation. Parents shared about the actions they took to support their child. Parents advocated for their children by asking for appropriate accommodations, by choosing a new educational setting, or by hiring tutors. Parents also encouraged their child's interests and passions, giving their child an outlet and opportunities for success. This affirms previous research by Dole (2001) who named the contextual factor of extracurricular activities and hobbies as critical to twice-exceptional identity formation. Parents report the positive impact of these protective measures which can serve as a roadmap for parents of newly identified twice-exceptional students.

Synthesis of Quantitative and Qualitative Data

The following figure was created to synthesize findings from both phases of this research: the assessment analysis in the quantitative phase and the parent interviews in the qualitative phase. It illustrates the factors that influenced the identity of the twice-exceptional students in this research.

Figure 4

Factors that influence identity for twice-exceptional students



This figure illustrates the factors that influenced identity for twice-exceptional students in this study. Participants reported that the order of identification of exceptionality mattered. For students who were identified gifted first, parents report more asset-based approaches from educators. For students who were identified by their disability first, two of three never had their giftedness acknowledged or served in school. Additionally, the quantitative results indicate that order of identification is impactful. Twice-exceptional student scores on the WISC showed a statistically significant difference, based on order of identification of exceptionality. The students who were identified gifted first scored higher than the students whose disability or difference was identified first on the verbal comprehension and working memory subtests and the full-scale score as well. Parents reported careful and thoughtful framing and language choice when discussing their child's exceptionalities. They report these choices as a protective measure to the healthy

development of their child's self-concept. Parents reported about the importance of building their child's confidence in settings other than school. They shared about the work ethic, confidence, relationships, and joy derived from studying music, playing sports, and attending hands-on classes and camps. Participants explained the other factors that influenced their child's identity, including race, gender, and birth order. The reflections of the participants revealed an awareness of not only the academic needs of their twice-exceptional child, but a strong attunement to the social and emotional health and needs of their child. Through changing schools, joining support groups, or attending enrichment opportunities, parents reported seeking out relationships for their twice-exceptional child with either true peers, mentors, or both. Parents report the benefit of these relationships on their child's identity and confidence. Parent participants also shared their own, or their spouse's experiences as a child with one or more exceptionality. Participants shared that their own experiences helped them navigate their child's exceptionalities. Parent's reported experiences were both negative and positive, but the learning and reflection from them informed the ways they addressed their child's exceptionalities.

Summary

In this chapter the results from both phases of research, quantitative and qualitative, were explained. The significant findings were the differences between scores measuring intellectual potential for twice-exceptional students based on order of identification and the parent perceptions of the experiences of twice-exceptional students. Themes from the interview questions included: language and framing around neurodiversity, influence of order of identification, presentation in various settings,

confidence, and intersectionality with other identity markers. Emergent themes from the qualitative data included: difficulty finding educational fit, homeschool, importance of community, twice-exceptionality as an asset, advocacy, physical giftedness, and parent experiences. In the following chapter, these findings will be analyzed through the theoretical framework of identity formation. Additionally, limitations of the study, implications for the field, and areas of future research will be explored.

Chapter Five: Discussion

Introduction

The purpose of this mixed-methods study was to examine parent perceptions of and relationships among (1) intellectual potential, (2) academic achievement and (3) order of identification of exceptionality for twice-exceptional students who have received support from the community partner. Twice-exceptional students are defined as being both gifted and having a disability or difference that impacts learning. This study was designed to better understand the parent perceptions of the twice-exceptional experience, especially as it relates to identity formation. This study aims to address the persistent problem of practice of twice-exceptional students being under identified and under served in schools. Analysis through the theoretical framework, limitations of the study, implications for practice, implications for policy, implications by audience, and areas of future research will be explored in this chapter.

Data Analysis

The study contained a quantitative component and a qualitative component. Key findings in the quantitative section include statistical significance in WISC scores for twice-exceptional students. The data showed that order of identification had an impact on scores. Students who were identified gifted first had higher scores on all sections of the WISC. Three areas had a statistically significant difference, they were: verbal

comprehension, working memory and the full-scale score. This affirms previous research that suggests teachers and schools are more likely to recognize *Schoolhouse Gifted* students who perform at consistently high levels on multiple assessments and display verbal precociousness and strong executive functioning skills (Callahan et al., 2018; Renzulli, n.d.).

The study also compared scores for achievement assessments. Twice exceptional students whose giftedness was identified first performed better on all measures. Subtests with statistically significant differences in scores were the WJIV-TOA applied problems subtest as well as the WIAT-III oral reading fluency subtest. The assessments measuring achievement had a small sample size and more research needs to be done to affirm or deny the validity of these results.

Order of identification of exceptionality

The qualitative study results affirm the quantitative data indicating that through the lens of school experiences and identity formation, the order of identification does indeed matter. The quantitative analysis revealed higher scores in both measures of intellectual potential as well as measures of achievement for twice-exceptional students whose giftedness was identified first. The qualitative analysis suggests more positive schooling experiences and higher confidence for twice-exceptional students whose giftedness was identified first. While the results indicate group differences, more research needs to be done to better understand the origin of these differences. It is possible that identification leads to supports and programming, resulting in different test scores, school experiences and identity. It is also possible that twice-exceptional learners are identified at different times because of inherent differences in their particular strengths and needs,

and these differences influence both the order of identification as well as their test scores, school experiences, and identities. Likely the truth is a *both/and*; twice-exceptional students require identification to access specialized supports to help them reach their potential, and twice-exceptional students whose disability is more readily apparent are particularly vulnerable. The discrepancy between participants in the quantitative and qualitative phases of this study further illustrate this vulnerability. In the quantitative phase, the disability first group outnumbered the gifted first group 40 to 14, while in the qualitative phase the gifted first group outnumbered the disability first group 5 to 3. So, while more students in this study had their disability identified first, more students in the gifted first group were represented in the qualitative phase because of the parents who were eager to share about their experiences. Identity formation is complex and multifaceted; thus, rather than focus on one model of identity formation, the qualitative results were analyzed using three different conceptual frames: intersectionality, stereotype threat, and self-concept.

Intersectionality

“Intersectionality is simply about how certain aspects of who you are will increase your access to the good things or your exposure to the bad things in life” based on the intersection of multiple identity markers such as race, gender, or class (Steinmetz, 2020). Intersectionality provides a lens for exploring how the seemingly conflicting identities of giftedness and disability or difference co-exist and create unique experiences for the twice-exceptional learner. In this study, parent descriptions of their children’s experiences illuminate erasure of one or more exceptionality in the educational setting. Naynay shared that staff at her children’s school were reluctant to acknowledge that

gifted students can indeed have learning disabilities. Jen shared that when Bobby became dysregulated at school, the teachers believed he should "know better" because of his giftedness. Robert had to give up his IEP in order to take an AP class in high school. Sierra was drawn to her intellectual peers, but her best friends were included in the gifted program at her school and she was excluded. These examples illustrate that schools focus on one identity, but not the full picture for these learners. Schools not seeing twice-exceptional students fully leads to negative school experiences that could impact school performance and identity overall.

It has been established by previous research that Black students are overidentified for special education and under identified for gifted education (Artilles et al., 2010; Artilles, 2014; Gentry et al., 2019; List & Dykeman, 2019). Also under identified for gifted education are American Indian or Alaskan Native, Latinx, and Native Hawaiian or Pacific Islander students as well as twice-exceptional students (List & Dykeman, 2019). All five white parents in this study specifically named the privilege their children experience because of being White, yet still reported suboptimal school experiences. Disparity in gifted identification makes it less likely that gifted or twice-exceptional students from historically excluded groups are identified as gifted. The struggles faced by the White students in this study would likely be magnified for twice-exceptional students from other racial or ethnic groups. The intersectionality of multiple marginalized identities, those of giftedness, and disability as well as race could intensify the experiences reported in this study. Beyond racial identity, all of the families in this study have other identity markers that give them access to privilege: physical and mental health, financial stability, two-parent families, and high educational attainment. Parents

named these privileges played a protective factor for their twice-exceptional child. Twice-exceptional students from historically oppressed groups or with other marginalized identity markers are likely to experience greater marginalization.

Parents in this study reported having to advocate for their children in order for their needs to be met. These parents have positional power that enhanced their advocacy efforts. Being highly educated, being able to afford private testing when the school couldn't or wouldn't assess their child, and having the bandwidth and skills to navigate multiple school options to find a good fit are privileges the parents in this study have. Yet, they all describe challenges and barriers in the academic journeys of their child(ren). Three of the families reported choosing homeschool after exhausting other options, a choice that is not available to all parents, especially single parents. The promise of the Individuals with Disabilities Act (IDEA) is to provide a free and appropriate public education (FAPE) for all students, so there should not be such a burden on parents to advocate for their children, or educate their children themselves. The experiences shared by parents in this study demonstrate that for these twice-exceptional learners, the IDEA is failing to meet its aim. It stands to reason that families with less positional power could experience even more challenges advocating for appropriate support for their twice-exceptional children.

Stereotype threat

Stereotype threat is a situation when people are, or feel themselves to be at risk of conforming to stereotypes about their social group and can result in a fear of being judged, or diminished performance (Zhao et al., 2019). Stereotype threat provides a possible explanation for different levels of academic achievement and different self-

concepts among twice-exceptional students. This study sought to explore if stereotype threat is triggered when one exceptionality is identified before the other; specifically, if the order of identification of exceptionality influences a student's group identity. Previous literature suggests that stereotype threat is negatively predictive of academic performance for student with learning disabilities (Zhao et al. 2019).

All of the parents interviewed in this study were reluctant to use the gifted label, preferring to speak in terms of strengths and needs. This affirms previous research about parents' reluctance to use the gifted label (Matthews et al., 2014). Responses were split about using specific disability labels or also speaking about those exceptionalities in terms of strengths and needs as well. The parents seem to be actively working *against* the possibility that stereotype threat will negatively impact their child(ren). The reasons parents named for avoiding the gifted label included: not wanting their child to think everything should come easily, not wanting their child to have an ego about their giftedness, and wanting to instill a growth versus fixed mindset for their child. The reasons parents named for avoiding various disability labels included: the parent's own negative experiences, not wanting the label to limit their child's belief in their potential, and avoiding stigma from family, society or school.

The potential for labels to negatively impact student self-perception is an argument against labeling students at all. However, in most educational settings, the label is what grants the appropriate modifications or services. Significant issues prevent twice-exceptional students from being identified as such, this a potential opportunity to think differently about finding and serving twice-exceptional students. Dixson et al. (2020) put forth suggestions to more equitably serve all gifted learners, which would maximize

opportunity for marginalized groups in gifted education, including twice-exceptional students. Dixson et al. (2020) argue for a proactive, fluid model, similar to that of Response to Intervention (RTI), but with a lens toward identifying and adequately challenging students who are underchallenged. Identification is de-emphasized and the focus shifts to meeting specific learning needs as measured and monitored by systematic assessment. With this approach, the need for identification would be minimized, and stereotype threat avoided.

This model mirrors some of the educational opportunities parents in this study created for their children. When Sierra was excluded from the gifted program at her school, her family committed to providing enrichment opportunities to develop her strengths on their own. These included ambitious family hikes, music lessons, academic classes at universities and working with mentors. When Dave was denied access to special education in public school, Nancy provided academic differentiation as his homeschool teacher and also hired tutors to support Dave and his twin. Jen advocated for not only teachers, but coaches who worked with her sons to understand their strengths and needs as they may present in an athletic setting. None of the parents in this study were concerned about the labels their children carried, rather they advocated for the appropriate modifications, accommodations or enrichments that would enable their children to develop fully and optimally.

Educator bias is related to stereotype threat in that bias and stereotypes are shaped and upheld by educational systems (Artiles, et al., 2010). Five of the parents in this study named advantages to their child's twice-exceptionality, but also named that teachers and schools did not name these advantages, only the parents saw them as such. This relates to

the racial lens from which stereotype threat research originated: when Black students underperform in school, blackness is not the problem; systemic oppression is the problem (Matthews et al., 2014). Similarly, twice-exceptionality is not a problem, schools failing to recognize or adapt to the needs of twice-exceptional learners is a problem. Schools with narrow definitions of success that fail to honor many ways of knowing and ways of being contribute to this bias. Just as educators should engage in anti-bias work to honor students from all racial, ethnic and language backgrounds, so too should they engage in anti-bias work around exceptionalities. Educators who engage in this work can then work to change the systems that create negative experiences for students.

Self-concept

Self-concept is the belief one holds about themselves. Self-concept and self-beliefs play a role in motivation and academic achievement (Wang & Neihart, 2015). In this study, parents named many factors that have influenced the self-concept of their child(ren). The influences parents named include: identity markers such as race, gender, birth order, and familial interests and dynamics. Also influential was a sense of belonging, both in school and in other settings. Additionally, relationships with like peers or caring adults have shaped the self-concept for students in this study.

Parents report that having an identity beyond their school successes or struggles was important for the development of their children's self-concept. Parents of older children had an easier time answering the interview questions about self-concept, possibly because the younger teens and tweens are still in a state of exploration and their self-concept is more fluid. For Robert, working at, and eventually becoming a manager of a local bike shop has bolstered his confidence and improved his self-concept. His job

success increased his self-efficacy and his relationships gave him a sense of belonging. Sierra had a similar experience in the marine mammal center; she was able to contribute by completing challenging work that was meaningful to her, she enjoyed camaraderie with other staff, and she benefitted from relationships with caring mentors. Similarly, Bobby attended National Outdoor Leadership School (NOLS) Emergency Medical Technician (EMT) training during a gap year after high school which gave him more confidence and independence before heading out of state for college.

Caregivers and educators can positively influence the self-concept of their children and students by cultivating and celebrating hobbies, passions and other aspects of the child, beyond school performance. Self-efficacy, positive relationships and a sense of belonging can all contribute to a positive self-concept for twice-exceptional children.

This section analyzed the qualitative findings through the theoretical framework of identity formation. Participant experiences were further analyzed using the conceptual frames of intersectionality, stereotype threat, and self-concept. In the following section, limitations of the study will be explored.

Limitations of the study

While the findings of this study hold promise in pushing the field of twice-exceptional education towards more intentional identification and support of twice-exceptional learners, there are some limitations which must be acknowledged. First, the sample size for both the quantitative and qualitative portions were small. For the quantitative phase, 14 students were identified as gifted first, and 40 students had their disability or difference identified first. In the qualitative phase, six families contributed to the comprehensive interview data, with three families in each of the above categories.

More participants, particularly for the quantitative phase would strengthen the findings. All participants could afford private testing for their child, limiting generalizability to families with different economic circumstances. Although not all participants live in the same state as the community partner, four of the six in the qualitative phase do, and presumably many within the quantitative phase do as well. This is important because gifted education policies vary state to state and families seeking private evaluation may also vary state by state, depending on what is being offered or not in schools in that state. Racial diversity is another limitation of this study. The racial identity of the participants in the quantitative portion were unknown. In the qualitative portion, there were five white participants, and one Asian participant. Gender of the parents who participated in the interviews was a limitation, although all of the participants were part of two-parent households, only the mothers participated in the interviews.

Implications for practice

The findings of this study point to many implications for practice. Some implications could be put into practice at the teacher level, others on the school level. These implications include: educator collaboration, educator knowledge, and family outreach and advocacy. Additionally, there is limited literature on twice-exceptional students, this study contributes to the field of knowledge about these unique learners.

Educator collaboration

One suggestion is for more collaboration between special education and gifted education teams in schools. If these specialists collaborated, both in service of students, and in building capacity of the classroom teachers they support, experiences for twice-exceptional learners could be improved. For example, collaboration between these teams

could result in actually identifying more twice-exceptional students. Analyzing student data together, with both the special education and the gifted education lens would allow school teams to see students more completely. In isolation, these teams often rely on cut scores to made decisions about eligibility; working together could help teachers focus on the magnitude of the disparities between a students' highest and lowest scores, and also take into account masking and compensatory strategies that the students may use. Similarly, having both special education teachers and gifted education teachers participate in creating individualized learning programs (IEP) or advanced learning plans (ALP) could make these plans more accurate to the needs of the student. IEPs are frequently written with a deficit lens: what is the area of need and how much can it be improved? Conversely, ALPs are frequently written with an asset-based lens: what content area is the student advanced in and how will we keep them growing? Collaboration on these plans could result in a more complete picture of a student's strengths and needs. Each of these educators holds specialized training and knowledge that not all teachers have; their attunement to finding and serving students could be more powerful in collaboration.

Educator knowledge

Increased knowledge about twice-exceptional learners and their needs in both school leaders and classroom teachers could improve outcomes for twice-exceptional students. School leader knowledge could play a part in better finding and serving these students. School leaders often facilitate data analysis with teachers and response to intervention (RTI) teams to find and support students who may be struggling. If the leaders facilitating these efforts had a strong understanding of twice-exceptional learners,

finding and serving these students could be improved. Researchers have proposed RTI for gifted which would increase supports to groups historically excluded from gifted programming, including twice-exceptional students (Dixson et al., 2020; Hughes & Rollins, 2009). There is great potential in this model, but leader knowledge would be a critical part of its success.

Educator professional development could lead to more educators being prepared to meet the needs of twice-exceptional students. Participants in this study shared stories of teachers' limited knowledge about twice-exceptionality. Multiple participants shared a reluctance among educators to acknowledge that a student could be gifted and also have disabilities; at a minimum teachers must know these children exist so they do not deny the unique experience of being twice-exceptional. Beyond knowing what twice-exceptionality is, teachers should receive training in recognizing and tailoring their instruction to meet the needs of their twice-exceptional students. Many participants shared stories of advocating for their child(ren); most teachers were willing to try things when parents made specific suggestions, and often marveled at how many other students in the class benefitted from the suggestion. Some of these suggestions included: allowing students to work in flexible groups and locations, allowing students to physically exert themselves in some gross motor activity, providing outlines, guided notes, or recordings of lectures for students. The experiences shared by participants suggest that educators are willing to try new teaching methods, but they may simply be lacking the knowledge of what shifts in instruction would best support their students.

Family outreach

The results from the qualitative phase of this study illustrate the importance of community for twice-exceptional students and their families. Participants in this study were successful in creating or finding opportunities to connect with other families with twice-exceptional students. Schools could engage in family outreach and support to improve outcomes for twice-exceptional learners. Participants in the qualitative phase of this study named connections with other adults who understand twice-exceptional students as an important part of their support systems. Some participants connected with therapists and tutors who supported their child(ren), some connected with other parents individually, some participated in larger networks and support groups. These relationships were impactful in several ways. Parents felt less alone in the experience of parenting their twice-exceptional child, parents learned skills and strategies to help their child, parents shared their experiences, parents sharpened their advocacy skills, and parents shared resources such as camps and classes that may benefit the unique needs of their child(ren). While participants in this study were able to find these connections on their own, schools facilitating these connections could ensure all parents who need this support are able to find it. Special education teachers, gifted education teachers and school leaders trained in meeting the needs of exceptional children could all facilitate these opportunities. Schools could lead classes, host speakers, facilitate a book study or simply create an opportunity for these parents to meet and make connections.

Outreach efforts could also improve advocacy efforts. Parents in this study reported having to initiate advocacy efforts with their child's school. With the outreach experiences mentioned above, the home-school connection is strengthened and the

responsibility for advocacy is shared with the school, instead of resting with parents or caregivers alone.

Shifts in educator collaboration, educator knowledge, and family outreach and advocacy are implications for practice that could improve outcomes for twice-exceptional students.

Implications for policy

The findings of this study point to implications for policy as well. These are changes that would occur on a larger scale, impacting definitions, systems, and procedures in the larger educational space. The policy recommendations from this study include advocating for three things: a federal definition of twice-exceptional, IQ testing and thoughtful analysis to better find twice-exceptional learners, and robust training of preservice teachers and school leaders about how to best find and support gifted learners.

Defining twice-exceptional

As mentioned in the literature review, there are many different definitions of giftedness that are embraced by educators, scholars, and policymakers. One of the most widely used definition is the federal definition.

The federal definition of gifted is:

> Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (NAGC, n.d.).

Similarly, disabilities are clearly defined by the Individuals with Disabilities Education Act (IDEA). IDEA recognizes and services students under 13 disability types: specific

learning disability, other health impairment, autism spectrum disorder, emotional disturbance, speech or language impairment, visual impairment, deafness, hearing impairment, deaf-blindness, orthopedic impairment, intellectual disability, traumatic brain injury, and multiple disabilities (U.S. Department of Education, 2018). There is not, however a federal definition of twice-exceptionality. A federal definition would assert that these students do indeed exist. A federal definition would give educators and parents shared language to understand the unique needs of twice-exceptional learners. A federal definition could name not only the qualities of these learners, but the supports they need to develop optimally.

While this definition should be thoughtfully developed by multiple stakeholders, the results of this study highlight ideas that could be included. First of all, the federal definition of gifted and the federally recognized disability types under IDEA is a place to start. Although only one of the eight students in the qualitative phase of this study qualified for special education, four had a 504 plan at some point in their k-12 education. Using participation in section 504, in addition to participation in special education would allow more students to be recognized and ultimately receive appropriate supports as twice-exceptional learners. Three of the students in this study were never formally recognized as gifted by their school, despite demonstrating potential and traits of gifted learners through extensive assessment by the community partner. Thus, the federal definition of gifted, in addition to how giftedness is identified in schools, must be expanded. Asynchrony, especially as it is explained in the Columbus Group definition of giftedness is an important element that should be included as well. The asynchrony of the students in this study, as described by their parents, is a common experience of twice-

exceptional students. In addition to defining twice-exceptionality, the definition should also name that these students also need modifications in schooling that could include accommodation, targeted instruction, enrichment, acceleration, social and emotional support, and use of assistive technology to ensure their unique learning needs are addressed.

Full scale IQ testing

Another policy change that could lead to more twice exceptional students being found and appropriately supported is the administration and analysis of full-scale intelligence quotient (FSIQ) testing. FSIQ tests are already frequently utilized in special education testing and gifted education testing. This study analyzed scores from the WISC, a commonly used tool to measure FSIQ. The quantitative results from this study show differences in performance for twice-exceptional students based on the order of identification of exceptionality. Students labeled by their disability or difference first scored lower on the verbal comprehension and working memory indexes, and the full-scale score as well. Despite these lower scores, these students still tested in the gifted range on one or more index. Deficits in verbal skills or working memory skills should not preclude a student from receiving a FSIQ test in school. Additionally, educators analyzing these tests should analyze them thoughtfully, looking not only at the full-scale score, but at individual scores and discrepancies between scores. The community partner for this study specializes in supporting twice exceptional students and as such administers FSIQ testing frequently and interprets the scores with a sophisticated understanding of twice-exceptionality. If guidelines for FSIQ testing in schools could emulate the approaches taken by the community partner for this study for administering, scoring, and

interpreting FSIQ assessments, more twice-exceptional students would be identified as such in their schools. By definition twice-exceptional students have both significant learning strengths and needs, looking at index and subtest scores, and discrepancies between scores paints a more accurate picture of the learner than the full-scale score alone.

Training requirements for preservice teachers and leaders

Educator knowledge was mentioned in implications for practice, but there are also implications for policy. Beyond educators seeking out new knowledge, there could be training requirements for preservice teachers and preservice school leaders. If teachers and school leaders learn about twice-exceptionality in their education programming, they will be better prepared to identify and serve these learners once on the job.

Implications for different audiences

The previous sections outlined broad implications for both practice and policy. The following section will address more specific implications, by audience. The distinct groups who could be impacted by the findings of this study are parents, educators, and school psychologists.

Implications for parents

The findings of this study, especially the parent experiences shared in the qualitative phase of research, are valuable for other parents of twice-exceptional students. All six parents in this study reported using neutral language to describe the educational traits, strengths, and needs of their child. More specifically, they didn't use the term gifted and only sometimes used the term for the disability or other exceptionality. This conscious choice seems to have played a protective measure against stereotype threat and

encouraged a growth mindset in the children. While labels can be important for advocacy and ensuring adequate support at school, when talking with children, focusing on traits, strengths, and needs may be more beneficial to their development.

All six parents in this study reported intentionally creating opportunities for their child to develop both skills and relationships outside of school and family life. These included team sports, individual sports, music, science, foreign language, philosophy, martial arts, dance, religion, and working with animals. For all of the children in this study, engaging in interests, hobbies, or passions provided a source of confidence and belonging. Creating opportunities for children to explore their interests may be of particular importance for twice-exceptional children, and should be encouraged.

Five of the six parents in this study reported moving their child from one educational setting to another to better meet their educational needs. While a disruption may present other challenges, such as logistical difficulties or making new friends, all of the families who made new educational setting choices for their child reflected positively about the decision(s). Twice-exceptional students have unique educational needs and schools may be differently prepared to rise to these needs. Parents of twice-exceptional children can help their children by being flexible and investing time and energy researching different school choices to find the best fit.

Half of the parents in this study reported homeschooling their twice-exceptional child(ren) at one or more point in their K-12 educational career. Homeschool may not be an option for all families, but parents in this study reported numerous benefits of homeschooling. Parents were able to tailor the schedule, structure, activities and pace of learning to the unique needs of their child(ren). In addition to providing instruction

themselves, the three parents who homeschooled also reported tapping into extensive networks with other homeschool families for camps, classes, enrichment, and social opportunities. In addition to these local networks, these families also utilized online resources such as gifted home school groups and curriculum options. They reported numerous resources and opportunities that were helpful in crafting an ideal homeschool experience for their child(ren).

All of the parents in this study emphasized the importance of community in supporting the unique needs of their twice-exceptional child. Some community opportunities were found through homeschool groups, as mentioned previously. Other parents connected with family support groups, or interest-based groups to connect with other parents navigating atypical educational journeys. Beyond group participation, some parents reported the value of having a friendship with another parent who understood their child. Some parents found community by enrolling their child in a school with other children with exceptionalities (two families attend private gifted schools, one family attended a private school for students with disabilities). Parents of twice-exceptional children can help themselves and their children by seeking out support from organizations, or connections with other individuals who are navigating twice-exceptionality.

All of the parents in this study reported having to advocate for their twice-exceptional child in school. Until all schools are well prepared to meet the unique learning needs of twice-exceptional students, parent advocacy will be a critical part of supporting these learners. Parents can develop their advocacy skills through participation in support groups, as mentioned previously. Parents can also learn what modifications or

accommodations would best benefit their student through assessment and consultation with an agency such as the community partner for this project. Parents should engage with the school and work in collaboration with the educators serving their child to ensure their child is adequately supported in both their strength area(s) and also their area(s) of need. Parents in this study advocated for 504 plans for their twice-exceptional children and reported on the importance of these plans not only in their K-12 educational career, but in successfully navigating higher education as well. Of the students in the qualitative phase of this study, five of eight have a 504 plan and all parents emphasized the importance of these plans for their child's success.

The experiences of the parents in this study provide insights and suggestions for how parents of twice-exceptional students can support the educational development and self-concept of these unique children. The parents in this study were thoughtful about language, they pursued opportunities for their child to develop interests and passions, they were flexible about finding the right educational environment for their child, including public schools, private schools, and homeschool, they developed community, and they practiced advocacy, all in the spirit of serving their children.

Implications for teachers

Broad implications for schools were outlined above, this section will focus more specifically on mindsets and practices of individual teachers. Many of the tools and data sources teachers use in their planning and lesson development unfortunately create myopic thinking about student needs. Tests, including state-mandated assessments, tools for progress monitoring, and curriculum-based assessments often group students into one of four groups: above grade level, at grade level, behind grade level, and significantly

behind grade level. The naming conventions vary, but this structure is observable in many of the tools used to measure student achievement. Twice-exceptionality challenges this simplistic view of student achievement. Seven of the eight children in the qualitative portion of this research are dyslexic. Parents reported that their dyslexic children could comprehend and discuss texts far above their grade level, though their decoding skill was at or below grade level. These students, when grouped for language arts based on decoding ability are missing opportunities to capitalize and build on their strengths of oral vocabulary and comprehension skills. Conversely, if they were grouped by their comprehension skills, but not provided a scaffold for decoding, they may struggle to keep up with their peers despite their strengths. Ideally, these students should be given an audiobook ahead of time and then placed with peers at their comprehension level for discussion, thus providing both access to the text and opportunity to develop their strength area with intellectual peers. This is just one example of strengths-based programming that focuses of what the student does well and then scaffolds for areas of need. This is in contrast to focusing on the deficits with interventions and ignoring a students' strengths which decreases motivation and engagement and underutilizes the student's gifts. Each twice-exceptional student is unique, but all will benefit when teachers work toward more discernment around student needs and how to best meet those needs.

Implications for school psychologists

Broad implications for schools regarding educator knowledge, collaboration among educational specialists, and use of FSIQ tests were outlined above. This section will focus more specifically on the role of the school psychologist in identifying

exceptionalities. A key finding of this study is that twice-exceptional students who are identified gifted first score higher on tests of intellectual potential and tests of academic achievement, and also report higher confidence and more positive school experiences. Conversely, students whose disability or difference was identified first scored lower on tests of intellectual potential and academic achievement and reported lower confidence and more challenging school experiences. All twice-exceptional students deserve to have their unique learning needs met, but students who had their disability or difference identified first seem to be particularly vulnerable. This raises the question: how can school psychologists become more attuned to the possibility of twice-exceptionality when conducting special education assessments? There are practices that could be added to the special education assessment and staffing process which could potentially enable twice-exceptional students to be discovered. The parents in this study all suspected their children were gifted before they were officially labeled gifted by school or private testing. Scales for Identifying Gifted Students (SIGS-2) is an easy to administer rating scale that can be completed by parents or caregivers and provides an estimate of the gifted characteristics in a given student (Ryser, 2021). A SIGS-2 Home Rating Scale could be sent home with informed consent paperwork at the beginning of the special education assessment process. Scores from the SIGS-2, along with the other assessment data could be used in determining the needs of the student and could also influence which assessments are administered in the evaluation. Another step that could be added to the special education process is to include specials or electives teachers. All eight of the students in the qualitative portion of this study have athletic talents and three have artistic talent in music. It is possible that gym, music, and art teachers see talent that classroom

teachers or special education teachers have not had the opportunity to see. Including these teachers in the special education process could help identify twice-exceptional students who have strengths in these areas. School psychologists often lead the special education evaluation process, these two small shifts to their practice have the potential to better find twice-exceptional students.

Areas of future research

This study answered the research questions it sought to answer, and it also illuminated other areas of future research. Some areas of future research improve upon the design of this study, while others take the ideas in this study in new directions.

The first area for future research is to replicate this study, but with a larger data set and more diverse participants, to address the limitations of this study. This could be achieved by working with multiple community partners, to increase the volume of data. This could also be achieved by partnering with a variety of community partners who work in different geographical locations and serve different communities. Finally, this could also be achieved by working with a school district or other public entity that collects student data, but without a cost to the families. Different states handle gifted and twice-exceptional identification differently, so future research could also include a location component.

In addition to replicating this study, future research could add to this study by including one or more additional groups. These groups could include: twice-exceptional students who had their exceptionalities identified at one time, students who are gifted alone, students who have one or more disability, and neurotypical students. Comparing assessment scores and student experiences across more groups would give more

information about which experiences are related to which exceptionalities, to better understand the unique needs of each student group.

Additionally, examining the influence of elapsed time between the identification of the first and second exceptionality would better illustrate the impact of the order of identification. Further, examining student and parent perceptions among student groups with different elapsed time spans would further illuminate the impact of order of identification of exceptionality.

Another area for future research is to explore other assessments used to identify twice-exceptionality. The community partner for this study administers a large variety of assessments to children. A future study could examine student results on tests measuring creativity and divergent thinking, or other assessments that measure intellectual potential. An example of a test measuring creativity is the Torrance Test of Creative Thinking. Some examples of other measures of intellectual potential are, the Stanford-Binet Intelligence Scales, the Kaufman Brief Intelligence Test and the Wechsler Preschool and Primary Scale of Intelligence. The Wechsler in particular would be interesting because it tests young children, from age two years, six months to seven years, seven months.

Another area for future research is to replicate the qualitative portion of this study, but with a larger and more diverse group of participants. Potential participants could be recruited through twice-exceptional support networks, including those found online. This study revealed that supporting the learning and developmental needs of a twice-exceptional child is challenging even with significant privilege, which begs the question: what other stories are out there?

Finally, partnering with a school district would provide multiple study opportunities. A study could address under identification by analyzing existing student data for students with large discrepancies in their scores to find unidentified twice-exceptional students. A study could address family support for twice-exceptional learners by interviewing parents and caregivers about their experiences supporting their twice-exceptional learner. A study could address educator bias by analyzing teacher referral data for both gifted and special education data, and by interviewing teachers. While partnering with a school district would have a direct impact on the students in that district, the results may not be generalizable, based on the size and diversity of the district.

This study illuminated many areas for future research. For the quantitative portion, similar studies could be conducted with more participants, additional groups, or additional assessments. More case studies could be conducted to add to the findings of this study. Partnering with school districts also holds promise for evaluating current systems, educator bias and other related themes. The emergent theme of physical giftedness was an unexpected result of this study. Future studies could be designed to explore this phenomenon.

Summary

This chapter reviewed and summarized the findings of this study. First data were analyzed through the theoretical framework of identity formation, specifically three conceptual frames: intersectionality, stereotype threat, and self-concept. Next, limitations of the study were explored. Implications for practice, policy, and specific audiences were explained next. Finally, areas of future research were explored.

Closing Comments

The purpose of this study was to explore the parent perceptions of and relationships among intellectual potential, academic achievement and order of identification of exceptionality for twice-exceptional students. This study examined both testing data and parent perceptions to better understand the twice-exceptional experience. Drawing conclusions from both the quantitative and qualitative data, this study aimed to address the persistent problem of practice of twice-exceptional students being under identified and under served in schools.

Testing data revealed statistically significant differences in test scores for twice-exceptional students, based on the order of identification. Parent interviews painted a fuller picture of the experiences of twice-exceptional students and their caregivers. Themes from parent interviews include:

- language and framing of exceptionalities
- influence of order of identification
- presentation in different settings
- confidence, intersectionality
- difficulty finding the right educational fit
- homeschool
- twice-exceptional parent community
- twice-exceptionality as an asset
- advocacy
- physical giftedness.

These findings were further analyzed using identity formation as a theoretical framework and intersectionality, stereotype threat and self-concept as conceptual frames.

The power educators have to shape the experiences and identity of students is significant. Implications from this study, if put into action, could improve access, experiences, achievement and identity for twice-exceptional students. The implications of educator knowledge and collaboration, the use of full-scale IQ testing, and a universal definition of twice-exceptionality would increase early and accurate twice-exceptional identification and lead to increased access to appropriate services. Imagine if the education system viewed the initial evaluation of exceptionality as a critical moment and gathered and analyzed all available student data holistically with all stakeholders being open to multiple exceptionalities being discovered. Instead of having one exceptionally addressed at school, and having to advocate for the other, like the families in this study, students would be seen and have their needs addressed more fully. The implication of family outreach would improve the home-school connection and the experiences twice-exceptional students have in schools. The stories of the families in this study revealed suboptimal school experiences for twice-exceptional students, and the burden of addressing these deficits fell to the parents. Imagine if the educational system provided parent education and support. Parents from all backgrounds, including those without positional power to advocate or move schools could be supported by the educational system in meeting the needs of their twice-exceptional child. The parents in this study were able to see their amazing, multifaceted children fully and appreciate their twice-exceptionality as an asset; this study aims to help other stakeholders, including policymakers, educators and school psychologists see that as well.

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Appendices

Appendix A: Email to Solicit Parent Participants for Qualitative Phase

Dear Families,
We are working with Robin Tobin, a student at the University of Denver. Robin is pursuing an EdD and for her dissertation she is studying twice-exceptionality. Robin is looking for parents to interview about their perceptions of their child's experiences with regard to twice-exceptional identification. Specifically, she is interested in how the order of identification of exceptionality may influence the student's identity formation and self-concept.

Criteria:

- Parents or caregivers of a twice-exceptional child
- Received assessment to better understand your child's needs
- One exceptionality was discovered before the other

Why Participate?

- Empirical research on twice-exceptional students is limited, your participation will add to knowledge in the field
- Sharing your story could help another family with a twice-exceptional child

Participation
If you choose to participate in this study, you will be asked to participate in two interviews. Each interview will consist of six questions and last approximately an hour. Both interviews will be recorded, transcribed for accuracy, and stored in a secure digital database. You will have the opportunity to review the transcripts of your interviews for accuracy.
If you are interested in participating, please complete the recruitment survey at this link: https://udenver.qualtrics.com/jfe/form/SV_eg4kPBmVDNfm9z8
If you have questions about participating, please email robin.tobin@du.edu or call Robin at 303.717.0750.
Thank you for your consideration!

Appendix B: Informed Consent Form

University of Denver
Consent Form for Participation in Research

Title of Research Study: Twice-Exceptional Identification and Identity Formation
Researcher: Robin Tobin
Study Site: Online via Zoom

Purpose
The purpose of this mixed-methods study is to examine parent perceptions of and relationships among (1) potential, (2) academic achievement and (3) order of identification of exceptionality for twice-exceptional students who have received support from the community partner. Twice-exceptional students are defined as students exhibiting both giftedness and a disability or difference that impacts learning.

Procedures
If you participate in this research study, you will be asked to participate in two interviews that will be audio and video recorded for transcription purposes only. The questions are about your perceptions of your child's experiences as a twice-exceptional learner. The first interview will take about one hour of your time. There will be a second interview that will give you the opportunity to add any additional reflections or thoughts.

Voluntary Participation
Participating in this research study is completely voluntary. You do not need to answer all of the questions and may stop the interview at any time. If you choose not to participate, you will not be penalized. Even if you decide to participate now, you may change your mind. You may choose not to continue with the interviews, or skip a question without penalty.

Risks or Discomforts
There are no perceived or potential risks in participating in this study. There is little to no risk associated with this study because the data collection is completely anonymous.

Benefits
If you agree to take part in this study, there will be no direct benefit to you, except the opportunity to share your story.

Incentives to Participate
You will not receive any incentives or payments for being in the study.

Confidentiality

All data collected will be stored in a password protected electronic format. You may choose a pseudonym for both you and your student that will be used in the writeup. The interview will be transcribed and shared with you for your review, to ensure all of your statements are reported accurately. The results of this study will be used for scholarly purposes only.

Questions

The researcher carrying out this study is Robin Tobin. You may contact her with any questions or concerns at 303.717.0750 or Robin.Tobin@du.edu. You may also contact the faculty sponsor, Dr. Norma Hafenstein, Daniel L. Ritchie Endowed Chair in Gifted Education for this project with any questions, her email address is Norma.Hafenstein@du.edu.

Options for Participation

Please initial your choice for the options below:

_____The researcher may audio/video record me during this study.

_____The researcher may NOT audio/video record me during this study.

Please take all the time you need to read through this document and decide whether you would like to participate in this research study.

If you agree to participate in this research study, please sign below. You will be given a copy of this form for your records.

_____ _____

Participant Signature **Date**

Appendix C: Interview Protocol

I am Robin Tobin and I am studying twice-exceptional identification and identity formation. I am interested in this topic because I am a teacher licensed in both special education and gifted education, and the parent of a twice-exceptional child myself. Thank you very much for taking the time to meet with me today. The purpose of this interview is to learn about your experiences; I hope it will feel more like a conversation than an interview. I will record our conversation and also give you an opportunity to review my transcript to ensure your thoughts are reported accurately. To protect your privacy, I ask that you choose a pseudonym for both yourself and your child that I may use to identify you in my writing. Have you had a chance to review the consent letter you signed? Do you have any questions before we begin?

<u>Interview One</u>

1. Tell me about your child's academic experiences prior to identification of any exceptionalities.
    1. Pre-school
    2. Elementary
    3. Secondary
2. Tell me about your child's academic experiences after their first exceptionality was identified.
    1. Pre-school
    2. Elementary
    3. Secondary
3. Tell me about your child's academic experiences after they were identified as twice-exceptional.
    1. Pre-school
    2. Elementary
    3. Secondary
4. Tell me about the process of your child being identified as twice-exceptional.
    1. Which exceptionality was discovered first?
    2. What support has your child received due to their exceptionalities?
        1. Community partner
        2. School
        3. Elsewhere
5. The language around exceptionalities can be tricky and sometimes misleading. The term gifted often has a positive connotation, whereas disabilities can have negative connotations. What kind of language (positive, negative, or neutral) did/do you use to discuss your child's exceptionalities?
6. In relation to the previous question, how do you think the language your family uses about your child's exceptionalities has contributed to their self-concept?
7. What pseudonyms would you like me to use?

Interview Two

1. How do you think the order of identification of exceptionality impacts your child's identity?
    a. How your child sees themself
    b. How you see your child
    c. How educators see your child
2. What differences do you see in your child in various settings?
    a. Home
    b. School
    c. Social settings
    d. Other
3. Tell me about your child's confidence and how it has been influenced by their exceptionalities.
    a. Influence of Gifted identification
    b. Influence of Disability or Difference
4. What other aspects of identity do you think have influenced your child's academic identity?
    a. Gender
    b. Race
    c. Familial interests
    d. Birth order
5. Is there anything else you would like to tell me, related to the topics we have covered?
6. What, if any reflections or additions would you like to add to our first conversation?