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UNIVERSITY OF NORTHERN COLORADO

Graduate School

Greeley, Colorado

EXPLORING THE EXPERIENCES AND INSIGHTS OF A TWICE-EXCEPTIONAL STUDENT FINISHING A COLLEGE TEACHER PREPARATION PROGRAM: A CASE STUDY

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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This Dissertation by: Hussain Abdullah Alamer

Entitled: *Exploring the Experiences and Insights of a Twice-Exceptional Student Finishing a College Teacher Preparation Program: A Case Study*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in College of Education and Behavioral Sciences in the School of Special Education

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ABSTRACT


Twice-exceptionality is the phenomenon of a student with one or more disabilities who is also gifted and talented. Identification of twice-exceptionality is difficult and only recently has there been a greater awareness of the needs of twice-exceptional students. There is empirical research about twice-exceptionality but little research exists on how twice-exceptional individuals perceive and attribute meaning to their lived experiences.

The purpose of this qualitative case study was to explore the experiences of one university student identified as gifted and learning disabled to understand how personal experiences influenced his identity development, his perspectives on teaching and education, and, ultimately, his career choice. Five themes emerged from the data analysis: (a) psychosocial challenges, (b) delayed identification, (c) masking effect and school achievement, (d) the importance of support, and (e) motivation for career choice. Individuals with twice-exceptionality often face unique psychosocial challenges including social isolation, low self-esteem, and feelings of worthlessness. Identification and support are often delayed for these individuals as their disability can mask their giftedness and vice versa; each condition affects their school achievement. These
challenges affected the study participant; his personal and academic experiences illustrated the impact identification and support had on his education as well as his future goal of becoming a teacher. A key motivating factor for his career choice was to address the needs of future students with twice exceptionality. Findings of this study suggested an interrelationship among the five themes and stressed the critical importance of identifying and supporting students who have unique learning needs.
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CHAPTER I

INTRODUCTION

Twice-exceptionality is the phenomenon of a student with one or more disabilities who is also gifted and talented (Baum, 1990). Identification of twice-exceptionality is difficult, making twice-exceptional students one of the most underserved populations in schools today. Students who are gifted and talented (G/T) have been recognized for centuries. Students with disabilities have been included in public education for many decades but it is only recently that teachers, parents, and researchers have gained a greater awareness of the existence and needs of twice-exceptional students (Bracamonte, 2010). Knowledge about the phenomenon of twice-exceptionality was not consistently available until the 1980s when researchers such as Whitmore (1980) and Baum (1984) began writing about the subject. Since that time, many others have researched and written about twice-exceptionality. However, there is still uncertainty about how to best identify and serve students who need services for both their disabilities and giftedness. Further, little research exists on how twice-exceptional individuals perceive and attribute meaning to their lived experiences.

The Individuals with Disabilities Act (IDEA; 2004) has recognized and defined 13 separate disability categories: (a) autism, (b) deaf-blindness, (c) deafness, (d) hearing impairment, (e) emotional disturbance, (f) intellectual disability, (g) multiple disabilities, (h) orthopedic impairment, (i) other health impairment, (j) specific learning disability, (k)
speech or language impairment, (l) traumatic brain injury, and (m) visual impairment including blindness. These disabilities might occur separately or in conjunction with other abilities or disabilities (Vaughn & Fuchs, 2003). According to Cortiella and Horowitz (2014), approximately 42% of students in special education programs have specific learning disabilities (SLD), making this the single largest category of disability.

In the case of giftedness and talent, there is no universally accepted federal definition. Defining giftedness and setting up special programming for students who are G/T is left up to each state. According to the National Association for Gifted Children’s (NAGC; 2015) report, only four states mandate and fully fund gifted and talented education and 12 states provide no funding at all. Further, giftedness is often defined differently from state to state due to lack of federal guidance. With such ambiguity in defining giftedness across states and no federal mandate requiring gifted students be identified and provided services, it is challenging to identify twice-exceptional children who manifest traits of both disability and giftedness (Baldwin, Omdal, & Pereles, 2015; Baum, 1990).

In terms of defining what twice-exceptionality means, Baum and Owen (1988) suggested educators use two separate and non-overlapping definitions--one for disability and one for giftedness--to determine strengths and needs of students who are twice exceptional. In 2015, the National Twice-Exceptional Community of Practice (Baldwin, Omdal et al., 2015) put forth a definition that included three conditions recognized in individuals who are twice exceptional--the individual’s disability and exceptionality might each mask the other or both can mask together, making it challenging to identify and address either.
When it comes to identifying students who are twice exceptional, there is a lack of accountability, no agency is required to collect data on twice-exceptionality, and there is no defined format for reporting the number of students with disabilities who are also gifted/talented (Boodoo, Bradley, Frontera, Pitts, & Wright, 1989; National Education Association [NEA], 2006). Thus, it is difficult to know just how many students might be twice-exceptional. It is estimated there might be more than 300,000 twice-exceptional students who are not receiving appropriate services (Nicpon, Allmon, Sieck, & Stinson, 2011; Wood & Estrada-Hernandez, 2009). Davis, Rimm, and Siegle (2011) estimated students with SLDs make up 5.4% of all students in the United States. Absence of standard identification methods and the lack of federal accountability requirements make it difficult to know how many twice-exceptional students are in U.S. schools.

Fortunately, interest in and research on twice-exceptionality have increased over the last 20 years. In 2011, Nicpon et al. conducted a meta-analysis of existing empirical research on twice-exceptionality over a 20 year time period. The authors found research on learning disabilities and giftedness focused primarily on four categories: identification and referral (Assouline, Foley-Nicpon, & Whiteman, 2010; Bianco, 2005; Ferri, Gregg, & Heggoy, 1997; Minner, 1990; Reis, Neu, & McGuire, 1997; Tallent-Runnels & Sigler, 1995), cognitive and academic characteristics (Hannah & Shore, 1995, 2008; Montague, 1991), psychosocial characteristics (Reis et al., 1997; Vespi & Yewchuk, 1992), and the effects of intervention (Crim, Hawkins, Ruban, & Johnson, 2008; Dole, 2001; Olenchak, 1995).

Researchers have also focused on the unique characteristics of twice-exceptional learners, especially those with co-occurring giftedness and SLD. Although individuals
who are twice exceptional are highly diverse in both abilities and challenges, several key characteristics have been identified. Students who have SLDs and giftedness often demonstrate struggles with learning basic skills and transitioning from “learning to read” to “reading to learn.” High verbal ability often masks students’ learning challenges. These students are also more likely to have negative experiences with teachers and repeat grades (Reis et al., 1997). This is believed to result in the development of adverse psychosocial characteristics as these experiences might lead to feelings of worthlessness, failure, and depression among students who are twice-exceptional as well as anxiety, frustration and anger (Nicpon et al., 2011; Reis et al., 1997). That being said, these students also might excel in critical thinking skills, have high levels of creativity and imagination, and do well when presented with real-world problems (Nielsen, 2002).

Effects of intervention on students who are twice-exceptional have also been explored by researchers. A study by Crim et al. (2008) found no students with LDs who had IEPs were referred to a G/T program despite high ability. In fact, many students in this group received fewer modifications than their lower-ability peers. In 2009, Olenchak reported positive results when students who were twice-exceptional participated in a counseling program aimed specifically toward gifted students who had LD. The author found that when students were viewed as gifted first and provided with access to the G/T program, they demonstrated improvements in self-concept as well as a more positive attitude toward school. Nielsen (2002) suggested providing access to the G/T program helped students engage with school and remain academically challenged. Reis, McGuire, and Neu (2000) advocated for the importance of early intervention to prevent frustration and increase students’ excitement about learning as well as their confidence. Further,
Reis and Ruban (2004) suggested twice-exceptional students need to receive training in both compensatory strategies and content remediation. Training in both would most likely develop students’ resilience and help them “find ways of making the most of their diverse talents, and… their weaknesses” (Sternberg, 1997, p. 9).

**Statement of the Problem**

Although numerous studies have investigated topics related to students who are twice-exceptional in the K-12 education system, few studies have explored the lived experiences of students who are twice-exceptional in higher education. Exploring the experiences and perspectives of these students would improve our understanding of the special needs of students who have LD as well as being G/T. The following studies illustrate how qualitative research could be used to increase our understanding of the experience of individuals who are twice-exceptional.

Reis et al. (1997) interviewed 12 students with high abilities and LD attending college. The study revealed some students either received late identification of learning disabilities but no recognition of giftedness while other students were perceived as gifted but were not eligible for gifted programming because of low academic scores. Students in this study described negative K-12 school experiences mostly due to the lack of identification of either their learning disabilities or giftedness including negative interactions with teachers, lack of understanding and interventions, being placed in self-contained special education classrooms, and grade retention. Several participants felt the combination of having high ability as well as an LD resulted in negative perceptions from their teachers.
Dole (2001) investigated the creation of identity in four college-aged students who had concurrent high abilities and LD. This qualitative study examined the educational and psychological implications of self-awareness of being twice-exceptional through interviews with these students. The author identified several themes related to the students’ identity development including students’ school and home support systems and participation in social activities as well as personal attributes such as self-acceptance, self-knowledge, and self-advocacy.

In his 2000 dissertation, Morrison examined the lived experience of a twice-exceptional college student identified as gifted with an emotional/behavioral disorder from the point of view of the student in a teacher education program. The purpose of this current study was to gain insight into the challenges faced by a twice exceptional student and identify factors that influenced his personal and educational outcomes. Factors that resulted in positive as well as negative outcomes were identified: (a) positive outcomes included resilience and determination and (b) negative outcomes included stressors, underachievement, and self-concept. Despite his often negative perception about teachers, this participant wanted to become a teacher himself so he could make a difference in the lives of students who faced similar challenges to those he experienced.

Students in both Reis et al.’s (1997) and Dole’s (2001) studies reflected on their experiences of being twice-exceptional. While the Reis et al. study explored students’ experiences in the K-12 education system and the Dole study focused on the formation of self-awareness among these students, both of these studies provided opportunities for the students’ voices to be heard and for researchers to learn from their lived experiences.
These three studies (Dole, 2001; Morrison, 2000; Reis et al., 1997) are examples of the limited literature available exploring the individual experiences of twice-exceptional students. There is a lack of literature about how twice-exceptionality affects students’ career choices, in particular why students who have disabilities are motivated to become teachers. In general, the reasons students in teacher preparation courses give for wanting to become teachers are mostly because of the influence of the teachers they have had in school, their families, and their perceived love of teaching (Akarsu & Kariper, 2015) as well as their desire to share their content knowledge and personal experiences (Beijaard, Verloop, & Vermunt, 2000).

The research suggested many students who are twice-exceptional face challenges in their early academic careers and often struggle to develop a positive self-identity due to the unique psychosocial factors associated with twice-exceptionality. However, although several studies included the career goals of participants (Dole, 2001; Morrison, 2000), few current studies have addressed how the experience of twice-exceptionality could influence the career choice of an individual with giftedness and LD. Therefore, the current study focused on the unique experiences of a twice-exceptional student with an LD who has decided to become a teacher.

**Purpose of the Study**

The purpose of this study was to explore the experiences of one university student identified as gifted and learning disabled in order to understand how this student’s personal experiences of being twice-exceptional influenced his identity development, his perspective on teaching and education, and ultimately his career choice. To examine these topics, a qualitative case study method was used to explore the participant’s
experiences through a series of in-depth interviews and a review of artifacts. Interview questions addressed the participant’s school experiences, challenges, and successes in school and life, personal educational and occupational ambitions, and the participant’s reasons for wanting to become a math teacher. Questions also focused on the participant’s interpersonal relationships with family members, friends, and teachers; his personal interests; and his unique insights from the perspective of having lived as a person identified as twice-exceptional. Artifacts reviewed included academic records like report cards, standardized test results, assignments, and a writing sample written by the participant. Results of this study will be of use to educators in better identifying and working with students who have both giftedness and a disability.

**Research Questions**

The following research questions guided the study:

Q1  How has the lived experience of being twice exceptional influenced one student who is planning to become a teacher?

   Q1a  How did his experience shape his identity development?

   Q1b  How did this experience inform his perspective on teaching and education?

   Q1c  How did his experience influence his career choice?

**Significance**

Research studies and articles about twice-exceptionality included how to identify the twice-exceptional student (Baldwin, Omdal et al., 2015), what kinds of interventions might work (Crim et al., 2008; Olenchak, 1995), and what happens when twice-exceptional students are not identified (Davis et al., 2011). What was missing was research on the life experience of a university student identified as gifted and learning
disabled and how that experience influenced his career choice. The current study aimed to begin to fill this gap by exploring how and why one twice-exceptional student chose to become a teacher, how the experience of being twice-exceptional affected the participant’s learning in this teacher preparation program, and what insights this participant could offer to teaching and education in general. Although his experiences were unique to him, they might be similar to other students who have been identified as twice-exceptional. These insights could be used to further explore how to improve the identification of and interventions for students with twice-exceptionality.

**Overview of Methodology**

The methodology used in this study was a narrative case study. A case study is a qualitative research method that explores a system that has boundaries including individual stories of personal experiences (Stake, 1995). Creswell (2014) explained that cases “are bounded by time and activity” (p. 14). The bounds for this study were one participant’s experiences of growing up as a twice-exceptional student and how the experiences influenced educational and occupational choices he made. The major reason for choosing only one participant was to develop rich, thick descriptions of the participant’s perceptions (Stake, 1995). For this case study, I gathered and interpreted data using a constructivism approach. Constructivism explains how humans construct their world understanding through social interaction (Stake, 1995). This research focused on constructing an interpretation of the participant’s life that could be understood by others so others could share in the experience.

Following the practice of rigorous case study research, the major data-gathering tool for this study was the interview. I began each interview with structured questions,
which then led to more open-ended, semi-structured questions as the interviews proceeded. Interviews were based on themes I gathered from the literature as well as from previous interviews with the participant. It was anticipated that approximately five in-depth interviews would occur. Interviews continued until data saturation was achieved or “when gathering fresh data no longer sparks new insights or reveals new properties” (Creswell, 2014, p. 189). In addition to the interview data, I conducted a thorough artifact analysis that included written products such as journals and cognitive or academic assessment results (e.g., report cards, assignments, and results from standardized tests). In this way, I was able to construct a thorough narrative of the participant’s experience that was then analyzed and interpreted.

**Researcher Stance**

As a graduate student working toward a Ph.D. in special education with an emphasis on gifted and talented education, I became familiar with twice-exceptionality during the course of an overview class on exceptionalities. As I began to understand the phenomenon of twice-exceptionality, I realized I had known students with disabilities who were also gifted or talented and who had been overlooked at schools in my home country of Saudi Arabia. The most vivid memory was of a quite intelligent friend who was often frustrated and would act out during class. Eventually he dropped out of school. His frustration was probably an outcome of his misunderstood twice-exceptional characteristics and the lack of any specialized programs to meet his educational needs.

I became fascinated with the field of twice-exceptionality but was frustrated by the lack of information about teacher perceptions (Bianco & Leech, 2010), limited information on how to recognize characteristics of twice-exceptionality (Baldwin, Omdal
et al., 2015), and limited research on disabilities such as emotional and behavioral
disabilities (EBD) occurring with giftedness (Morrison, 2001). I was determined to
discover as much as possible about twice-exceptionality so upon my return to Saudi
Arabia, I would be prepared to develop assessments to identify twice-exceptional
students, build programs designed to meet the unique needs of these students, and
establish policies that protected their right to a high quality education. Twice-exceptional
students are not the only ones who lose out when the education system does not meet
their needs; our nations lose some of their best and brightest human capital when these
students are not offered educational programming that recognizes the unique needs of
twice-exceptional students.

By sharing this participant’s personal story, this study will inform others in the
field of education about the challenges associated with twice-exceptionality and also
encourage other researchers to become interested in and conduct more research of twice-
exceptionality in Saudi Arabia. When I return to my home country of Saudi Arabia, I
plan to use the insights I gained from conducting this study as well as the underlying
research as a foundation for conducting quantitative and qualitative research on the
phenomenon of twice-exceptionality in Saudi Arabia with the goal of creating a
curriculum to introduce the field of twice-exceptionality to preservice teacher candidates
in Saudi Arabian universities.

**Researcher’s Assumptions**

According to Creswell (2014), researchers are responsible for reflecting on
personal “biases, values, and assumptions and actively write them into the research” (p. 41). Most of the biases and assumptions found in this study reflected my personal
experiences working with and knowing students who are twice-exceptional. As an international student from Saudi Arabia, I was aware of the need for more information on twice-exceptionality both in the United States and in the Middle East. Since my research was limited to the past two years, some of the major assumptions I had toward twice-exceptionality included:

1. The participant in this case study would be honest during the interviews because confidentiality and anonymity would be protected.
2. The participant would be motivated to share his lived experience of being a twice-exceptional student.
3. The participant would have sufficient enough knowledge regarding his giftedness and disability to be able to adequately respond to the researcher’s questions.
4. The participant would be able to recall his experience growing up as a twice-exceptional student and be truthful with the researcher.
5. The participant would be honest and open about his reasons for wanting to become a teacher and discuss his future goals in the area of teaching.

**Key Terminology**

This section defines the key terms used in this study. Terms are defined briefly here and in depth throughout this study.

**Twice-exceptionality**—Twice-exceptionality refers to the phenomenon of having one or more disabilities co-occurring with some characteristics of giftedness or exceptional talent. A person with these characteristics could be referred to as twice-exceptional (Baum, 1990).
**Gifted/talented (G/T)**—Marland (1971) provided a partial definition: “Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance” (p. 8). A comprehensive definition is found in the section on giftedness.

**Individuals with Disabilities Education Act (IDEA)**—Legislation that began as Public Law 94-142: the Education of All Handicapped Children Act of 1977. The IDEA of 1997 was reauthorized in 2004 as the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 (Wright, 2004). Throughout this study, the acronym “IDEA” was used to refer to all forms of this Act.

**Learning disability (LD).**

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. (IDEA, 2006, 34 CFR 300)

**Response to intervention (RtI)**—A process for early identification of possible learning and behavior challenges using a multi-tiered method to assess academic achievement of all students and then compare observed achievement with predicted achievement (Gorski, n.d.).

**Delimitation**

In this study, I have chosen to include only one participant due in part to the very low incidence of individuals identified as twice-exceptional as well as the lower incidence of such individuals participating in a preservice teacher education program. I found one participant who met the criteria I established for this study—a current general education preservice teacher candidate identified as gifted and learning disabled. It was
my intention that insights gained from the narrative case study of this participant would be sufficient for others to identify with and to help understand what factors resulted in positive outcomes for this particular student.
CHAPTER II

REVIEW OF THE LITERATURE

The topic of twice-exceptionality has received increased attention in the last several decades. The purpose of this chapter is to explore the complexity of the phenomenon of twice-exceptionality. To understand twice-exceptionality, it is necessary to first review the history of public education including the history of the education of persons with disabilities, legislation, and legal issues. The section on disabilities explores issues of students with disabilities, which is followed by a section about the issues associated with giftedness. The history, legal issues, definitions, characteristics, and identification of twice-exceptionality are then explored in detail including research in the co-occurrence of learning disability with giftedness. This chapter also explores issues faced by pre-service teachers and teachers working in the field as well as factors that motivate students to become teachers.

History of Public Education

The idea of a free public education in the United States has a long history and development beginning with the founding of public schools in the 18th century in the original 13 colonies. During this early period, some fundamentals of public education were established including the idea of a free education supported by tax dollars. The American Revolution and its aftermath only strengthened the emphasis on education and the development of free schools--initially at the elementary level but later expanding to
the high school level early in the last part of the 19th century. However, during these early years, public education was offered almost exclusively to children of White, upper class parents (Savelle, 1949). It was only in the 19th century that education was offered to a wider population as waves of immigrants entered the United States.

During the early 19th century, a system of public education was beginning to be put in place in response to the needs of workers living in industrialized cities. People working in factories and their children needed more than a basic education. There were many public arguments about the creation of a system of public education. However, those in favor of public education continued to point out this system could help with more than teaching future workers how to read and write; schools could help improve other social problems as well (Katz, 1976). Before the system of public education was institutionalized, social problems such as poverty, insanity, and disease-related disabilities were mostly taken care of by families or private charities. Children with disabilities were not included in public education.

**History of Education for Individuals with Disabilities**

During the 18th and early 19th centuries, asylums were a mixture of madhouses for the insane or poor houses for people who could not work. Housed in these asylums were prostitutes, people with sexually transmitted diseases, the criminally insane, and people with intellectual and emotional behavioral issues. Also included were people who were blind, deaf, and mute; people with severe communication disorders, and people with physical or health-related disabilities (Katz, 1976; Winzer, 1993). As public awareness and policies changed, institutions were created to provide services and education to people with specific disabilities.
In the latter part of the 18th century and into the 19th century, special schools for the deaf and/or blind were being created. Louis Braille developed a system for reading and writing based on touch, which many regarded as unnecessary (Omvig, 2016). The first school for the blind, the New England Asylum for the Blind, began in 1829 (Omvig, 2016). The most famous school for the deaf was Gallaudet University, originally known as the Columbia Institution for the Deaf and Dumb, established in 1857 in Washington, D.C. (Gallaudet, 1912). For the first time in U.S. history, children who were blind or deaf and mute were provided an education that could lead to more than working unskilled jobs or being shut away from society. Even with the beginnings of specialized institutions, many persons with disabilities including those with intellectual disabilities referred to at the time as mentally retarded, those who might have been classified as autistic, children with communication disorders from stuttering to muteness, and children with physical disabilities such as missing hands or feet continued to be separated from society. There were periods in history when such individuals were sterilized and even euthanized (Winzer, 1993).

Although free public education expanded in the 19th century, children with any sort of disability did not participate in the public schools and students with learning difficulties remained at home with limited or no education (Oakes, Wells, Jones, & Datnow, 2012). Katz (1976) explained that disabled individuals were cared for by family within the home until industrialization changed and more people moved into cities and worked away from the home. Persons with disabilities who could not be cared for by family members were shunned and considered unfit to live in society; this meant if they received any care at all, it came from private charities or government institutions. By the
end of the 19th century, federal and state legislation had created a system that included not only public schools but public facilities and institutions for individuals who were considered not educable (Katz, 1976). People with disabilities were often institutionalized and what little education they might get was provided by the state. Children with intellectual and/or emotional behavioral disorders were usually grouped together as mentally retarded, mental defectives, or suffering from idiocy. Seguin (1866) defined idiocy as a specific disorder caused by prenatal malnutrition, which caused the symptoms of a person who did not think, feel, or care about anything. This was one of the first physiological definitions that led to a medical model of dealing with intellectual disabilities such as mental retardation.

In the first half of the 20th century, educators began to notice students who had great difficulty learning to read or write even though their level of intelligence seemed to be in the average range. The cluster of conditions affecting reading, spoken and written language, perception, and several other areas eventually became known as learning disabilities (LDs), which were described in terms of minimal brain dysfunction, brain injury, dyslexia, perceptual handicaps, or a psycho-neurological learning disorder (Hammill, Leigh, McNutt, & Larsen, 1988).

According to Adams, Bell, and Griffin (2007), in the 1940s, the National Mental Health Foundation and the disabled students’ program at the University of Illinois at Galesburg were established. There was more interest in moving people with disabilities out of inhuman conditions, providing programs for students, and for independent living. In 1954, the Brown v. Board of Education ruling provided equal access to free public education for children of all races. This case was used as a precedent in later cases for
including students with disabilities in public education. By the 1960s, American media were exposing serious poor conditions in institutions for the disabled and the idea of mainstreaming children with disabilities was being discussed in schools. In the 1960s, researchers began using the more inclusive term of learning disabilities to describe students with particular learning difficulties (Hammill et al., 1988). Although progress was made in educating a wider portion of the population, many disparities were documented, not just based on race and ability but also on socio-economic status, cultural background, and ethnicity (Chemerinsky, 2002). In 1965, the Elementary and Secondary Education Act (ESEA) was put into place to provide federal funding for education (Adams et al., 2007). This was followed in 1973 by Section 504 of the Rehabilitation Act (ADA) that provided protection under the law for students with disabilities (U.S. Department of Education, 2015b). The outcome of these actions led to the Education for All Handicapped Children Act (EAHC) of 1975 that provided funding to establish school programs for students with disabilities (Yell, 2012). The passage of EAHC in 1975 ensured all children with disabilities were entitled to receive a free and appropriate public education on par with non-disabled children in the least restrictive environment so they could interact with their typical peers as much as possible. In 1990, the EAHC was amended and retitled to become the Individuals with Disabilities Education Act (IDEA) (Foley-Nicpon, Assouline, & Colangelo, 2013).

An important part of understanding rights for individuals with disabilities and IDEA (2004) was Section 504 of the Rehabilitation Act of 1973 that prohibited discrimination of individuals with disabilities (U.S. Department of Education, 2015b). It was reasoned if students with disabilities were not able to attend public school, they were
being discriminated against (Yell, 2012). The IDEA (20 U.S.C. § 1401 [c][1]). is regulated by Section 300, et seq. of the Code of Federal regulations, which recognizes people with disabilities are entitled to have the same opportunities as everyone else to get an education (Yell, 2012).

A free and appropriate public education (FAPE) is central to IDEA and to education law in general. It is based on the foundation of the importance of education in America. After the passage of IDEA, students with disabilities were allowed to attend public school classes with nondisabled students but “more than 3 million students with disabilities who were in public schools did not receive an education that was appropriate to their needs” (Yell, 2012, p. 181). The IDEA mandated that all students with disabilities must be allowed to attend public schools. Although IDEA was amended in 1990, 1997, and 2004, the basic six major provisions of Public Law 94-142 (IDEA, 2006) were left intact. The first provision is a FAPE--all children have the right to a free public education even if they have serious or multiple disabilities and that the education they receive is appropriate for their individual needs. This provision includes the provision of related services necessary to assist the child in benefitting from special education.

The second provision is the least restrictive environment (LRE)--children with disabilities must have access to general education classmates and be allowed to be educated with their peers as much as it is possible to do so. The provision requires that each state must allow for sufficient alternative placements. The concept is meant to allow for inclusion and integration (Carson, 2015). For some students, a general education classroom is insufficient to meet their social, emotional, and physical needs. The IDEA does not clarify the extent to which standards must be met within the general
education classroom to meet these needs (Alquraini, 2013). According to Carson (2015), the LRE is confusing because IDEA does not specify if a least restrictive environment is necessary or if it is available. The third provision is the requirement that each student must receive a unique plan of education—the individualized education plan (IEP). The IEP must include the level at which the student is achieving, annual goals and objectives statement, what services will be provided, how well the student is expected to be able to take part in the general education classroom, how service delivery will be initiated and how long it will take, and a yearly meeting to assess progress. The fourth provision is the procedural due process, which gives parents and guardians certain rights and protections under the law such as the right to be notified of any changes in the IEP or the right to be represented by legal counsel. The fifth provision is nondiscriminatory assessment, which ensures a child is thoroughly evaluated by a multidisciplinary team before being placed into special services. No single evaluation process is considered adequate for a placement referral. Finally, the sixth provision is for parental participation. This provision makes it clear that parents are a necessary part of the entire planning process and must be part of making decisions about the child’s education (IDEA, 2006).

The IDEA (2004) recognizes 13 specific disability categories, which can be divided into two groups according to how frequently they occur in the population. High incidence disabilities include speech or language impairment, specific learning disabilities, emotional disturbance, and mild intellectual disabilities (Gage, Lierheimer, & Goran, 2012). Low incidence disabilities include hearing impairment, deafness, multiple disabilities, orthopedic impairment, visual impairment including blindness, deaf-blindness, traumatic brain injury, severe intellectual disability, autism spectrum disorders,
and other health impairment (Giangreco, 2000). Eighty percent of all K-12 students with disabilities have high-incidence disabilities while 20% of all K-12 students with disabilities have low incidence disabilities. It has been estimated that approximately 42% of students who participate in K-12 special education programs have specific learning disabilities (Cortiella & Horowitz, 2014; Gresham, Sugai, & Horner, 2001; Ludlow, Conner, & Schechter, 2005).

Of the changes over the years to PL 94-142 (EAHCA, 1975) through the reauthorization process, the Individuals with Disabilities Education Improvement Act of 2004 had significance as it made the provisions of IDEA consistent with the No Child Left Behind Act of 2001. In this revision, the IQ achievement discrepancy was no longer required for identifying a specific learning disability and included a provision for using an RTI framework (Reis, Baum, & Burke, 2014).

**Case Law Related to Special Education**

Since the passage of IDEA (2004), school districts, local and federal courts, and the U.S. Supreme Court have faced several cases involving students with disabilities, their parents, and school boards. Many of these cases were concerned with the role school districts had in providing adequate services for students with disabilities.

Many parts to the law need to be considered when applying legal terms to education that parents of students with disabilities need to navigate and try to understand. The first case put before the Supreme Court dealing with special education was Board of Education v. Rowley (1982), which was concerned with FAPE and IEP. The case revolved around how students with special needs were simply allowed to attend classes until they were old enough to drop out instead of being actively educated. The Supreme
Court decision found all students in public schools should derive some benefit from the educational process. One of the most important interpretations of Board of Education v. Rowley was it directed education provided to students should allow the student to accomplish passing grades and be able to move from one grade to another in a reasonable amount of time (Gilman et al., 2013). The implication was even though students with disabilities could possibly achieve at a very high level, schools were not required to provide services beyond providing enough benefit for students to advance from grade to grade. Schools were allowed to provide what amounted to a minimal degree of academic challenge even though a student might be fully capable of more advanced work.

State boards of education and school districts could choose to go beyond the minimum but were not allowed to fall below that standard. Rowley v. Board of Education (1982) became the precedent for many of the rulings that followed as parents and advocates challenged how schools provided services under IDEA. One example was a case in Maryland (Prince George’s County Public Schools, 2014) where the issue was if the IEP and placement were reasonably calculated to provide the student with a FAPE and if there was a denial of FAPE, the question became if placement at a separate day school at the district’s expense was appropriate. In this case, it was determined the student was identified as twice-exceptional. It was concluded that the IEP and placement proposed were reasonably calculated to offer the student a FAPE in the least restrictive environment. Rowley v. Board of Education and Florence County School District Four v. Carter (1993) were the precedents cited. The next section is concerned only with the issues of learning disabilities, the category with the highest incidence, including a short history, definitions, characteristics, and identification.
Learning Disabilities

In the first half of the 20th century, educators began to notice students who had great difficulty learning to read or write even though their level of intelligence seemed to be in the average range. The cluster of conditions affecting reading, spoken and written language, perception, and several other areas eventually became known as *learning disabilities*, an umbrella term used to describe a series of specific disabilities that affect academic achievement. Simply put, a learning disability is a neurological processing problem that often interferes with learning academic skills, especially math, reading, and writing. In addition to affecting the acquisition of these basic skills, a learning disability can also impact memory, organization, abstract reasoning, and time planning. Although some learning disabilities are evident at an early age, resulting in early identification and intervention, other learning disabilities are not identified until the individual is in secondary or post-secondary education. Research suggests the earlier a learning disability is identified and the earlier the individual receives appropriate interventions, accommodations, and supports, the better the outcome the individual faces (Cortiella & Horowitz, 2014).

There are seven types of learning disabilities (Cortiella & Horowitz, 2014): dyslexia, dysgraphia, dyscalculia, language processing disorder, non-verbal learning disabilities, auditory processing disorder, and visual perceptual/visual motor deficit. Each learning disability has unique characteristics and requires specific supports and interventions to reduce the impact on an individual’s academic achievement. As learning disabilities are most often linked to twice-exceptionality (Cortiella & Horowitz, 2014)
and were one of the foci of this paper, greater attention has been given to the definition and characteristics associated with learning disabilities.

**Definitions of Learning Disabilities**

Before the 1960s, learning disabilities (LDs) were described in terms such as minimal brain dysfunction, brain injury, dyslexia, perceptual handicaps, or a psycho-neurological learning disorder (Hammill et al., 1988). In the 1960s, Kirk and others (cited in Hammill et al., 1988) began using the more inclusive term of learning disabilities to describe students with particular learning difficulties. In determining the process for identifying learning disabilities within the education system in the United States, a federal definition of learning disability as recorded in the Public Law 94-142, the Education of all Handicapped Children Act (1975), stated:

(10) Specific learning disability. (i) General. Specific learning disability means 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. (ii) Disorders not included. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (34 CFR 300 300.8(c)(10)

Learning disabilities might also be masked by other concurrent disabilities. For example, emotional and behavioral issues might be mistaken for learning disabilities. While the National Joint Committee for Learning Disabilities (NJCLD; Gresham et al., 2001) was working on the above definition, they determined a learning disability (LD) label was only appropriate when a central nervous system (CNS) dysfunction was at least suspected as the cause for the LD but not if the cause was something other than CNS
dysfunction. Central nervous system dysfunction continues to be considered one factor in determining a learning disability but it is not the only factor (Galaburda, 2005). The NJCLD agreed a learning disability could occur at the same time as other disorders, which would create multiple disabilities that need to be considered by educators (Hammill et al., 1988). Part of the puzzle is identifying characteristics specific to learning disabilities. Some students might show characteristics of LD and be academically successful while others might need more attention and perhaps more thorough assessment. To evaluate students, it is vital to recognize the characteristics of LDs.

**Characteristics Associated with Learning Disabilities**

Lackaye and Margalit (2006) studied characteristics of students with learning disabilities (LD). They compared the academic achievement of students with and without LD. In their study, students with LD consistently demonstrated lower levels of achievement as well as less ability to produce effort, less academic confidence, a lower sense of consistency, along with a more negative mood and more loneliness. The research indicated that more than simply listing the behaviors related to LD, studying the social-emotional relationship to students’ academic achievement was vital to identifying LD. This went beyond reliance on the discrepancy between IQ and achievement model or much earlier studies that simply listed some of the major characteristics of LD as behaviors related to “listening, speaking, reading, writing, reasoning, or mathematics believed to be caused by central nervous system dysfunction” (Baumeister, Storch, & Geffken, 2008, p. 12).
Some of these behaviors, such as those involving reading and writing or math, might be assessed using standardized tests. Behaviors more related to neuropsychological areas such as memory, reasoning, and processing need to be assessed by professionals who are licensed and experienced in identifying specific learning disabilities. Researchers agree defining learning disabilities is a difficult task upon which not all agree. There is evidence LD is characterized by social-emotional behaviors that affect academic achievement (Lerner & Johns, 2011). Characteristics used in a common checklist include attention areas such as not listening to what is said, inappropriate interruption, and difficulty sitting still. Some reasoning issues include delayed verbal responses and inappropriate time management. A student with learning disabilities might have trouble answering personal questions, using eye contact correctly, communicating effectively, and might have a significant lack of self-confidence (Dowdy, Smith, & Nowell, 1992; Lerner & Johns, 2011).

One specific learning disability that can be challenging to recognize early is dysgraphia. This might be because several of the characteristics can be confused with other conditions such as lack of fine motor skills, attention deficit disorder, and behavior challenges. As this specific learning disability was a focus of this study, dysgraphia is described in more detail in the following section.

According to Cortiella and Horowitz (2014) in The State of Learning Disabilities published by the National Center for Learning Disabilities (NCLD), dysgraphia is a learning disability associated with the act of writing. It can affect a student’s ability to physically write as well as the ability to clearly express him/herself in writing. Students who have dysgraphia often demonstrate different characteristics at different ages.
including holding pencils and drawing letters in specific ways and demonstrating challenges in organizing their thoughts on paper. They might also display challenges with grammar and syntax structure of written language and have difficulty keeping track of what has already been written. Students with dysgraphia frequently demonstrate a large gap between their understanding of subject matter and their ability to write down their ideas.

In addition to challenges with writing, students with dysgraphia often display a combination of learning and behavioral characteristics including a combination of dysgraphia with strengths in areas such as reading, vocabulary, comprehension, verbal expression, and auditory memory. Although they often have excellent attention to detail, they often miss the big picture, both in academic and social contexts. This might be because individuals with dysgraphia often have difficulty interpreting social cues and reading body language (Berninger & May, 2011; Cortiella & Horowitz, 2014).

It is not uncommon for students with dysgraphia to actively avoid writing assignments. Since written assignments are a large part of academic requirements, the more students are perceived as lacking in skills, both by themselves and by their peers, the more they tend to act out and avoid taking part in classroom activities that require writing. This cycle can continue to harm their writing and other academic skills (Berninger & May, 2011; Berninger & Wolf, 2009; Engel-Yeger, Nagauker-Yanuv, & Rosenblum, 2009). Dysgraphia might be difficult to determine, especially when it co-occurs with higher levels of verbal fluency or reading skills. Because dysgraphia alone is not necessarily a sign of low cognitive ability, students also academically gifted in other areas might be able to hide their disability (Berninger & May, 2011; Berninger & Wolf,
2009). If teachers are aware of the nature of dysgraphia, teachers can use various methods to evaluate students’ academic achievements, i.e., by giving an oral examination, which has the added benefit of reducing stress for the student (NCLD, 2010).

**Identification of Students with Learning Disabilities**

There have been specific issues concerning the recognition and identification of students with LDs. One traditional way to identify a learning disability is by ascertaining the discrepancy between the student’s IQ scores and the student’s expected level of achievement (Baum, 1990). Researchers and educators who favored this approach suggested students suspected of having learning disabilities be given thorough and comprehensive evaluations to assess for learning disabilities. The discrepancy model usually required a two-year discrepancy between expected performance and actual academic performance (Cavendish, 2013). For younger children, this two-year gap proved problematic as parents were often told their child was behind but not far enough behind to qualify for special education services and maybe the following year he/she would be behind enough to qualify (Gersten & Dimino, 2006). This phenomenon has been called the “wait to fail” approach (Vaughn & Fuchs, 2003, p. 139). The discrepancy method was the established way and was codified in the original Individuals with Disabilities Education Act (2004). A full and comprehensive evaluation was required before allowing students to receive special education programming.

In the 2004 reauthorization of IDEA, schools were allowed to provide services to children for whom a comprehensive evaluation had not yet been conducted. Schools were permitted to provide evidence-based interventions for students identified as at risk
of failing (Fuchs & Fuchs, 2006). Many researchers and educators held the RtI model was more appropriate than the two-year discrepancy approach previously used (Fuchs, Mock, Morgan, & Young, 2003). The authors discussed how the RtI model suggested special education interventions could be used before a student fails, which makes the RtI an effective practice for students with LD in a general education setting. Understanding more about the connection between behavior and academic achievement can lead to better identification of students with LD.

Vaughn and Fuchs (2003) recommended the RtI framework—a three tiered system that begins by assessing the overall achievement of all students in a particular grade level. The first tier consists of providing all students with high quality educational programming. Student performance is compared to standardized criteria that assess whether students are making expected progress. Those students who perform below the norm can either be monitored carefully for progress or begin to receive the more intensive interventions or strategies for learning of the second tier. Their progress is monitored to determine if the strategies or approaches at the second tier of intervention provided sufficient support to bring their performance back up to the norm. Students who are remediated are not considered to have or identified as having a learning disability (Gersten & Dimino, 2006).

If students fail to make adequate progress despite being provided with the second tier of supports and interventions, they receive instructional interventions at the third tier, which includes more intensive instructional strategies and modifications to the curriculum to help them learn. By this time, students will have gone through a full and comprehensive evaluation and have begun the special education referral process Gersten
& Dimino, 2006). By providing these tiers of intervention in collaboration with instructional specialists or special education teachers, the teacher is much better able to notice which students continue to perform below the norm (Adkins, 2011). Using a multi-tier system of intervention is consistent with IDEA (2004) and RtI is a research-based approach.

The RtI approach was hailed as a method that would lead to early identification of students at risk of academic failure and could provide individualized supports to help students make academic progress (Ferri, 2012; Reynolds & Shaywitz, 2009). However, research found that although RtI had been effective in some areas, such as increasing the use of data-driven decision-making in schools and providing early intervention to students struggling in the classroom, it had not been effective in addressing the needs of all students. Nor had RtI been effective as a diagnostic tool for disability determination (Reynolds & Shaywitz, 2009). For students with learning disabilities, the RtI approach was supposed to provide both early identification and early intervention rather than waiting for students to fail. The preventative approach of RtI had provided at-risk students with sufficient support to keep them successful at grade level. However, for some students, in particular high ability students who struggled to acquire basic skills, this approach resulted in delayed identification of need. Unless students failed to respond to instructional interventions, the RtI approach effectively delayed a comprehensive evaluation to determine the presence of disability (McKenzie, 2009). This led to what has been called a “false negative,” namely, not identifying students who needed specialized services because their high abilities masked their special needs. Thus, students with high ability were particularly vulnerable to getting stuck in the first tier
within RtI and not receiving the additional or specialized services they needed (Hale, Kaufman, Naglieri, & Kavale, 2006; McKenzie, 2010).

**Students Who Are Gifted and Talented**

**Historical Perspective**

As Renzulli (1978) noted, giftedness was recognized since before written history was recorded. In ancient China and Greece, giftedness was recognized and developed (Gallagher, 1994). Societies continued to provide opportunities for advanced students and exceptionally bright children from wealthy families were provided a private education (Oakes et al., 2012). Attention began to be paid to high ability, high potential students and gifted and talented programs were initiated in several U.S. cities in the late 19th century.

The earliest testable and objective theories developed to explain the phenomenon of giftedness presumed giftedness was a function of exceptional intellectual abilities; assessment of giftedness depended on the administration of psychometric tests such as intelligence tests based on the pioneering work of Binet and Terman (cited in Orange, 1977) early in the 20th century and persisting into the middle 1950s. This is the first definition of giftedness based on objective measure (Orange, 1977). At the time of Binet’s research, identification of gifted individuals, especially students, was inconsistent and flawed due to observations and judgments of educators who often were misguided by personality characteristics and behavioral patterns (Fancher, 1987). Binet was the first to begin making significant contributions to identifying giftedness that related to clear manifestations of high intelligence, leading to the development of an intelligence test that
assessed a variety of different mental functions covering many complex tasks (Orange, 1977).

As Binet’s test gained widespread acceptance, giftedness was originally defined by those who followed him as the top 1% of scores as a way to identify those individuals classified as gifted (Davis et al., 2011). This was also a time when the idea of public education was being formulated and implemented; using IQ scores became an easy way of classifying and identifying all students including the gifted and talented. At this point, giftedness was perceived only to be related to intelligence. Public education was particularly variable--from larger urban schools with multiple levels to small one-room country schoolhouses--where every student was educated in the same room. The use of IQ tests took many years to become widespread and to realistically have an effect on student populations (Orange, 1977).

During the early part of the 20th century when the use of IQ tests expanded, it became more common to group students according to their intelligence scores and provide higher achieving students with a different curriculum than that received by average or below average students. It became more common to track low-performing students into vocationally focused programs while directing high-performing students into college-bound programs (Davis et al., 2011). Although high achieving students were not being identified as gifted per se, this was an early attempt to identify those students who performed above average and provide them with more academically challenging programs. However, over the years, researchers and educators observed this traditional method of identifying gifted persons had several weaknesses (Davis et al., 2011).
According to Plucker and Callahan (2014), Francis Galton was the first person to use the term “gifted child” as part of empirical studies in the 1860s. Terman and Hollingworth (cited in Plucker & Callahan, 2014) studied it systematically in the early part of the 20th century. In the early 1920s, Lewis Terman, a professor at Stanford University, revised an IQ test developed by Alfred Binet to create the Stanford-Binet Intelligence Scales (Becker, 2003). Terman’s (1925) research on IQ published in Genetic Studies of Genius provided some of the first valuable knowledge about how exceptional cognitive ability was related to achievement.

During the period between 1930 and 1950, giftedness was researched by Hollingworth, Witty, and Strang (cited in Myers & Pace, 1986) who all developed more information on the personality and characteristics of gifted children as well as behaviors associated with giftedness. In 1950, Guilford (cited in Heller & Feldhusen, 1986) highlighted the importance of including creativity in the discussion of intelligence. These traits were incorporated in the three-ring definition of giftedness developed by Renzulli in 1978 that explained giftedness as three interacting clusters of traits: above-average ability, task commitment, and creativity.

Renzulli (1999) expanded on the work of earlier theorists by proposing two types of giftedness. The first type, which Renzulli named “schoolhouse” giftedness, is most commonly identified by schools for eligibility for special services. This type is typically identified by scores on tests of intelligence or cognitive ability tests. Students identified this way generally do exceptionally well in lesson learning and test taking. In addition, these traits remain stable over time but also exist in varying degrees.
Renzulli (1999) also distinguished another type of giftedness he named “creative productive.” This type of giftedness is characterized by a high development of original ideas or products, artistic expressions, and can be domain-specific. Traditionally, this type of giftedness has not been as recognized by school systems until the last decades of the 20th century when different interventions began appearing to meet the needs of individuals displaying this type of giftedness. From his work and research around creative productive giftedness, Renzulli developed his three-ring conception of giftedness. An important aspect of the three-ring model is Renzulli was one of the first to address the concept of creative productivity as an educational outcome in gifted education. Other researchers continued to examine characteristics other than IQ in giftedness including Gardner (1983) and Gagné (1985).

In 1983, Gardner’s multiple intelligences theory was published wherein he described how traditional IQ tests focused on analytical thinking skills and thus provided a limited conception of intelligence. He observed that people exhibited advanced thinking and performance in additional ways an IQ test would not be able to identify (Gardner, 1983/2011). For Gardner, individuals could demonstrate unique strengths in other areas beside linguistic and logical-mathematical--ones typically assessed on an IQ test; failure to recognize those other strengths in students could negatively impact the realization of their educational potential. In addition to the traditional linguistic and logical-mathematical intelligences, Gardner (1983/2011) proposed other areas of intelligence: spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist intelligences.
His theory is useful to educators as it is relatively simple to understand and can be easily addressed by educational practices aimed at identifying student strengths and then teaching to those strengths, thus capitalizing on natural abilities for each child. This theory is particularly suitable for gifted and talented students. Classrooms adopting multiple intelligence approaches have demonstrated popularity with teachers and improved self-concepts for students (Davis et al., 2011). Although Gardner himself considered the idea of emotional intelligence, he finally decided there was a special connection between interpersonal and intrapersonal intelligences in contrast to other researchers who described emotional intelligence as a separate area (Davis et al., 2011). However, there was no widespread acceptance of emotional intelligence as a separate area at that time.

Gagné (1985) referred to a gifted child as one who has and uses an untrained and spontaneous natural ability, referred to as aptitudes or gifts, to show competence in at least one ability domain. The child would need to place in the top 10% of his or her peers in this domain. He differentiated giftedness from talent by referring talent to above average performance instead of competency. His differentiated model included five aptitude domains: (a) intellectual, (b) creative, (c) socio-affective, (d) sensorimotor, and (e) others (e.g., extrasensory perception. Gagné’s slightly different twist in his differentiated model of giftedness and talent distinguished between gifts, which he described as untrained natural abilities such as intellectual, creative, socio-affective, and sensorimotor, and talents, which he felt were learned capabilities and characterized by exceptional achievements in various fields such as sports, technology, academics, business, social action, and arts. Personal factors such as motivation, volition,
personality could influence talent development along with environmental influences such as milieu, interpersonal relationships, events, and also chance factors (Gagné, 1985).

**Definition of Giftedness**

Giftedness was not defined in any federal laws or regulations prior to 1970. The first federal definition of giftedness was presented in a report by Dr. Sidney Marland (1971), then the U.S. Commissioner of Education, on the state of gifted education in the United States. This report provided the first federal definition of giftedness and identified six areas of giftedness that were adapted but are still used today. It provides an in-depth analysis of six areas of giftedness, described some of the characteristics of gifted students, and concluded by stating the federal government was not meeting the needs of this group of students. Part of the purpose of the Marland report was to create a usable definition for federal law:

> Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of, the following areas, singly or in combination:
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual and performing arts
> 6. psychomotor ability. (p. ix)

This definition was adopted by many states and school districts in the 1970s and remains the predominant influence in those definitions today (Davis et al., 2011). It was not until 1993 that the U.S. Department of Education created a comprehensive definition:

> Children and youth with outstanding talent perform or show potential for performing at remarkably high levels of accomplishment when compared with
others of their age, experience, or environment. These children and youth exhibit high performance capacity in intellectual, creative, and/or artistic areas, and unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (p. 5)

Other definitions addressed different aspects of giftedness. According to Bailey and Rose (2011), “Giftedness is generally considered to be intelligence, achievement, and potential that are unusual when compared to that of one’s peers; or achievement in a field that is rare and particularly outstanding” (p. 2). Bianco (2005) defined students with gifts and talents as those who demonstrated “potential abilities” (p. 286) in many academic and social areas and who required special educational services. This wide range of definitions was due in part to the many different characteristics of children with gifts and talents (Johnsen, 2009). Since the definition guided the decision of who would qualify for services and supports and when and how gifted education services would be provided, the ways in which giftedness has been defined has implications for students who are gifted. In 2010, the National Association for Gifted Children approved the following definition of giftedness:

Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (para. 3)

Even with the variety of definitions, McClain and Pfeiffer (2012) found most states continued to rely on the 1993 U.S. Department of Education definition.

Even though there was now a federal definition of giftedness, many gifted students still did not receive the educational supports they needed. Research into
giftedness was sporadic and few educators understood the unique needs of these students. To bridge the gap between student needs, lack of local capacity in addressing student needs, and research into the area of giftedness, a coordinated federal approach would be needed.

In 1988, Congress passed the Jacob K. Javits Gifted and Talented Students Education Act (Javits Act), which had a goal of developing programs that met the educational needs of students who were gifted and talented as well as building capability within the K-12 education system to meet the needs of these students. The Javits Act was based in part on the definition of giftedness presented in the Marland (1971) report and acknowledged the six areas of giftedness. This was the first and only program from the federal government that specifically focused on gifted/talented educational programs. The 1994 reauthorization of the Javits Act included language specifying economically disadvantaged, limited English proficiency, and/or disabilities or handicapping conditions as priority needs (Ford, 1998). A reauthorization of the Javits Act as Title V in the No Child Left Behind Act of 2001 included provisions for research into gifted education through competitive grants provided by the U.S. Department of Education (Davis et al., 2011). As it included a mandate for providing services for the diversity of children with gifts/talents, the Javits Act definition recognized the great need to include children from various cultural, ethnic, and economic diversities in the United States (Davis et al., 2011).

The Javits Act (1988) was federal education legislation that provided federal funding for research in gifted education but no funding to states for gifted education programs or services to children and youth. This was left up to each state to determine if and how each state would fund gifted education. Although each state had programs that
served this population, it was not clear how many students received specialized services within gifted programs in each state. Additionally, the Javits Act did not offer protection of the legal rights of students who are gifted and talented. According to the 2014-2015 State of the States report, “The differences between states and between districts within a state means that many gifted students are going unserved” (NAGC, 2015).

**Characteristics Associated with Giftedness**

The first large-scale study of the characteristics of gifted individuals was carried out by Terman (1925) when he identified over 1,500 highly gifted individuals and described them as generally superior to the normal population in many areas: physical, social, psychological, adjustment, and self-esteem. These gifted individuals further demonstrated high professional success and personal contentment from childhood throughout adulthood. It should be noted there have been criticisms of Terman’s sample as not truly representative of a gifted population because the methods used to identify gifted individuals might have eliminated many who did not display such positive characteristics. Nevertheless, Terman’s work inspired much further research on characteristics of giftedness. From Terman’s initial work, many researchers have sought to extend a description of characteristics, which could be classified into general categories of positive and negative characteristics (Davis et al., 2011). These researchers stressed these characteristics were not always seen in all gifted individuals but the aim was to develop an extensive and comprehensive list to encompass all of the characteristics observed in examining a large sample of gifted individuals.

General characteristics associated with giftedness vary according to both age and area of giftedness. Many students who are gifted demonstrate above average language
and reasoning skills, have an unusual long-term memory for facts and details, understand concepts quickly and intuitively, and have an advanced ability to connect disparate ideas. Many gifted students display extraordinary achievement in one of the six areas. By the time they reach middle school, those students who receive support are often strongly motivated to excel in their field of interest (Pfeiffer, 2012).

Area specific characteristics might include high scores on intellectual tests, high academic achievement in one or more academic areas, the ability to generate new ideas and experiment with those ideas, and the ability to become submerged in a task. For students who are gifted in leadership, characteristics might include increased self-confidence, sense of responsibility, cooperation, and the ability to adapt readily to new situations. Students who are gifted in visual and performing arts might demonstrate more flexible and advanced sensitivity to line, color, and composition, adding more detail and elaboration as well as a higher level of originality into their compositions (NAGC, 1990; Pfeiffer, 2012; Porath, 1993).

Rinn, McQueen, Clark, and Rumsey (2008) explained how gifted individuals are unique in patterns and characteristics of giftedness. Students who are gifted/talented might excel in several areas. However, not all gifted/talented students are gifted in the same way and giftedness is not global. In other words, gifted students are not necessarily gifted in all categories (Bianco & Leech, 2010). Cognitive characteristics include a keen power of abstraction, interest in problem-solving, applying concepts, and intellectual curiosity. Creative traits include more than creativity and inventiveness; there is also the ability for fantasy, independence in attitude and social behavior, and intuitiveness. Affective traits include unusual emotional depth and intensity with a tendency toward
being over-exitable, a high degree of perfectionism and becoming easily frustrated due to high expectations of self and others, an internal locus of control, and a strong sense of justice and idealism. Behavioral characteristics include being intensely focused on passions, i.e., a resistance to changing activities when focused on one’s own interests, having an insatiable curiosity, and perseverance, which continues especially with important activities (Rinn et al., 2008).

Despite all the positive characteristics listed above, gifted students might also exhibit challenging behaviors (Davis et al., 2011) represented by underachievement, which is often attributed to a slow-progressing curriculum and assignments in uninteresting areas or topics already mastered. Interpersonal differences can sometimes be attributed to intellectual differences. Gifted students might develop these symptoms for many reasons. One of these is societal pressure, which is often combined with fear of failure, resulting in gifted students developing negative self-evaluations and self-image (Robinson, Reis, Neihart, & Moon, 2002). Pfeiffer (2012) suggested that in order to transform potential talents and abilities into exceptional achievement and innovation, gifted students need a supportive, nurturing environment.

One challenge in developing such exhaustive lists of characteristics is a danger in looking for all of these characteristics in a single individual (Davis et al., 2011). Additionally, a huge diversity appears in gifted and talented individuals. As a result, various alternative theories have been proposed to explain and identify giftedness (Davis et al., 2011).
Identifying Students Who Are Gifted and Talented

Many definitions of giftedness and different theories have been proposed to explain it. Even an examination of the characteristics of gifted individuals does not explain all the different ways students can be gifted/talented (Coleman, 2003); it is easy to understand why identification is difficult. According to NAGC (2008), any process for identifying students for gifted/talented programs must include (a) defensible measurement practices aligned with program goals and objectives, (b) administration and interpretation of assessments by properly trained persons, and (c) ethical decision-making in program placement. Two general problems exist in appropriate identification: to avoid over-identification and at the same time avoid under-identification of gifted individuals. Specific problems include disproportionate representation--where individuals from culturally or linguistically diverse groups or where individuals from poor socioeconomic families are dramatically underrepresented in currently identified students. Another problem is the use of a single measure or measuring within a single category of giftedness because giftedness has so many different aspects. Closely aligned with this is the problem of inappropriate use of statistical formulas and pre-set cut-off scores (Coleman, 2003; NACG, 2010). One large-scale study conducted in 2010 by McBee looked at causes for the underrepresentation based on race and socioeconomic status.

McBee (2010) investigated the likelihood of gifted children being identified to participate in a gifted program. This large-scale study ($N = 326,352$ from 1,262 schools) looked at both individual causes and school-based issues that helped determine how a student was identified. McBee found identification was strongly related to race and socioeconomic status. These relationships varied based on different schools in different
areas within the state of Georgia. The question asked in the McBee study was if students who are in need of services are not being identified or are underrepresented based on race and class (p. 283). Among the issues related to identification McBee discussed were problems with how students were nominated, problems with identification in general, and “gifted program persistence” (p. 284). Since teachers were usually responsible for nominating students for gifted evaluation and the majority of K-12 teachers were from White, middle-class backgrounds, it was possible, according to McBee, they did not necessarily recognize giftedness in students from diverse race and ethnic backgrounds.

McBee (2010) suggested since identification relies to some degree on standardized measures, it is important to realize many minority students do not perform as well on standardized tests as middle-class White students do. Although giftedness is not measured by only standardized tests, these are often used to begin to identify levels of academic evaluation prior to nomination for gifted programs. The gifted program persistence McBee refers to is the concept that students who might be identified and nominated for gifted education do not participate “due to cultural insensitivity…or peer pressure” (p. 284).

McBee (2010) went on to describe how the literature documented low socioeconomic status strongly correlated to lower standardized test scores but when children from low socioeconomic status backgrounds were given verbal tests, their scores often improved. According to McBee, school-based factors are similar because they include the socioeconomic status of the school, i.e., what neighborhood the school is in and the racial organization of the school. Findings from the McBee study reinforced that school composition was one of the strongest relationships in determining if students were
underrepresented in gifted programs based on socioeconomic status and race. The study did not show a significant impact on how students were identified and placed in gifted programs. This multilevel path analysis was the first of its kind to explore how students were identified for gifted programs.

Several recommendations have been made to enhance appropriate identification including the use of multiple sources of information, administering assessments over multiple periods of time, and using multiple kinds of information from several domains (Coleman, 2003; NAGC, 2008). Other recommendations include the use of authentic assessments such as samples of student work, performance-based procedures, use of periodic reassessments over time; promotion of collaborative efforts on the part of many teachers, parents, and other individuals within the community; and to be sensitive to differences in how giftedness might appear in other cultures and socioeconomic groups (Davis et al., 2011).

The end goal of identification needs to remain the most important point--to make sure all individuals who are gifted in some way are identified and appropriate services and interventions are provided to help them maximize their potential. Otherwise, there is the risk of losing the brightest minds and most creative thinkers in our society. With adequate identification of giftedness and of disabilities, it is easier to recognize twice-exceptionality.

**Twice-Exceptionality**

As school administrators and educators struggle with issues of how to serve special populations, one group of students has largely gone unserved because they are not readily identified (Crim et al., 2008). This group of students, who are found mostly in
general education classes, are twice-exceptional. They have some form of disability but also exhibit characteristics associated with giftedness and talent. One challenge with identifying twice-exceptionality is the disability often masks the gift or the gift masks the disability (Baum, 1990). Beckley (1998) called twice-exceptional students “atypical learners who are often characterized as smart students with school problems” (p. 3).

As of 2006, an estimated 70,000 K-12 students had been identified as twice exceptional within school districts that voluntarily collected data on twice-exceptionality and an estimated 360,000 students were unidentified (NEA, 2006; Pereira, Knotts, & Roberts, 2015). It is estimated that between 2% to 5% of the student population is twice-exceptional (Foley-Nicpon et al., 2013). Presently, some school districts still do not collect student data on twice-exceptionality and there are teachers, educators, administrators, advocates, and parents who do not adequately understand the nature of twice-exceptionality or who can identify when a child is both gifted/talented and has a disability (Baldwin, Omdal et al., 2015).

A review of the literature on twice-exceptionality highlighted the gap in research concerning how few studies had been conducted regarding learning disabilities or any other disabilities co-occurring with gifted/talented abilities (Nicpon et al., 2011). Within IDEA (2004), exceptionality was defined only in terms of defined and described disabilities. However, disabilities might occur separately as well as alongside other disabilities or exceptionalities such as giftedness (Nicpon et al., 2011). Disabilities such as attention-deficit/hyperactivity disorder, autism spectrum disorder, and SLDs co-occurring with giftedness have been studied to some extent. Emotional and behavioral disabilities were minimally addressed in the literature (Morrison & Omdal, 2000).
Physical disabilities such as hearing, vision, and mobility impairment have not yet been researched as co-occurring with giftedness, mainly because they are low-incidence disabilities and few students are available for study (Bailey & Rose, 2011). On the other hand, LD is a high incidence disability; therefore, there are far more twice-exceptional students with LD and giftedness to research (Nicpon et al., 2011).

The U.S. Department of Education (1993) defined both “gifted” and “learning disabled” but did not address how they intersected. In the general population, potential exists for giftedness as well as the potential for disability. Being able to identify giftedness in students with learning disabilities remains one of the major challenges in education today (Willard-Holt, Weber, Morrison, & Horgan, 2013). Among the topics to be addressed when investigating the phenomenon of twice-exceptionality in education are (a) the history, (b) the definition of twice-exceptionality, (c) legal issues particular to twice-exceptionality, (d) characteristics of twice-exceptional students, (e) problems with identification including the masking effect, (f) the effects of labeling and bias toward students who are twice-exceptional, (g) teacher perceptions, and (h) teacher motivation.

History of Twice-Exceptionality in Schools

Researchers have been studying and writing about exceptionalities since the 1920s (Baldwin, Baum, Pereles, & Hughes, 2015). Over the next 50 years, few researchers noted times when students with certain disabilities showed higher than normal intelligence. In discussing the definition of giftedness, Renzulli (1978) indicated giftedness occurred in certain people at certain times, under certain circumstances, and some gifted students could be challenged in academic areas, attention, and socially. By the 1980s, Whitmore (1980) and Whitmore and Maker (1985) used the term twice-
exceptional for the first time (Baldwin, Baum et al., 2015; McCallum et al., 2013).

During the decade of 1980-90, some public schools began introducing programs for gifted students with disabilities. The work of Baum (1984) beginning in the mid-1980s and Baldwin (1994) helped create a major focus on the identification and research of the phenomenon of disabilities co-occurring with giftedness. There was no clear definition of twice-exceptionality. Lovett and Lewandowski (2006) argued the need for a research-based definition that would explain characteristics and assist with identification.

**Definition of Twice-Exceptionality**

A basic definition of twice-exceptionality would include any student who has one or more disabilities that co-occur with giftedness (Al-Hroub, 2013; Beckley, 1998; Brody & Mills, 1997). This definition clearly includes the co-occurrence of strengths in one area and challenges in another (Reis et al., 2014). For many years, the definition commonly used by schools and agencies such as the U. S. Department of Education (1993) of twice-exceptionality was comprised of using two separate definitions: one for disabilities and one for giftedness. However, neither of these two definitions included a statement of an intersection of disability and giftedness nor did they illustrate the masking effect these overlapping conditions might have (Nicpon et al., 2011). The National Twice-Exceptional Community of Practice (cited in Baldwin, Baum et al., 2015) presented this comprehensive definition:

Twice exceptional (2e) individuals evidence exceptional ability and disability, which results in a unique set of circumstances. Their exceptional ability may dominate, hiding their disability; their disability may dominate, hiding their exceptional ability; each may mask the other so that neither is recognized or addressed.

2e students, who may perform below, at, or above grade level, require the following:
• Specialized methods of identification that consider the possible interaction of the exceptionalities
• Enriched/advanced educational opportunities that develop the child’s interests, gifts and talents while also meeting the child's learning needs
• Simultaneous supports that ensure the child’s academic success and social-emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction.

Working successfully with this unique population requires specialized academic training and ongoing professional development. (p. 3)

This definition is the most complete to date and provides a reason why it can be so difficult to identify as well as provide services for twice-exceptional students. It includes a description of three conditions often recognized in individuals with twice-exceptionality, specifically, an individual’s exceptionality and disability can each mask the other or that each can mask together, which can make identifying and addressing twice-exceptional students highly challenging. Baldwin, Baum et al. (2015) suggested that as important as an agreed upon definition is, it is also important for that definition to be accepted by researchers and teachers. Once twice-exceptionality is defined, problems remain with identification due mainly to understanding and noticing the variety of characteristics.

**Characteristics Associated with Twice-Exceptional Individuals**

If teachers and educational professionals do not understand the characteristics of twice-exceptional students, they are more likely to base their conclusions on what they see rather than on how students are assessed (Eig, Weinfeld, & Rosenstock, 2014).

Twice-exceptional students are a heterogeneous group—how any one student presents as twice-exceptional can be radically different than another student (Foley-Nicpon et al., 2013; Neihart, Reis, Robinson, & Moon, 2002; Renzulli & Reis, 1997). Some of the characteristics of twice-exceptionality might not be noticeable at all. Twice-exceptional
students who are struggling or even failing might often be frustrated because they know they can understand concepts and are able to process information but they might not be able to keep up because of the limits of their learning disability. Even if a teacher notices some hint of a student’s giftedness, he/she will be more likely to notice if the student is failing or has behavioral issues in the classroom (Baldwin, Omdal et al., 2015). To notice these discrepancies, teachers need to be aware of the characteristics of twice-exceptionality. Table 1 is a general guide to noticing the characteristics (Nielsen, Higgins, Baldwin, & Pereles; as cited in Baldwin, Omdal et al., 2015). Not all of the characteristics listed on the original table are included here. Other characteristics include curiosity, risk-taking, sense of humor, maturity, independence, broad interests, and focused interests. What is important about this list of characteristics is they are found in gifted/talented students but not all gifted/talented students will exhibit all of these characteristics.

When a twice-exceptional student presents with some gifted/talented characteristics, there are times when those characteristics are masked or they present differently in the twice-exceptional student than in the gifted/talented student. Teachers might not know if a student is twice-exceptional without thorough assessment. The first step is to be aware of the characteristics. Then teachers can begin the process of identifying twice-exceptionality (Assouline, Nicpon, & Huber, 2006).
### Table 1

*Comparisons of Characteristics of Gifted Students and Twice-Exceptional Students*

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Recurrent Behaviors and Characteristics of Gifted Students</th>
<th>Possible Behaviors and Characteristics of Twice-Exceptional Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning</td>
<td>Possesses ability to learn basic skills quickly and easily and retain information with less repetition</td>
<td>Often struggles to learn basic skills; may demonstrate need for strategies in order to acquire basic skills and information</td>
</tr>
<tr>
<td>Verbal Skills</td>
<td>Exhibits high verbal ability</td>
<td>May demonstrate high verbal ability but may also show extreme difficulty in written language area; may use language in inappropriate ways and at inappropriate times</td>
</tr>
<tr>
<td>Reading Skills</td>
<td>Acquires reading skills early</td>
<td>Reading problems can be evident early; may demonstrate need for strategies in phonics, phonemic awareness, and fluency; may mask reading deficits through compensation until shifting from “learning to read” to “reading to learn”</td>
</tr>
<tr>
<td>Organizational Skills</td>
<td>Organizational skills can vary; some gifted students can be very organized whereas others struggle</td>
<td>Usually struggles with organization of things, ideas, and time</td>
</tr>
<tr>
<td>Observational Skills</td>
<td>Has keen powers of observation</td>
<td>Has strong observation skills but may demonstrate deficits in memory</td>
</tr>
<tr>
<td>Critical thinking/problem-solving skills</td>
<td>Adept at critical thinking, problem solving, and decision-making skills</td>
<td>May excel in solving “real-world” problems; can demonstrate outstanding critical thinking and decision-making skills; often independently develops compensatory skills</td>
</tr>
<tr>
<td>Attention</td>
<td>Has long attention span; may demonstrate persistent, intense concentration</td>
<td>Attention is frequently affected; may be able to concentrate for long periods of time in areas of interest</td>
</tr>
<tr>
<td>Creativity</td>
<td>Generates creative thoughts, ideas, actions; may be innovative</td>
<td>Imagination may be unusual; may frequently generate original and at times rather “bizarre” ideas; is extremely divergent in thought; may appear to daydream when generating ideas</td>
</tr>
<tr>
<td>Social Skills</td>
<td>May not be accepted by other children and may feel isolated</td>
<td>May be perceived as a loner; sometimes has difficulty being accepted by peers due to poor social skills</td>
</tr>
</tbody>
</table>
Table 1 continued

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Recurrent Behaviors and Characteristics of Gifted Students</th>
<th>Possible Behaviors and Characteristics of Twice-Exceptional Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Exhibits leadership ability</td>
<td>May be a leader among the more nontraditional students; can demonstrate strong “streetwise” behavior; the disability may interfere with ability to exercise leadership skills</td>
</tr>
</tbody>
</table>

Note. Adapted from *Comparisons of Characteristics of Gifted Students With or Without Disabilities* by Nielsen, Higgins, Baldwin, & Pereles with permission (as cited in Baldwin, Omdal et al., 2015).

**Identification and the Masking Effect**

Baum (1990) referred to twice-exceptionality as a “puzzling paradox” in which students “who are both gifted and learning disabled exhibit remarkable talents and strengths in some areas and disabling weaknesses in others” (p. 2). It is especially difficult to identify twice-exceptional students as there are three particular aspects of twice-exceptionality: “a) identified gifted students who have subtle learning disabilities; b) unidentified students whose gifts and disabilities may be masked by average achievement, and c) identified learning disabled students who are also gifted” (Baum, 1990, p. 2). Beckley (1998) also noted the discrepancy between a student’s academic performance and intellectual engagement, abstract thinking skills, and general curiosity. Gifted students with subtle learning disabilities might not be identified because even if the giftedness is noticed, the learning disability might not be addressed if it is masked by the giftedness. In later years, this twice-exceptional student might become frustrated and act out in class. Teachers and parents might think this student is lazy or not working up to his/her potential.
When neither the giftedness nor the disability are identified, the student often manages to succeed throughout school with average grades. As long as there is no discrepancy between grades and ability, the twice-exceptionality is unnoticed. Both the giftedness and the disability mask each other. This might continue until students attain an academic level when, because of increased complexity of the content, the masking strategies are no longer working (Willard-Holt et al., 2013).

In the case of students with identified disabilities, the giftedness is masked in large part because it is easier to identify and label an observed weakness. Often a learning disability is seen as a problem or a barrier to academic achievement. When this happens, special educational programs concentrate on trying to fix what is considered wrong with the student and might never look for any signs of giftedness (Baum, 1990).

Al-Hroub (2013) indicated while classroom teachers might often notice challenges such as misbehavior in the classroom and possible learning disabilities, they often miss subtle strengths that could be signs of gifted/talented. Some students whom Al-Hroub called “dual-exceptional” might have noticeable mild learning disorders and noticeable gifts or talents and still not be able to work at the expected level (p. 63). According to Eig et al. (2014), it might not be until an IQ test is administered that the masking effects of the students’ strengths and challenges are uncovered. Universal assessments need to be thorough enough to include students from a variety of cultural and educational backgrounds. Only in this way can many students who are twice-exceptional have the opportunity to receive the types of special education that meet the challenges of both their giftedness and their disability.
When disability masks giftedness, teachers might refer students for special education disability services; in which case, any of the gifted characteristics such as intellect, creativity, and artistic talents might be overlooked (Zirkel, 2004). Some evidence suggests many teachers have expectations of students with disabilities based on stereotypes that generally preclude giftedness, especially if the stereotype of giftedness is gifted students must be globally gifted, i.e., gifted in all areas and subjects (Baldwin, Omdal et al., 2015, Bianco & Leech, 2010). The issue then becomes whether teachers can identify twice-exceptionality in the general classroom setting.

There is concern current screening criteria are not broad or demanding enough to identify high ability students who have learning disabilities (McCallum et al., 2013; Nicpon et al., 2011). In particular, students with disabilities who are also gifted might not demonstrate enough impairment to receive disability-related services while not being gifted enough to be included in gifted programs. McCallum and colleagues (2013) discussed how using conservative screening criteria often did not identify students with twice-exceptionality. Instead of using predicted scores, the authors suggested observed scores from curriculum-based measures could be used to determine academic differences between reading and math in students identified as high performing in one academic area. They suggested the discrepancy between these scores would result in a higher percentage of students identified as twice exceptional.

Legal Provisions for Students Who Are Twice-Exceptional

While students who are twice-exceptional are eligible to receive disability-related services under the provisions of IDEA (2004), their eligibility for gifted-related services depends on state statutes and regulations. Yet, in states where mandated programs for
gifted students are available, students who are twice-exceptional remain underrepresented in gifted programs (Zirkel, 2004). According to Gilman et al., (2013), “The failure to identify gifted students with disabilities has civil rights and legal implications (p. 1).

No provision in IDEA (2004) addresses the needs of students who are gifted and talented and would benefit from specialized gifted-related services. Thus, the civil rights of students who are twice-exceptional are not completely covered by this act. Yet this subpopulation of students also needs special services and often special intervention, which might be covered using a 504 plan. Section 504 of the Rehabilitation Act of 1973 is a civil rights law that states no organization that receives federal funding may discriminate against persons with disabilities (U.S. Department of Education, 2015b). Disabilities are not defined in Section 504 as they are in IDEA. The Office for Civil Rights of the U. S. Department of Education administers Section 504, which can include implementing a Section 504 Accommodation Plan, which is different than the IEP specified in IDEA. The specifics of implementing 504 plans have been left up to states and school districts. Twice-exceptional students might qualify for a 504 plan that allows him to achieve educational success reasonably commensurate with his ability…even if a child is receiving A or B grades in classes, but is having difficulty paying attention in class, with behavior at school, or at home with homework, the child may still be eligible for accommodations… Because many twice-exceptional students may be bright enough to earn a high grade in a class even though their disability impacts their attention and/or behavior in that class, this guidance from the Department of Education is particularly helpful. (Eig et al., 2014, p. 21)

Understanding how the law works regarding IDEA and FAPE for twice-exceptional students includes knowing who is responsible for providing what type of services for students. When students are twice-exceptional, this legal issue can be even more difficult to resolve. In some cases, parents who challenged school districts for not
providing FAPE were unsuccessful. Examples of cases found in favor of the school districts include Boulder Valley School District RE-2 (2007), Desoto County School District (2006), and San Juan Board of Cooperative Educational Services-Durango (2011). In other cases, school districts did not know the law well enough or did not train educators fully enough to provide FAPE (Shakopee Independent School District, 2009; Student with a Disability, Utah State Educational Agency, 2014).

On April 17, 2015, the Office of Special Education Programs (OSEP) of the U. S. Department of Education issued a memorandum that was then sent to state directors of special education. This memorandum specifically noted school districts were failing to ensure proper training for educators responsible for evaluating twice-exceptionality and sufficient special programming was not being offered even though specific guidelines had been published in 2013. Due to these inadequate measures, OSEP was getting letters and complaints and more cases were being brought forward that OSEP considered unnecessary (Amend & Peters, 2015).

Unlike legal challenges that address issues regarding education and disability, which are covered under federal law, giftedness is addressed at the state level. Case law varies between states because federal law requires individual states to be responsible for providing services to gifted and talented students. The following section examines case law related to students who are twice-exceptional in the state of Colorado.

The federal government does not require individual states to define and provide rules for providing specialized educational programs for gifted/talented students. However, most states have developed rules for gifted/talented programs. The state of Colorado has rules for both gifted/talented and for twice-exceptional programs. In
Colorado, the rules for the administration of the Exceptional Children’s Educational Act (2013) include requirements for gifted and talented programming (Sections 2220-R-12.00, 12.01 through 12.08 (2)(e)(v)). The act also includes an extensive definition of gifted/talented and goes beyond federal regulations by including the establishment of rules for gifted education in early childhood education as well as a separate statute for twice-exceptionality (§12.01 (12)). The Colorado state definition is as follows:

Gifted children means those persons between the ages of five and twenty-one whose abilities, talents, and potential for accomplishment are so exceptional or developmentally advanced that they require special provisions to meet their educational programming needs. Gifted and talented children are hereafter referred to as gifted students. Children under five who are gifted may also be provided with early childhood special educational services. Gifted students include gifted students with disabilities (i.e., twice-exceptional) and students with exceptional abilities or potential from all socio-economic and ethnic, cultural populations. Gifted students are capable of high performance, exceptional production, or exceptional learning behavior by virtue of any or a combination of these areas of giftedness:

- General or specific intellectual ability
- Specific academic aptitude
- Creative or productive thinking
- Leadership abilities
- Visual arts, performing arts, musical or psychomotor abilities. (Colorado Department of Education, 2013, p. 99)

For twice-exceptional students, Eig et al. (2014) strongly stated: “It is becoming more evident, and more generally accepted that ‘the gifts of these students’ must be developed, according to the IDEA and its interpretive case law” (p. 21). In the following section, research into the topic of students who are gifted as well as have learning disabilities is explored.

Research in Combined Giftedness and Learning Disabilities

Early research into students who are gifted and have learning disabilities fell largely into two main areas: identification and characteristics (McKenzie, 2010). A
longitudinal review of the research into this population conducted by Nicpon et al. (2011) revealed the majority of research within a 20 year period fell into one of the following categories: identification and referral, cognitive patterns, psychosocial factors, and the effects of intervention.

More current challenges to identifying twice-exceptional students included challenges of using the RtI approach as a screening and identification tool (Crepeau-Hobson & Bianco, 2011; McCallum et al., 2013; McKenzie, 2010; Yssel, Adams, Clarke, & Jones, 2014), expanding our understanding of the characteristics of students who are twice-exceptional (Berninger & Abbott; 2013; Hannah & Shore, 2008; van Viersen, Kroesbergen, Slot, & de Bree, 2014), the effects of intervention on students who are twice exceptional (Dole, 2001; Neihart, 2008; Olenchak, 1995, 2009), negative effects of labeling students as twice-exceptional (Bianco, 2005; Bianco & Leech, 2010; Lo, 2014; Lovett, 2013), and teacher perceptions toward this population (Allday, Duhon, Blackburn-Ellis, & Van Dycke, 2011; Bianco, 2005; Bianco & Leech, 2010; Morrison, Rizza, & Jones, 2005). Each of these challenges is discussed in the following section.

Identification and Referral

Historically, challenges associated with the identification of students who are gifted and have learning disabilities have included not being identified as gifted due to poor performance on testing due to their learning disability (Nielsen, 2002; Reis & Ruban, 2005), narrow enrollment criteria in local gifted programs that exclude students with disabilities from participation (Assouline et al., 2010; Nielsen, 2002), and the persistent misconception that students cannot simultaneously qualify for both special education and gifted services (Bianco, 2005; Bianco & Leech, 2010). Current challenges
in identifying students who are twice-exceptional is not all methods work with all populations of students. One method of identification might work well for a student in one setting and might not work well for a different student with different characteristics (McCallum et al., 2013). Furthermore, current identification approaches have a tendency to result in social inequality as students are often screened for giftedness only when it is advocated for by their parents (Lovett, 2013).

In 2002, Nielsen reviewed research on the identification of students who are twice exceptional and found that while many of these students had similar characteristics to their gifted peers on measures of intellectual ability, they often resembled their peers with LDs when it came to academic achievement. Therefore, student performance was found to be a poor indicator for identification. Nielsen’s recommendations for improving the identification of students who are twice-exceptional included increasing the flexibility of identification criteria, using multiple data sources, examining discrepancies in academic performance, and addressing deficits in auditory and visual processing, which can mask giftedness when they are present. Early identification can result in students who are twice-exceptional being labeled “at promise” instead of “at risk” (Nielsen, 2002).

Reis and Ruban (2005) discussed factors that resulted in the under-identification of students who were gifted and had learning disabilities. At the time of this article, methods used to determine the presence of learning disabilities varied between states, as did the criteria, and identification was often delayed until students demonstrated a clear discrepancy between academic performance and measured IQ. Also, many types of learning disabilities can be challenging to identify including cognitive processing disorders. In many cases, psychosocial factors including challenging behaviors and
attention deficits can mask both a learning disability and giftedness. Finally, Ruban and Reis suggested identifying twice-exceptional students was costly for districts. Based on these factors, the authors stated this lack of identification resulted in many students who are twice-exceptional being excluded from gifted programs.

Another factor that could delay the identification of students who are twice exceptional is the lack of referral by teachers. It is possible teachers often believe students cannot benefit from a gifted program while also receiving special education services. Bianco (2005) found when students were identified as having a learning disability, both general education and special education teachers were more unlikely to refer these students for evaluation for giftedness. Surprisingly, special educators were less willing to refer any student to a gifted program regardless of the presence or absence of a disability. This lack of referral by those who are the closest to these students is clearly a limiting factor in identifying as well as providing interventions to twice-exceptional students.

In 2008, Crim et al. examined individual education plans for 1,045 students who received specialized services for learning disabilities. They found the 112 students who were identified as having high academic ability often received fewer supports than students identified as average or low ability and none of these students had been referred to services for gifted students. This suggested many students who received special education services who might qualify for interventions were not being referred for services that supported their strengths.

While students with learning disabilities are often under-identified as gifted, many students who are gifted but struggle academically could be under-identified as having a
learning disability due to the masking effect of giftedness. In a study by Assouline et al. (2010), the cognitive, psychosocial and academic profiles of 77 students with specific learning disabilities who were also academically gifted were examined. The authors found academic achievement measured through curriculum-based testing could result in lower rates of referral for students whose compensatory skills masked their learning disabilities. Recommendations included high achieving students who struggled academically would benefit from individually administered comprehensive assessments including a cognitive ability test.

Lovett (2013) also addressed the challenges of identifying students who were gifted and had learning disabilities. In his article, the author challenged current research, claiming the mutual masking effect of these conditions was a flawed assumption and evidence suggested gifted and learning disabled students failed to meet the criteria of either label. He further stated given the weak identification, current identification procedures actually increased social inequality. His reasons for this were giftedness is sometimes seen as the result of having high income parents who advocated for their children and could provide private tutoring and lessons to help improve their children’s academic achievement. When those parents saw an additional label of learning disabled would give their children even more of an advantage by getting special education, sometimes the parents pushed to have that label added to giftedness. According to the author, this was one reason there was an overrepresentation of advantaged students in gifted and learning disabled programs and an underrepresentation of lower income, less advantaged students. The author did not offer an alternative form of identification but
stated more research needed to be done into the economic background of children labeled as gifted and learning disabled.

**Using response to intervention to identify twice-exceptionality.** The RtI approach of identification has been useful in identifying students with disabilities, especially those with learning disabilities who fail to show progress in a general education setting. However, there was limited research on how helpful the RtI method was for identifying twice-exceptionality. Some authors suggested neither the standard discrepancy model nor current RtI practices were sufficient to identify students who might be both gifted and have a learning disability (Crepeau-Hobson & Bianco, 2011; McCallum et al., 2013; McKenzie, 2010)

Yssel et al. (2014) suggested one of the best tools for identifying a student with LD who is gifted was by using the RtI approach. The authors discussed the challenge of identifying students who used compensation strategies that masked their learning disability. These students often performed at grade level but were not achieving at their intellectual ability. At some point, these compensation strategies no longer worked and student performance plummeted. Used correctly, the RtI approach could help teachers identify differences between achievement and academic ability--one of the most important steps in identifying the gifted and learning disabled student. The authors concluded that to accurately identify students who might be twice-exceptional, they needed to use multiple methods of assessing students to uncover the discrepancy between performance and students’ true academic ability.

Crepeau-Hobson and Bianco (2013) studied the effectiveness of using RtI to identify gifted students with LD. They found while RtI was useful in uncovering deficits
in student performance, it frequently failed to measure discrepancies between academic achievement and ability. If a student was not falling behind other students, tier one of the RtI would not identify a discrepancy. In other words, even though gifted and learning disabled students were at grade-level, they might not be meeting their full potential and still be struggling in some areas. Crepeau-Hobson and Bianco suggested using a strengths-based version of RtI to help with identifying gifted and learning disabled.

Repeating this criticism of RtI in failing to identify student strengths, McCallum et al. (2013) suggested using a modified RtI approach to screen students who had academic weaknesses and were high performing. By comparing students’ academic performance in math and reading, the authors suggested it was possible to identify high performing students when there was a discrepancy between these scores. At that point, the student could then be placed into the second tier of intervention. The authors recommended using the most liberal RtI discrepancy criteria for screening purposes… Using these criteria, and assuming that the current sample is representative, about 10% of a school population would be selected as eligible for further screening for twice-exceptional status, that is, about 4.8% who show a reading > math discrepancy and 5.5% who show the opposite pattern… In summary, the process we describe in this study is consistent with our belief that screening assessments should identify more false positives than false negatives. (pp. 218-19)

The authors suggested the current RtI model that identified only discrepancies failed to identify students using compensatory strategies, a so-called false negative. Comparing scores across academic areas would identify more high performing students who were struggling in specific areas, resulting in more students being identified as potentially gifted. These so-called false positives would then be referred for further testing to determine the students who were truly twice-exceptional.
The challenges of labeling students. According to Lo (2014), labeling is a step whereby students are classified based on the nature or degree of their exceptionality. As a part of special education, labeling provides one way to categorize students into particular groups based on their individual needs as well as providing a justification of the provision of special services. Labeling might help teachers, professionals, and others in understanding those needs because a label helps to visualize categories (Henley, Ramsey, & Algozzine, 2002). Yet labeling can have negative effects even when it is not meant to, e.g., in an educational or professional setting. For example, when teachers use the label of a category when referring to a student, the student has no way of knowing the category is an abstract idea about the category and not an opinion of the student him/herself (Henley et al., 2002). Since labels often stick to people, especially young people, their presence can act as both a negative marker for a teacher to notice (Henley et al., 1999) and a self-fulfilling prophesy for the labeled student (Macionis, 2012). In applying labeling to exceptionalities, Bianco (2005) stated people in general label giftedness as desirable and disabilities as undesirable. There seems to be a persistent belief in schools and in society that disability and giftedness cannot exist together. According to Lo (2014), this tendency to respond with a double label could have negative consequences on students who are twice-exceptional. This labeling response could affect emotional and psychological well-being as well as academic achievement.

An example of the negative effects of labeling was demonstrated in a study of student referrals by teachers by Bianco and Leech (2010). The authors found teachers in particular were less likely to refer their students for assessment for giftedness if the student had a disability. Special education teachers trained to identify and remediate skill
deficits were the least likely to identify possible giftedness while gifted education teachers were the most likely to refer students who were identified as gifted for assessment of learning disabilities. The authors suggested preservice teachers need training in identifying both gifted students and those with learning disabilities. Without such training, teachers would continue to be unaware of their own biases and how these were affecting the educational opportunities of students who had learning disabilities, were gifted, or were twice-exceptional.

Based on these research studies, using academic scores alone is not sufficient to identify students who are twice exceptional. Various data sources have been recommended to assist in the identification of twice exceptional students. It might also be necessary to identify and explore the unique cognitive patterns of students who are gifted and have learning disabilities to determine whether students are masking their own learning needs through the use of cognitive skills.

Research into the effects of labeling and teacher perceptions on the educational opportunities for students who are twice-exceptional is needed--what teachers do not know and understand about twice-exceptionality can have a significant negative impact on these students (Barber & Mueller, 2011; Nielsen, 2002; Reis et al., 1997, 2000; Vespi & Yewchuk, 1992). These negative impacts include lack of timely identification as learning disabled or gifted (Assouline et al., 2010, Reis et al., 1997; Reis & Ruban, 2005), lack of educational support at school (Nielsen, 2002; Olenchak, 1995; Reis et al., 1997), and the emergence of psychosocial factors that affect all areas of their lives (Barber & Mueller, 2011; Dole, 2001; Reis et al., 1997; Vespi & Yewchuk, 1992). In the following section, some specific challenges faced by students who are twice-exceptional
are examined based on the research literature. These include the unique cognitive and meta-cognitive skills demonstrated by individuals who are twice-exceptional, coping strategies they often use to address the challenges imposed by their learning disabilities, and common psychosocial challenges many students who are twice-exceptional face at school.

**Cognitive Patterns and Coping Strategies Among Students Who Are Twice-Exceptional**

Cognition refers to an individual’s learning skills and includes how individuals process information, how they reason and relate new information to previously learned information, and how they remember learned information. Meta-cognitive skills refer to higher order thinking skills and strategies individuals use to solve problems, plan how best to complete a task, monitor their own comprehension, and evaluate their progress throughout the learning task. Gifted students who also have learning disabilities sometimes use these meta-cognitive skills as coping or managing strategies to maintain average achievement. Students’ meta-cognitive knowledge can be demonstrated through content knowledge, task or procedural knowledge, and strategic knowledge (Kauffman, 2004). Students’ abilities to apply a variety of strategies and relate previous knowledge to new situations varies greatly but tends to be better developed in students who are gifted than in typically developing students or students who have learning disabilities (Hannah & Shore, 2008).

Three early studies (Hannah and Shore, 1995, 2008; Montague, 1991) examined meta-cognitive skills among students including several who were gifted and twice-exceptional. Montague’s 1991 case study analysis concluded gifted students with SLD
were not as successful as gifted students without SLD in using meta-cognitive skills to solve mathematics problems. It might be gifted students with SLD need specific guidance about how to apply problem-solving skills as well as self-confidence of their cognitive gifts, which could enhance learning in their area of difficulty. In 1995, Hannah and Shore found gifted students with SLD were more likely to use meta-cognitive strategies than those with average or below academic skills. More recently, Hannah and Shore (2008) studied the meta-cognitive skills of 36 male students: 18 students in fifth and sixth grades and 18 students in 11th and 12th grades. Overall, there were 12 gifted students, 12 gifted and learning disabled students, and 12 typically developing students. The students were asked to read history lessons that contained unknown words and strange language patterns. Then the students were asked to write down their thoughts about the text line-by-line. These written thoughts were analyzed to see if students understood the lessons and what they thought about the lessons. The research demonstrated the gifted and learning disabled students’ cognitive abilities, or what they thought about the lessons, were much closer to the gifted students than students with LD. An interesting finding was gifted students and gifted and learning disabled students were more likely to think the reason they had trouble understanding what they read was their own fault while typical students thought there was something wrong with the way the lesson was written. Younger students were not as aware of their thinking processes as the older students. This was why the authors suggested thinking strategies should be introduced to students at a young age.

Students who are gifted as well as have learning disabilities often rely on their advanced cognitive and meta-cognitive skills to compensate for the challenges imposed
by their learning disabilities. Berninger and Abbott (2013) conducted a study comparing verbal reasoning skills in students identified as gifted in verbal reasoning who also had a specific type of learning disability (dyslexia) and in average students with dyslexia. They found gifted students with excellent verbal reasoning skills most likely masked the effects of dyslexia. Although these students might struggle with written language skills, they might be using their verbal reasoning skills to compensate for the deficits caused by their dyslexia. The authors referred to this as an invisible disability because the compensation strategies made the dyslexia difficult to see.

A recent study of Dutch primary school children investigated how gifted students with dyslexia compensated by using their working memory and greater vocabulary skills (van Viersen et al., 2014). The researchers compared the scores of typically developing students with and without dyslexia with those of gifted students with and without dyslexia. Results revealed the gifted students with dyslexia outperformed typically developing students with dyslexia while achieving lower scores than students without dyslexia. Although all students with dyslexia scored lower on some of the scales used, gifted students were able to mask the impact of their dyslexia by using meta-cognitive skills such as verbal short term memory, working memory skills, along with language strategies related to grammar and vocabulary.

A study by Ward, Olson, and Romani (1999) explored underlying reasons for why a student with high ability reading skills was such a poor speller. The authors hypothesized reading and writing were different cognitive functions and dysgraphia represented an interference in the individual’s ability to learn how to decode skills necessary for writing including correct spelling. They suggested a basic reason for
dysgraphia might be an impairment in the cognitive functioning of the individual but did not state which condition was the main reason. Rather, they proposed that while impaired cognitive function could be the cause of the dysgraphia, the dysgraphia could also be the cause of cognitive dysfunction.

According to Crouch and Jakubecy (2007), students with dysgraphia often demonstrate challenges with their working memory because they spend so much effort on the mechanical process of writing. The authors suggested the cognitive task of writing reduced students’ capacity to focus on anything other than writing. Learning the writing process teaches students how to put their thoughts into words--an essential part of learning how to communicate using writing. However, students with dysgraphia might experience a cognitive dysfunction that could also disrupt other academic patterns. The combination of challenges in writing, along with high effort and low working memory, could lead to high levels of frustration among students with dysgraphia, resulting in low motivation to learn or to even practice writing skills.

Engel-Yeger et al. (2009) suggested when students with dysgraphia have difficulty putting their thoughts into written words, they also have lower self-efficacy, which could lead to avoiding trying to write. The more they avoid writing, the more they feel they are not able to learn how to write. This negative cycle affects not only their writing but other academic abilities as well. Children who are gifted verbally but have difficulty writing due to dysgraphia might not be identified as twice-exceptional unless their cognitive abilities are fully tested (Assouline et al., 2010). Another part of understanding the cognitive patterns is to realize gifted students are usually excellent at compensating for any disability in areas where they are challenged. Compensation
comes at a cost because it “requires extra physical, emotional and cognitive energy” (Silverman, 2009, p. 3). Silverman (2009) suggested there are times when giftedness is more pronounced due to coping strategies seen as overachievement rather than giftedness. On the other hand, if compensations are not working for a gifted student, the student can be seen as not living up to potential instead of having a learning disability paired with giftedness. The author agreed with Assouline et al. (2010) that when these discrepancies interfere with cognitive functions as well as self-esteem, further testing needs to be considered before labeling a student as lazy or not living up to potential.

These studies indicated many students who are gifted and have learning disabilities use cognitive skills similar to those used by gifted students; these unique skills could be used as a compensation strategy that masks their learning needs. This raises the question of whether gifted students who have learning disabilities also compensate in other areas of their lives such as how they relate to others and how they view themselves. It is important to take into account the psychosocial factors characteristic of many gifted and learning disabled students.

**Psychosocial Factors**

Some of the research of twice-exceptional students who are gifted and have learning disabilities suggested they might be at higher risk for developing social and emotional problems (Assouline et al., 2010; Barber & Mueller, 2011; Dole, 2001; Reis et al., 1997; Vespi & Yewchuk, 1992). Many students who are twice exceptional have had negative experiences in school and have feelings of worthlessness, failure, and low self-efficacy (Nielsen, 2002; Reis et al., 1997). Students who are gifted and have learning disabilities might feel frustration because they expected to perform at higher levels than
their peers yet struggle with formal demonstrations of learning (Assouline et al., 2010; King, 2005; Vespi & Yewchuk, 1992). They might also be more disruptive in class than their peers (Barber & Mueller, 2011; Nielsen, 2002).

Vespi and Yewchuk (1992) conducted a phenomenological study of four gifted and learning disabled male students to illustrate the social and emotional issues they faced. They found while these students had a degree of positive self-image and self-confidence, they were often frustrated when dealing with their peers. At times, their social skills were unreliable depending on the social situation. They often had trouble interpreting nonverbal communication and would react inappropriately. Social conflicts they faced made it more difficult to relate to peers in their school, which led to feelings of anxiety. The students had very high expectations for themselves but expressed attitudes indicating they were afraid of failing at school, which resulted in negative attitudes about school in general. The authors suggested improving these students’ social skills would lead to higher levels of self-esteem. They also stressed family support was essential to improving social skills.

In 1997, Reis et al. interviewed college students with high abilities who had learning disabilities. All of these participants described having negative experiences in school that included negative interactions with teachers, a lack of interventions due to not being identified as either gifted or having learning disabilities, and grade retention. The participants felt their high abilities led to high expectations by teachers; when they were not able to meet those expectations, teachers berated them for being lazy or unmotivated and not living up to unreasonably high expectations.
In a study of 14 students who were gifted and had learning disabilities, Assouline et al. (2010) found these students demonstrated a wide range of psychosocial challenges. While several students reported feeling good about their environment, behavior, and friendships, many others reported varying degrees of anxiety and frustration. Parents and teachers also reported unusual and distracted behaviors, often at odds with students’ self-reports. The authors suggested in addition to evaluating the presence of giftedness and learning disabilities, it was important to also assess psychosocial concerns in order to develop appropriate educational recommendations.

Barber and Mueller (2011) compared social and self-perceptions of students who were gifted and had learning disabilities with three other groups of students: one group of gifted-only students, one group of LD-only students, and one group not identified as either gifted or learning disabled. They found the students who were gifted and had learning disabilities had significantly less positive perceptions of their relationship with their mother and lower self-esteem than either gifted-only or non-identified adolescents. The authors suggested twice-exceptional students might feel their parents have expectations that they outperform their peers; when that is not possible, twice-exceptional students have stronger feelings of frustration and lower self-concept. High expectations faced at home along with social challenges at school often resulted in a high incidence of disruptive behaviors in class, a resistance to schoolwork, and inattention at school. Because students who are gifted and students with learning disabilities often display atypical behaviors due to social skills deficits, the authors concluded for twice-exceptional students, it is critical to support each student’s unique psychosocial traits when developing an educational program.
Both Neihart (2008) and Nielsen (2002) found many students who were twice exceptional did not demonstrate high academic achievement due to the limitations of their disabilities. However, they often demonstrated frustration in class through disruptive behaviors. At school, these students often struggled to fit in with their same age peers, falling between the groups of students with learning disabilities, giftedness, and typical students. Both of these authors suggested a lack of true peers in the classroom might play an important part in why many twice-exceptional students demonstrated unruly classroom behaviors.

On a more positive note, Dole (2001) explored the implications of positive self-awareness on students who were gifted and had learning disabilities. The author found when these students received supports and participated in social activities, their educational achievement as well as psychological resilience increased. Thus, family and school support coupled with self-determination and self-advocacy skills resulted in positive identity development. Therefore, although many students who are gifted and have learning disabilities have negative school and life experiences, interventions that help students process negative feelings of anxiety, frustration, and anger, such as counseling and ongoing support, might help these students develop a more positive self-identity. In the following section, interventions that support twice-exceptional students are described both from the experience of individuals who are twice exceptional and from the perspectives of researchers who implemented specific interventions with students.

Effects of Intervention

Students who are twice-exceptional often have negative experiences at school due in part to a lack of supports available to them (Crim et al., 2008; Nielsen, 2002;
Olenchak, 1995; Reis et al., 1997). However, research suggested when students who are gifted and have learning disabilities are provided with interventions directed at their giftedness including instruction in compensation strategies, academic as well as psychosocial outcomes improve (Neihart, 2008; Olenchak, 2009). Reis et al. (2000) suggested early intervention might prevent twice-exceptional students from experiencing levels of frustration and anxiety and keep students excited about learning.

Willard-Holt et al. (2013) investigated the experiences of 16 twice-exceptional K-12 students regarding strategies and interventions they had used in their academic career. These students first completed an online survey where they identified learning strategies as either beneficial or not beneficial. The results of this study indicated strength-based strategies and interventions were among the most favored by the participants. The strongest indicator of positive results for developing giftedness was a group of strategies that included choice, flexibility, and having control over their own learning; whereas participating in collaborative work was the weakest strategy. Many of the participants stated the lack of supports necessary for both giftedness and their disabilities had delayed them in reaching their full potential even as they acknowledged their coexisting exceptionalities were a barrier to reaching their potential. Lack of understanding from teachers about their learning challenges, lack of accommodations provided to help them address these challenges, and, distressingly, sabotage by teachers were factors that interfered with their learning. Students who were most successful using compensation strategies found educational support from themselves and usually outside of school:

An important and disturbing contribution of this study is the finding that, even with all the progress made in gifted education and special education over the past 15 years, twice exceptional students still believe that schools are failing to help them reach their potential. (Willard-Holt et al., 2013, p. 259)
The students in this study clearly stated their experience was their school failed to help them to truly reach their learning potential despite the fact that many of these students were identified as gifted, were familiar with a range of coping strategies, and had experience with accommodations that supported their unique learning needs.

Unfortunately, this situation was not unique. Crim et al. (2008) found students with high ability and co-occurring learning disabilities often received fewer supports than students with average or below average abilities. Yet research has demonstrated when students receive strength-based supports and are treated as gifted first, their academic and psychosocial outcomes improve.

Two studies by Olenchak (1995, 2009) demonstrated the effects of providing interventions to students who are twice-exceptional. In 1995, Olenchak conducted a year-long study with 108 fourth through sixth grade students identified as having high ability and learning disabilities. These students completed two pre- and post-intervention tests to determine student attitudes toward school and learning. The intervention consisted of providing a highly structured enrichment program tailored to meet each student’s unique support needs; it incorporated elements of gifted programming into regular classroom instruction including curriculum compacting and accommodation of student-selected learning activities. Findings from this study concluded students made noteworthy gains in their self-concept, had more positive attitudes toward school, and demonstrated more creative productivity. In a 2009 study, Olenchak explored the effectiveness of a counseling program that aimed to increase critical thinking, cognitive skills, and self-concept of students who were gifted and had learning disabilities. The intervention took place in school through individual and group counseling sessions.
Specific strength-based goals were developed and included into each student’s IEP along with more standard remediation goals addressing each student’s needs. Findings suggested by practicing specific thought processes such as communication, productive thinking, decision making, forecasting, and planning, students become aware of how they thought about learning and were better able to integrate those processes into their daily education. Both of these studies provided evidence that twice-exceptional students who participated in interventions that aimed at supporting their strengths made measurable gains, particularly in their attitudes toward school and self-concept. It is clear both individuals who are twice-exceptional and researchers indicated using strength-based interventions had the greatest impact on student outcomes, particularly in outcomes related to developing a positive self-image, increasing their resilience, and improving educational achievement (Crim et al., 2008; Dole, 2001; Neihart, 2008; Nielsen, 2002; Olenchak, 1995, 2009; Willard-Holt et al., 2013). However, to provide appropriate supports for students with twice-exceptionality, these students must first be identified. The following section addresses some of the challenges of identifying students who are twice-exceptional.

**Challenges in Identifying and Serving Twice-Exceptional Students**

To date, research on the skills of classroom teachers in identifying twice-exceptionality has been limited concerning both teachers in classroom settings and teacher candidates. One study done in Texas school districts in 1989 by Boodoo et al. found 91% of the school districts were unable to identify students who were twice-exceptional. A similar study conducted several years later of Texas schools found nearly identical results (Tallent-Runnels & Sigler, 1995). Clearly, students who are twice
exceptional were not being identified in a timely manner nor did they receive services they needed in many districts. One reason for this might be many teachers were unaware of the characteristics and challenges these students had and, therefore, were not referring them for identification and services.

Teacher Perception of Students Who Are Twice-Exceptional

Beckley (1998) stated one challenge facing teachers was twice-exceptional students often presented as being simply bright students who had problems or who were disruptive in school—which was why giftedness and/or exceptional talents could be overlooked. When no disability or giftedness is noticeable, managing problem behavior in the classroom becomes the focus for many teachers and the possibility of twice-exceptionality is easy to dismiss. Leggett, Shea, and Leggett (2011) stated, “Students remain unqualified for any services because neither area of strength nor weakness is formally identified” (p. 1). This illustrated what Baum (1990) was referring to when she wrote, “The gift masks the disability and the disability masks the gift” (p. 3). With these considerations, it was easier to understand why teachers might not notice the phenomenon of twice-exceptionality.

In trying to understand how educators gain knowledge of twice-exceptionality, Foley-Nicpon et al. (2013) investigated the impact of experience and awareness for teachers who had control over their own practice. The results suggested educators who are familiar with giftedness more often have some basic understanding of twice-exceptionality than general education or special education teachers. The authors proposed one way to counteract the lack of awareness among teachers was for current professionals who had the knowledge and skills to identify and work with twice
exceptional students to share that information with colleagues, especially with general education and new teachers who might not have had the training necessary to identify twice-exceptionality.

In recent years, studies of students who were themselves twice-exceptional confirmed many teachers were lacking in even basic knowledge and understanding about twice-exceptionality (Assouline et al., 2010; Bailey & Rose, 2011; Barber & Mueller, 2011; Reis et al., 1997; Vespi & Yewchuk, 1992). This implied teachers were not necessarily trained or equipped to recognize giftedness in students with disabilities and suggested an examination of teacher preparation programs in relation to twice-exceptionality was necessary (Bianco & Leech, 2010; Brody & Mills, 1997).

While research has been conducted that demonstrated teachers had personal biases about students with disabilities or gifted/talented students (Bianco & Leech, 2010), there was a marked lack of research into teacher perceptions about students who are twice-exceptional and how these biases could interfere with the ability to identify twice-exceptionality (Baum, 1990; Bianco & Leech, 2010; Morrison et al., 2005).

**Pre-Service Teacher Perceptions of Students Who Are Twice-Exceptional**

Allday et al. (2011) investigated preservice teachers’ personal biases against students who had specific disabilities or oppositional defiant disorder (ODD) as well as being gifted and talented. The authors found when preservice teachers were made aware of the label attached to students who had specific disabilities or ODD, their observations became less objective and were both positively and negatively slanted. The same was true regarding the gender of the student. This study illustrated the significant effect
preconceived attitudes had toward students and their labels. Allday et al. stated, “Little research has examined the effects of labels on direct observation of student behavior” but the results of this study suggested “preservice teachers actually rated the emotionally disturbed student more positive than practicing teachers” (p. 53).

In 2005, Morrison et al. examined the attitudes of educators toward students who were twice exceptional. Participants included both current classroom teachers and preservice teacher candidates. The authors found teaching experience had a negative effect on perceptions. For example, in-service teachers rated students with disabilities more negatively than gifted/talented students while pre-service teachers were more positive about both groups of students. This might indicate when teachers had experience working with gifted students, they were more able to see their needs, especially if students required more attention. Similarly, when the same teachers had more experience working with students who had disabilities, this negatively affected their perceptions. This suggested teachers might not respond as positively to the needs of students with disabilities as they did for students who were gifted/talented. The authors suggested much more needs to be done to educate teacher candidates about twice-exceptionality and what to expect in the general education classroom.

The research was clear--teachers need training to be able to identify students who are twice-exceptional (Allday et al., 2011; Bianco & Leech, 2010; Davis et al., 2011; Foley Nicpon et al., 2013). Including more information about twice-exceptionality for pre-service teacher candidates might lead to teachers being able to identify students earlier and refer for appropriate programs when necessary (Davis et al., 2011). While the majority of pre-service teachers enter the teaching profession with a view to helping
children succeed, they can nonetheless have preconceived ideas about the career they are entering as well as the students with whom they will work. The reasons why preservice teachers want to become a teacher vary greatly across teacher candidates.

One challenge for students who are gifted and have LD is few of their teachers understand the challenges they experience at school. These students often do not see themselves reflected in their teachers, the majority of whom are neither gifted nor have a disability, and their teachers often do not recognize their students’ challenges (Bianco & Leech, 2010; Willard-Holt, 2008). One way to address this discrepancy could be to encourage wider diversity among teachers by encouraging individuals who are gifted, have LD, or are themselves twice-exceptional to become teachers. However, individuals with these qualifications rarely become teachers. In the following section, post-school outcomes of individuals who have learning disabilities, are gifted, or twice exceptional are discussed.

**Post-School Outcomes of Students Who Are Gifted and Have Learning Disabilities**

There is a lack of research addressing post-school outcomes of students who are twice exceptional. However, researchers have explored the post-school outcomes and career choices of students with learning disabilities as well as students who are gifted (Gerber, 2012; Holliday, Koller, & Thomas, 1999; Sanford et al., 2011; Willard-Holt, 2008). The National Longitudinal Transition Study-2 (NLTS2; Sanford et al., 2011) provides some insight into post-school outcomes of students with disabilities in the U.S. According to Sanford et al. (2011) who wrote the key findings from this study, students with disabilities were somewhat less likely to continue their formal education after they
graduated from high school (55% for students with disabilities versus 62% for same age non-disabled peers) and were somewhat less likely to participate productively in community activities (85% versus 95%). However, students with disabilities were equally likely to have paid employment as their non-disabled peers.

**Barriers and Supports for Career Choice**

Gerber (2012) conducted a meta-analysis of literature related to adults with LD and how these adults adapted to common areas of adult functioning including employment, independent living, establishing a family, and participating in recreational opportunities. A review of the literature found although employers often expected adults with LD to self-disclose their disability and accommodation needs, many adults with LD failed to disclose this information due in part to a lack of knowledge about their rights as individuals with disabilities and subsequent lack of self-advocacy skills and in part because many adults with LD believed they no longer had LD after they graduated from high school. Gerber referred to the importance of students with learning disabilities building self-efficacy, which is especially significant in how adults make career choices:

> Therefore, the processes of self-advocacy become of utmost importance. They need to know who they are, how LD affects them in a variety of adult settings, and how to compensate for any deficiencies. Moreover, they should be able to discuss their specific challenges and collaborate on compensatory actions and accommodations with friends, family, and employers to experience success. (pp. 43-44)

Literature from the meta-analysis found individuals with LD were able to live successful lives. The most successful were those who were most self-aware and who were proactive, set clear goals, and used available social supports. An interesting finding was a clear negative connection between the adult’s literacy level and their later
economic success. Success was related less to the individual’s IQ and more to the severity of his/her LD.

In 1999, Holliday et al. conducted a study to explore how adults with both high IQ and learning disabilities were adjusting to life after high school. The authors started with a pool of 3,500 adults from a university clinic who had been referred by the state’s vocational rehabilitation for learning disability assessment. Of the 3,500 adults, 140 were identified as having both a high IQ and a learning disability and were sent questionnaires. Of these 140, the authors received 80 responses. The responses indicated although 92% had graduated from high school, only 21% had completed more than four semesters of college. Although nearly half of the respondents indicated a desire for completion of either a four-year degree or a certificate program, less than 20% of these individuals had completed their goals, and 40% stated they were still working on reaching their goals. A full 95% of these participants had never been told they had exceptional abilities either at school or in an adult vocational program. In discussing how learning disabilities often outweighed giftedness, Holliday et al. stated many of the participants were “functioning at levels consistent with their LD deficits rather than at levels commensurate with their identified intellectual strengths” (p. 266). The authors recommended schools should work on “improving psychosocial and academic programs to encourage students identified as gifted” (p. 276) to better prepare twice-exceptional students to succeed following high school.

Students who are gifted and talented often face unique psychosocial challenges. Despite their demonstrated high ability, gifted students are often at risk of failing at school due to lack of support at school, underachievement, lack of career direction due to
multipotentiality, and psychosocial factors such as not fitting in socially with peers and depression (Nielsen, 2002; Peterson, 2002; Reis et al., 1997). In 2002, Peterson conducted a longitudinal study of 14 participants, all of whom were gifted and at risk of poor educational outcomes. Themes explored included gaining autonomy, developing a mature relationship, and developing a career direction. At the end of this four-year study, while three participants had graduated from a four year program, nine of the participants had yet to develop a clear career focus and commit to a career path. Among the challenges faced by the participants, establishing a career direction could be difficult when there are too many alternatives. Findings from this study suggested participants’ persistent underachievement was only resolved once they had resolved issues with their families and developed autonomy.

Research has shown students who are twice-exceptional often face challenges related to both their giftedness and their LD (Barber & Mueller, 2011; Dole, 2001; Olenchak, 1995; Reis et al., 1997; Vespi & Yewchuk, 1992). Crim et al. (2008) found students who were twice exceptional were less likely to receive assistance than either students who were gifted or those with LD. Yet in his meta-analysis of post-school outcomes of individuals with LD, Gerber (2012) reported a number of studies found individuals with LD were more successful when they were knowledgeable about their disability, the accommodations they needed, and were able to self-advocate for supports. In her study of twice-exceptional students in secondary education, Dole (2001) found when these students received supports, their resilience and educational achievements both increased.
While Holliday et al. (1999) studied the outcomes of high IQ individuals with LD and Gerber (2012) reviewed the existing literature of adults with LD, no studies were found that explicitly addressed the career choices of individuals with LD. Only one study was found that addressed the career choice of a student who was twice exceptional. In this qualitative study, a twice exceptional participant described the reasons he wanted to become a teacher. He wanted to work with students who faced challenges similar to those he had faced as a student and he wanted to make a positive difference in their lives. He also wanted to prove that students who receive special education services can be successful in life because he had attended a special education classroom (Morrison, 2000).

Research on post-school outcomes of individuals who have learning disabilities and those who are gifted was sparse. However, research that does exist suggested these individuals were willing to work toward goals and skills such as self-advocacy improved their chances of success. Yet few appeared to choose a career in education. In the following section, motivations for why individuals choose a career in education are described.

**Teacher Motivation**

Pre-service teachers choose to become teachers for a number of reason including professional and material motives as well as personal and social reasons (Alsup, 2006; Bruinsma & Jansen, 2010; Kuswandono, 2014; Watt & Richardson, 2008). Motivating factors are often divided into internal and external factors. Internal factors include having inspirational teachers during one’s own education, working with and having a positive impact on children, and enjoying content areas; external factors include job security, the
According to Watt and Richardson (2008), up until 1990, most pre-service teacher candidates were motivated by intrinsic factors such as a desire to work with children and personal fulfillment as well as altruistic factors such as a desire to be of service and make a contribution. However, between 1990 and 2005, motivations for becoming a teacher shifted in part due to the increase of negative depictions of teachers in the media and changes in teacher status and public opinion of the teaching profession. During this time, more pre-service teachers were motivated by extrinsic and altruistic factors than previously. A large-scale study into Australian pre-service teacher candidates’ motivation in 2006 by Richardson and Watt found motivating factors included intrinsic factors and social utility factors such as making a contribution to their community and enhancing social equity. The authors also found negative motivation factors such as going into teaching due to family pressure and having a fallback career.

A frequently given reason preservice teachers gave for wanting to become a teacher was good experiences with teachers throughout their own education (Alsup, 2006; Beauchamp & Thomas, 2009; Watt & Richardson, 2008). Alsup (2006) explored the development of teacher identity by following six preservice teachers through their teaching program. One finding of the study was the majority of these students were motivated to become teachers based on previous positive experiences with teachers in the past as well as influences from friends and families. Alsup claimed this continuity between past and present experiences was an important factor in the development of a professional identity as a teacher. For preservice teacher candidates, their family and
cultural background also affected their understanding of teaching and education as these could help to create a bridge between their personal life and their professional identity. Conversely, the cultural background of a preservice teacher as well as previous negative educational experiences could also affect the professional identity development of preservice teachers.

Some preservice teachers plan to be a teacher because they enjoy learning more about their content subject and feel teaching will provide them with the opportunity to use their subject on a daily basis. In 2015, Kuswandono conducted a study exploring the experiences and motivations of 13 pre-service teacher candidates in Indonesia. While two of the teacher candidates always wanted to become teachers, others were motivated to attend the teacher education program by family pressure, the desire to have a stable job, and by a personal sense of social responsibility. Several of the students in this study were motivated to become teachers after seeing the effects of poor educational practices on children in their community. An interesting finding in this study was the majority of the students interviewed were highly motivated to improve their content education in English. They were more interested in improving their English skills, which they saw as a path to a rewarding career, than in becoming a teacher.

A survey by Kyriacou, Hultgren, and Stephens (1999) explored the motivations of two groups of preservice teacher candidates--one group from Norway and one group from England--for choosing a career as a teacher. The highest rated responses for both groups included enjoying the content subject they would go on to teach and working with children. Other motivations included the perception that teaching was a socially meaningful career, enjoying classroom instruction, and long holidays. By contrast with
the Kuswandono (2014) study where intrinsic and extrinsic motivations among preservice teacher candidates were about equal, most motivations given in this survey were intrinsic.

Research suggested preservice teacher candidates who were more deeply motivated to become teachers would participate more actively in their teacher preparation program, display more interest in the profession of teaching, and were often more likely to stay in the profession (Akarsu & Kariper, 2015, Bruinsma & Jansen, 2010). Bruinsma and Jansen (2010) conducted a survey on preservice teacher motivation and self-efficacy to determine if there was a relationship between these factors. The authors found the majority of students surveyed gave intrinsic motivations for wanting to become a teacher and these students also intended to remain in a teaching career the longest. These students were also more positive about their teaching experiences in their preservice teaching program and indicated higher self-efficacy than students with extrinsic motivations. However, students with extrinsic motivations that enhanced their engagement in the teacher education program and increased their motivation to become a teacher also planned to remain longer in the profession than students whose extrinsic motivations included having a fallback career or pursuing teaching because their family felt it was a good option for them.

Clearly a number of motivating factors are in play when a student decides to become a teacher. Different cultural and economic factors have the power to shape an individual’s career choice as well as their level of satisfaction with their career choice. Regardless of the motivation for wanting to become a teacher, pre-service teachers’ engagement, self-efficacy, and desire to master their subject all influence how long they remain in their profession.
Willard-Holt (2008) conducted a qualitative study exploring the career choice of 18 gifted female pre-service teacher candidates. While all of the study participants were committed to becoming teachers, two-thirds of the participants reported they were actively discouraged from becoming teachers by their friends and family due to the perceived low status of the teaching profession. Although not specifically encouraged to go in other directions, most of the participants reported they were told they should live up to their potential and choose a more prestigious and a more respected career than teaching. However, the majority of participants saw teaching as an intellectually challenging profession and were committed to becoming teachers. The participants in this study cited several reasons for wanting to become a teacher including they enjoyed working with children, teaching was a profession that could be combined with raising a family, and personal fulfillment. Participants stated they enjoyed their content area and wanted to pass on their own joy of learning to students. One of the benefits described in this study was gifted teachers could provide their gifted students with unique opportunities for both instruction and as a role model.

**Summary**

Twice-exceptionality is the phenomenon of a student with one or more disabilities who is also gifted and talented (Baum, 1990). Students who are twice-exceptional are among the most underserved populations in general education classrooms in schools today due in large part to challenges with identification and services (Crim et al., 2008; Nielsen, 2002). For students who have learning disabilities and giftedness, each of these two conditions might mask the presence of the other. Their giftedness could mask the effects of their learning disabilities and result in students not being identified as having a
learning disability while their learning disabilities might prevent them from the academic performance often associated with giftedness. This masking effect, coupled with the lack of awareness of twice-exceptionality among many teachers, might lead to fewer students being referred for assessment, identified as being twice-exceptional, and receiving the supports they need to reach their full academic potential (Baum, 1990; McCallum et al., 2013; McKenzie, 2010; Nicpon et al., 2011; Yssel et al., 2014).

Throughout history, there have been gifted/talented individuals, individuals with a variety of disabilities, and individuals who could have been labeled as twice-exceptional. However, without being aware of the potential of gifts and talents that have been masked by disabilities or disabilities being masked by giftedness, many high ability students have been left to struggle alone with their challenges while knowing there was something missing. One of the challenges these students face in the classroom includes the feeling of not belonging or not knowing where to belong in the world of gifted students or of students with disabilities (King, 2005). For many twice exceptional students, this has led to feelings of anxiety, frustration, and low self-worth (Assouline et al., 2010; Barber & Mueller, 2011; Reis et al., 1997; Vespi & Yewchuk, 1992). All students need the guidance of teachers and parents to help them find the best way for them to learn but for twice-exceptional students, sometimes the best way is hidden and hard to find.

This chapter examined issues related to identifying and serving students with disabilities, in particular, LD students who are gifted and talented, and co-occurring disabilities with giftedness called twice-exceptionality. Most of the currently existing research was conducted on identifying the characteristics of students who are twice-exceptional, examining referral and identification practices, and recommending best
practices for teachers and schools. There has been a strong emphasis on improving classroom teachers’ sensitivity to students in their classroom who might be twice-exceptional since it is the classroom teacher who most frequently initiates identification and referral processes. However, exploring the lived experiences of students who are twice exceptional provides a unique awareness of the challenges and successes these students face, both in and outside of school. Additionally, listening to the voices of these students who have first-hand experience with twice-exceptionality, understanding their perceptions and perspectives, and sharing their insights would provide a much-needed addition to the research on twice-exceptionality.

Research has identified a wide variety of challenges when it comes to identifying and serving twice-exceptional students (Nicpon et al., 2011; Nielsen, 2002). A major challenge for students who are twice-exceptional is the persistent misconception that giftedness is global--teachers expect if a student is gifted in one area, that giftedness carries over into all areas. If teachers believe students with disabilities cannot also be gifted or students who are gifted cannot also have a disability, chances are higher students’ true needs in either area will be overlooked (Bianco & Leech, 2010; Zirkel, 2004). Additionally, when students with emotional behavioral disabilities or learning disabilities act out in frustration in the classroom, teachers often view these disabilities as so negative that the behavior overshadows any special gifts or talents a disruptive student might show occasionally (Bianco & Leech, 2010). While it is undoubtedly challenging for teachers to identify twice-exceptionality in the general education classroom setting, it is often far more difficult for students to understand their own challenges. They might know they have a complex understanding of concepts and learn things quickly but they
often do not understand why they cannot read or write as well as their peers. Ultimately, teachers need to accept the challenge of learning more about disabilities, giftedness, and twice-exceptionality so they can meet the needs of all students in their classroom.

People choose to become teachers for many reasons. Motivating factors include the desire to work with children, being interested in the content they want to teach, having a stable and reliable career, the social status of being a teacher, as well as pay, benefits, and holidays. Some individuals are also motivated by altruistic reasons such as making a difference in their community, helping students succeed, and feeling teaching is a socially worthwhile occupation. While special education teachers are focused on supporting students with specialized support needs, many students who are twice exceptional need supports in the general education classroom. Therefore, it is important that general education content teachers also know how to support the unique learning needs of all students in their classroom. The more engaged a preservice teacher is in the teacher education program and the more motivated a student is to become a teacher, the higher the likelihood the preservice teacher will become a long-term professional teacher.

Chapter III presents detailed information about qualitative research and case study design as well as a description of the methods used in the study to collect and analyze the data. A narrative case study design was utilized in this dissertation, relying on personal interviews and artifacts to explore the lived experience of a single participant with twice-exceptionality in order for others to better understand how twice-exceptionality affected his life and influenced his career choice.
CHAPTER III

METHODOLOGY

The purpose of this study was to explore the experiences and perspectives of one twice-exceptional university student identified with learning disabilities and giftedness in order to understand how his experiences of being twice exceptional influenced his identity development, his perspectives on teaching and education, and, ultimate, his career choice. To capture his experiences and examine these topics, a qualitative case study method was used to explore the participant’s perspectives through a series of in-depth interviews and a review of artifacts.

For this qualitative research, I focused on the experiences of a student identified as twice-exceptional. Merriam (2009) explained, “Basic research is motivated by intellectual interest in a phenomenon and has as its goal the extension of knowledge. Although basic research may eventually inform practice, its primary purpose is to know more about a phenomenon” (p. 3). Qualitative research looks at particular subjects or phenomena to explain what they might mean. In this case study, the phenomenon of twice-exceptionality was specific to the purpose of the research.

This chapter presents and discusses the following: (a) qualitative research and case study design, (b) the participant and setting of the research, (c) data collection procedures including the interview instrument, (d) data analysis using coding and the emergence of themes, and (e) trustworthiness and researcher biases.
Methodological Framework

The nature of qualitative research is to reveal the everyday meanings people give to “a social or human problem” (Creswell, 2014, p. 4). Qualitative research also usually uses inductive reasoning as opposed to the deductive reasoning of quantitative research (Creswell, 2014; Merriam, 2009). Using the qualitative method, the researcher used induction to develop open-ended questions to discover general themes constructed of specific data collected. Usually, qualitative research relies on how the researcher analyzes and interprets the meaning of the data collected. The nature of qualitative research is also defined by the processes the researcher uses to collect the data and the research design such as using semi-structured interviews. Where quantitative research is objective, qualitative research is subjective. It is an open inquiry into the lives and interactions of people in the social world. Quantitative research relies on specific instruments such as Likert scale surveys, whereas the researcher is the instrument in the data collection (Creswell, 2014).

Qualitative research is grounded in philosophies concerning the nature of reality (ontology) and knowledge (epistemology; Creswell, 2014; Merriam, 2009). The theoretical approaches to or the epistemological perspectives of qualitative research include positivism, interpretive/constructivist, critical, and postmodern (Creswell, 2014; Merriam, 2009). The interpretivist/constructivist perspective interprets the data to construct meaning. This approach is limited by the context of the phenomenon being studied. Methodologies that form the foundation of qualitative research include ethnography--the study of customs and cultures, hermeneutics--a way of interpreting forms of knowledge, grounded theory--when qualitative and inductive research leads to
the creation of theory, narrative analysis--uses stories as data, and phenomenology--focuses on the lived experience of the participant (Creswell, 2014; Merriam, 2009).

The lived experiences of the participant for this study created the narrative.

This dissertation was a narrative case study (Stake, 1995). The information gathered provided insight into the issue of how twice-exceptionality affected an individual student through an exploration of his history using interviews, questioning key informants, and reviewing artifacts. Data gathered were used to construct an interpretation of the narrative of one student’s life experiences.

Case Study

There are several definitions of case study in research. The most straightforward definitions have been put forth by Merriam (2009)--“an in-depth description and analysis of a bounded system” (p. 40) and Creswell (2014)--“a rich, detailed description of a central phenomenon” (p. 66). Creswell (2014) used the definitions of Stake (1995) and Yin (2009) to explain that case studies are bounded by time and context. They explore a case over a specific, finite period of time and within a specific context; a range of data can be collected that covers the bounded period of time.

Case studies are used by researchers in many disciplines to create “an in-depth analysis of a case, often a program, event, activity, process, or one or more individuals (Creswell, 2014, p. 14). Others describe types, designs, and purposes of case studies instead of defining the term. These can include maintaining the importance of study rigor by using only a single case because using more cases in one study might weaken the meaning or describe different types of studies such as evaluative, interpretive, or factual (Zucker, 2009). Yin (2009) emphasized the case study should focus on the process the
researcher uses as a case study is an empirical study. For Stake (1995), a case study is to be considered the unit of research. Definitions can make the process of deciding to use a case study method difficult.

Whether it is a strategy, a method, a unit of study, or simply an end-product, a case study is an in-depth exploration of a particular phenomenon interpreted by the researcher. Merriam (2009) emphasized it is the unit of analysis that is important in the definition of case study--not what is to be researched. The current study was bounded by a specific timeframe and context--in this case, Ryan’s experience of being twice-exceptional as a public school and university student currently enrolled in a teacher education program--and thus qualified as a case.

When conducting research, the researcher must also decide on the method, the process, and the design of the case study. Gathering data for a case study can be an extensive process since data can include archival information concerning the biography of the participant. In the current study, in-depth interviews with Ryan and information gathered from other key informants were combined with artifacts such as report cards, assignments, and results from standardized tests.

In a case study, gathered data are reviewed for emerging patterns and themes. In the current study, the researcher’s own personal experiences and the literature helped place the data within a specific context that could be analyzed. An iterative process was used to analyze the content as each round of analyzing the data was used to identify recurring themes and patterns across interviews, email responses, and a review of the artifacts. This process of analysis uses inductive reasoning referred to as “naturalistic generalizations” (Creswell, 2014, p. 66). This case study as a research method built a
narrative rich in detail to explore the naturalistic occurrence of particular experiences in Ryan’s life.

**Research Questions**

The following research questions guided the study:

Q1    How has the lived experience of being twice exceptional influenced one student who is planning to become a teacher?

Q1a   How did his experience shape his identity development?

Q1b   How did this experience inform his perspective on teaching and education?

Q1c   How did his experience influence his career choice?

**Methods**

**Participants**

There was only one student participant for this case study; the understanding was this one individual represented a revelatory case (Yin, 2009). The expectation was information provided from an individual participant could reveal more about the phenomenon of twice-exceptionality. This individual sample was selected because a willing participant was available for study who met the parameters of the phenomenon being studied (Merriam, 2009).

Convenience sampling was utilized to locate a participant who met the research criteria of this study: (a) identified as both having learning disabilities and giftedness by an educational professional, (b) a university student, and (c) currently participating in a teacher education program. The criteria were developed to research the lived experiences of a current university student who had lived with twice-exceptionality throughout his school experience. Since the participant was deliberately chosen because of the qualities
One of those qualities, being enrolled in a teacher education program, became a research criterion. The participant selected for this study was brought to the attention of the researcher by a committee member.

Once the participant agreed to participate in the study, five key informants related to him were identified: his parents, two close friends, two high school teacher, two professors in his current university program, and a graduate assistant who knew the challenges the participant faced in his program. Each informant was selected to add information, perspective, and insights into the case under study. The participant was asked to identify key informants and to give contact information to the researcher. Limitations emerged in trying to get information from all the key informants he identified, i.e., his parents did not take part in the research. One of his closest friends never responded to email requests for information and one of his high school teachers instrumental in identifying his disability could not be contacted. A description of each participant follows. Each participant was given a pseudonym for this study.

**Ryan.** Ryan is a 23-year-old male residing in the same town as his parents and is enrolled in the nearby university. He is currently finishing his teacher preparation program at the university. Ryan was identified as gifted as early as kindergarten. Ryan later learned he has dysgraphia, which is a learning disability.

**Mr. H.** Mr. H is a high school history teacher who responded to an email request for information. Ryan was a teacher’s aide for a math class taught by Mr. H. Mr. H participated in a 504 meeting with Ryan and Ryan’s mother. Mr. H was also aware of extra-curricular activities in which Ryan took part.
**Dr. E.** Dr. E is a math professor at the university who completed the emailed questionnaire. Ryan had an opportunity to teach a math class with Dr. E. Ryan identified Dr. E as one of his professors in whom he was able to confide in and to ask for help.

**Dr. Z.** Dr. Z is another math professor at the university and Ryan’s advisor. Dr. Z agreed to the request for information and responded to the questionnaire. Dr. Z supported Ryan’s career choice and helped him get involved in the math secondary teacher education program (STEP).

**Ms. R.** Ms. R is a teaching assistant in the math department at the university who responded to the email request for information. Ms. R worked closely with Ryan in STEP.

**Bill.** Bill is a friend whom Ryan met in high school. Bill and Ryan attended almost all the same classes throughout high school. Bill was one of the students who noticed Ryan’s challenges and instead of making fun of Ryan, Bill offered his help and friendship. Bill and Ryan are still close friends.

**Setting**

The setting for this study was a mid-size metropolitan university close to the Rocky Mountains. All interviews with the participant were conducted at a time and location convenient to the participant. The participant was interviewed in a quiet, private room on campus. The five key informants were sent an email requesting their participation. Those who responded positively were emailed a questionnaire to complete and return through email.
Data Collection and Procedures

The first step in conducting the current study was to obtain Institutional Review Board approval (see Appendix A). Once this was obtained, the researcher met with the participant to explain the purpose and outline of this study. At that time, the participant was provided with a written informed consent form which he signed (see Appendix B). The participant was informed of his right to withdraw at any time without consequence as well as the benefits his participation would provide to the field of twice-exceptionality.

Data were collected through the use of interviews, field notes, an online questionnaire, and artifacts. Creswell (2014) explained when the researcher gathers data directly from participants through interviews as well as examining physical artifacts, the researcher becomes a part of the research instrument. In this case, I also functioned as an observer, a participant, a data collecting instrument, and an interpreter, guiding and focusing the process of the interview (Yin, 2009).

Interviews

The interview is a major component of qualitative research. It is a particularly useful tool when participants are relied on to provide their personal story or biography. When the researcher meets with participants face-to-face and asks direct questions in a naturalistic setting, the researcher becomes the primary research tool (Creswell, 2014). Interviews can be structured, semi-structured, or unstructured based on the level of control the researcher wants to maintain (Merriam, 2009). A structured interview follows a script from which the researcher should not deviate. Semi-structured interviews use both structured and unstructured questions, thus giving the researcher a measure of flexibility in controlling the interview while also allowing the participant to ask questions
and clarify responses. The semi-structured interview is especially useful when the researcher wants to discover more about the phenomenon being studied as it allows for greater depth by using follow-up questions, redirecting the conversation, and uncovering unexpected responses from participants. For this case study, I used a semi-structured interview format. The interview questions can be found in Appendix C.

Although three interviews were planned, two additional follow-up interviews were necessary so five interview sessions were conducted. Each interview took between 90 minutes and two hours. Prior to recording the first interview, I explained the nature of the research and the goals of this study. I then shared the benefits and potential risks of participating in the study with the participant. I also informed him he was free to terminate the interview at any time and if he wanted to withdraw from the study, his wishes would be respected and there would be no adverse consequences for him. After this conversation, I gave the participant the informed consent form to sign. The participant also made an audio-recorded statement agreeing to have the interviews recorded. A fifth interview was included as a follow-up to allow the participant to check for errors and make any necessary additions.

At the start of the first interview, Ryan was asked to respond to four qualifying questions to determine whether he was in fact a twice-exceptional student and he was attending the teacher preparation program at the university. The semi-structured questions in the first interview focused on his current experiences at the university. The responses provided by Ryan resulted in minor modifications to subsequent interview questions. The semi-structured interview questions in the second interview focused on Ryan’s experiences in the K-12 education system. Specifically, questions were asked
about being identified as having a learning disability, being identified as being gifted, and having him share his personal experiences at school. During this interview, Ryan was also asked about his strategies for succeeding in school and about making the decision to attend the teacher preparation program at the university.

The third interview concentrated on Ryan’s relationships with his family. Questions included what part his family played in his identification of being twice-exceptional and to describe the support he received from his family. The participant was also asked what types of support his family received from his schools. Member checking was used by having Ryan read the transcript of each interview within 24 hours of the transcript being completed. This allowed Ryan to make any corrections or clarifications to each interview.

Two follow-up interviews became necessary. The fourth interview addressed artifacts collected by the participant to provide support for his experiences of being gifted, struggling with writing, and assessments he had done as a child. The fifth and final interview consisted of eliciting clarifications of previous responses and statements and a small number of follow-up questions to determine if the participant had anything additional to add. The fifth interview was conducted after analyzing the data gathered in the first four interviews. Member checking was also conducted following these two follow-up interviews.

According to Merriam (2009), the interview process must endeavor to maintain a level of ethical concern for the participant. To ensure the wellbeing of the participant, each interview was kept to a reasonable length of time and I frequently checked in with the participant to make sure he was comfortable. Each interview was audio recorded
using a digital recording device. Audio recording was necessary to obtain an accurate and reviewable transcript of what was said (Yin, 2009). After each interview, the recording was transcribed into a Word document using a transcription service. Field notes were also taken during the interviews that described the physical and emotional demeanor of the participant as well as my thoughts and questions regarding the content of the interview.

**Questionnaires**

Each of the five identified key informants was sent a request through email asking them to participate in the study. Once they agreed to participate in the study, these key informants were sent an email containing a consent form and specific questions aimed to capture the perspectives of people close to the participant and who could speak to the strengths, challenges, and supports he had received. Because their roles varied and because they had known the participant at different times of his life, there were three sets of questions; each was designed to uncover a specific aspect of the participant’s life. The consent form containing these questions can be found in Appendix D.

**Artifacts**

Personal documents and artifacts were solicited from the participant to document many of the experiences he had experienced growing up (Yin, 2009). These documents included two report cards from kindergarten and first grade with teacher notes, a standardized test result in reading from first grade, drawings completed in elementary school, two writing assignments from second grade, and an achievement award from fourth grade. The importance of using documents and artifacts was they were not “dependent upon the whims of human beings whose cooperation is essential for
collecting good data through interviews” (Merriam, 2009, p.139). These archival items were examined and mined for information that illustrated any of the twice-exceptional characteristics of the participant. Artifacts were limited because Ryan indicated he could not find all of his papers from when he was in school. There was no opportunity to collect artifacts from either of his parents, who declined the invitation to take part in the study, or from Ryan’s elementary, middle, and high schools.

**Field Notes**

Immediately following each interview, I noted my impressions of Ryan and how he responded to the interview. I also noted the time and place of the interview as well as the general environment, i.e., any distractions to the interview. My field notes included the difficulties I faced when Ryan would forget to ask his mother for confirmation of details and how hard it was for Ryan to find and share artifacts with me. I used my field notes later to realize when and where my own biases were interfering with the data collection process. The field notes were important for cross-checking my impressions of the interviews with the transcripts. I also used field notes to indicate what questions I needed to follow-up on or to note discrepancies in Ryan’s responses.

**Data Analysis and Procedure**

The quality of qualitative research relies on how well the data are analyzed. The purpose of data analysis is to make sense of the vast amount of data collected (Merriam, 2009). Analyzing the data that have been collected is how results are formulated and understood as well as crafting the findings in the final report. Data analysis is an ongoing process that takes place throughout the research, often starting in the research planning phase; analysis includes information from the researcher journal as well as field notes.
that describe the thoughts behind decision making throughout the study (Creswell, 2014).
This intensifies once all data have been collected and interviews have been completed. The analysis helps the researcher decide which information gathered actually informs the research and answers the research questions.

**Analysis Process**

Data used in this study were gathered from interviews with Ryan, other answers from key informants, and reviewing a limited number of artifacts. As each interview was completed and transcribed, I started to analyze the transcripts, looking for categories and patterns within the data. Responses to the questions asked of the key informants were analyzed to confirm information gathered from Ryan and to add to the narrative of who Ryan is. The artifacts examined also added to the narrative as they were analyzed. Finally, I reviewed all of the field notes and added salient notes to the analysis. The analysis took place during the data collection process and allowed me to determine the follow-up questions needed to clarify statements and capture a fuller picture of Ryan’s experiences. This process helped me determine when I had reached a point of data saturation and decide further data collection was not necessary to add to the final narrative.

The steps used for data analysis for this study followed those outlined by Merriam (2009). Field notes, review of artifacts, questionnaire responses, and transcriptions collected were read multiple times to ensure each one supported the other. Ryan was asked to read the interview transcripts as well and add any additional information or comments he felt would clarify his responses. This was done to insure the record was accurate as well as to add to the reliability of the transcription. Using Merriam’s criteria
rereading the notes and transcripts—allowed me to become fully immersed in the data and continue until no further new information or ideas were revealed.

An important part of the analysis procedure was to ensure my personal assumptions and biases did not affect the analysis with the expectation of specific findings. The method I used to identify possible personal bias involved bracketing my own personal experiences, familiarity, and views as much as possible to make sure they did not interfere with how the data were coded, organized, and interpreted. For example, as I bracketed the transcript of the unstructured questions that came up in the first interview, I realized I was trying to get Ryan to give me information I wanted to hear. As soon as I bracketed this on the transcript and became aware this was what was leading me to ask leading questions, I stopped and let Ryan respond to the structured questions. The follow-up questions I asked were then simply used to help Ryan clarify his own meaning or to correct any errors he found.

**Constant Comparative Method**

According to Creswell (2014), data analysis in qualitative research is an important step in the inductive reasoning process as the data lead to themes, which then lead to interpreting the meaning. In this study, I used a constant comparative method as the analysis process (Merriam, 2009). This method consisted of several steps of analysis. Data were first coded using an open coding process where I inspected the data for similarities as well as differences and then organized the data into categories for each transcript. In this study, open coding was used to code excerpts from the transcribed participant interviews, responses from informants, and information found in artifacts. Coding was done by adding notes to the margins of each transcript, highlighting phrases
and key words, and identifying data segments that corresponded directly to the research questions. A separate list of key terms was created for each transcript and for the field notes. The lists were compared to begin recognizing emerging patterns and developing initial categories. Once the data were organized into categories, each category was examined to determine the common properties. Axial coding was then used to determine the connections between the categories. This step helped me connect individual categories into groups with main categories and subcategories and to connect similar categories into broader themes. Throughout this study as new data were included in the study, I used both coding procedures to continue to refine the themes that emerged from the data.

**Category identification.** Several tools and strategies exist to help organize the coded data into hierarchal schemes. One such method is the development of concept maps--where data are aligned with an initial categorical label (Merriam, 2009), which I included in the results. Triangulation of data from the interviews, field notes, and notes relating to the artifacts were also useful in identifying common categories and recurrent ideas. Through reviewing the data and comparing data from the four data sources used in this study, some initial categories were changed and the organizational scheme was revised and refined until saturation was reached. Merriam (2009) termed this point when no additional insights or understandings are forthcoming. During the fifth interview, Ryan was repeating information that had already been discussed. At this point, I felt confident saturation had been reached; I had obtained as much information as I could gather from Ryan.
**Storylining and theme development.** As the interviews proceeded, analytical storylining was used to develop the participant’s biography. A storyline is used to put the story of the participant into chronological order (Saldaña, 2013). This is one way to find patterns in the storyline that can be analyzed. Commonalities and patterns within the storyline combined with the categories are used to identify any themes within the aggregate data from all of the interviews. As themes emerge from the data, they can be used to explore the progress of the participant’s life as well as define major principles and beliefs the participant developed throughout his life. To maintain a systematic review in line with the purpose of the study, it is important to assign names to major themes that emerge. Theme names can come from findings in previous research, from the researcher through the analysis process, or possibly from comments the participant made during the interviews (Merriam, 2009). Constructing themes can reflect the interpretation of the researcher and/or the participant. Ultimately, themes should be responsive to the purpose and research questions, be exhaustive, mutually exclusive, and conceptually congruent (Merriam, 2009).

**Linking the data to develop explanations.** Once the main themes emerged from the data, I created a concept map of the themes to visually illustrate how these themes were connected to each other. Merriam (2009) suggested the construction of a visual graphic was helpful at this point in illustrating relationships among the categories and themes. I created the concept map to see the larger patterns within the data and also to determine which, if any, of the themes were outliers. By reducing the amount of narrative, of which qualitative research consists, and replacing this with color coded labels, I was more readily able to identify the connections between the themes and see
how these themes connected with previous research. Yin (2009) referred to this point of data analysis as organizing the case study database.

**Trustworthiness**

The value of qualitative research is determined by the trustworthiness of the research (Lincoln & Guba, 1985). Trustworthiness is established by examining the evaluative criteria of credibility, confirmability, dependability, and transferability. Credibility is used to validate the accuracy of the collected data. Confirmability refers to the objectiveness of the researcher toward the research. Dependability demonstrates the consistency of the findings so given the same data another researcher could derive the same or similar findings. Finally, transferability means the findings have applicability in other settings (Merriam, 2009). Qualitative research is based on the collection of thick, rich descriptions of the phenomenon being studied and the interpretation of that data. It was vital, therefore, that I establish how trustworthiness was accomplished.

**Credibility**

The term credibility relates to the ability of the researcher to accurately capture the experience of the participant as these are expressed throughout the study (Merriam, 2009). Thus, when researchers are able to provide a true description and interpretation of the experience of study participants and when these descriptions are shared with participants who have similar life experiences and recognize and connect with the experiences, then the research is considered to have credibility. In this study, the credibility of the data was established through respondent validation. Ryan was given access to all of the transcriptions of his interviews to review for accuracy. I accepted all of the comments he provided and made adjustments to the interview transcripts where
necessary. Some of the comments resulted in my asking follow-up questions at the next interview. According to Merriam (2009), using member checks can rule out “the possibility of misinterpreting the meaning of what participants say and do and the perspective they have of what is going on” (p. 217). It was also a good check against any biases I unknowingly added to the data analysis. In this case, during the course of the interviews, I asked the participant several follow-up questions about whether he felt his teachers had provided sufficient support for him throughout his K-12 education. I realized the reason I asked these follow-up questions was I expected a specific response from my participant and he gave me a different response. It was only when he repeated his statement that I realized my assumptions about his teachers were the reason I asked him these extra questions. I also found how my assumptions were leading the questions when I bracketed the first transcript. After this, I limited the follow-up questions to clarifying information or so Ryan could correct any errors in the transcripts.

**Confirmability**

Confirmability concerns the objectivity of the researcher (Lincoln & Guba, 1985). Methods most commonly used to establish the credibility of a qualitative study include creating an audit trail, using multiple data sources to corroborate findings, member checking of the data, and using reflexive practices to identify researcher bias. During the course of this study, I maintained an audit trail documenting each of the steps I took and how I made decisions. I also used bracketing to identify and highlight my own preconceptions and assumptions throughout the study. Data from all three data sources established triangulation within the findings. I used member checking to ensure the data gathered accurately reflected the participant’s statements and experiences after each
interview was completed. Finally, I examined my own perspectives, positions, beliefs and biases to identify my own biases and have stated these clearly in this chapter.

**Dependability**

In qualitative research, dependability refers to the extent the findings of a particular research study can be replicated in another study given comparable situations (Merriam, 2009). A challenge to dependability is qualitative research often describes individual behaviors that are highly changeable from one person to another. However, careful documentation of the procedures used during the course of the study can increase the dependability of the qualitative study. Strategies I have used to enhance the dependability of this study included using an audit trail, clarifying my personal assumptions and biases, using member checking to ensure accuracy, and triangulation of data sources. For the duration of this study, I created an audit trail documenting my research decisions. I also compared data from the three data sources--interviews, artifacts, and informant questionnaires--to establish triangulation of the data. According to Merriam (2009), “If the findings of a study are consistent with the data presented, the study can be considered dependable” (p. 222). An example of member checking was Ryan’s insistence that he was placed in a gifted program in high school. Ryan continually referred to the program as AIG (academically or intellectually gifted). When questioned about this program, Mr. H explained he remembered attending a 504 plan meeting but there was no AIG program at the high school. With this different information from Mr. H, a follow-up interview asked Ryan to explain why he thought he was in an AIG program. Ryan clarified he heard a professor at the university talking about a program that sounded like what he did in high school called AIG. Ryan assumed
this was the type of program in which he took part. When Ryan was told one of his high school teachers reported Ryan had a 504 plan, he agreed he did not know the name of the program and had assumed the name because of what he had heard. This was one of the problems encountered when relying heavily on Ryan’s self-reporting and why member-checking was important and valuable.

**Transferability**

Transferability refers to the extent the findings of the research study could be applied to other individuals in other contexts or situations (Merriam, 2009). The main way a qualitative researcher can ensure transferability is to be as accurate as possible when describing the phenomenon being studied. In this study, the method I used to increase transferability was using thick and rich description that contained a wealth of information when presenting the data. While no two individuals who share a set of characteristics can have identical experiences, they may nonetheless have some shared experiences that shape their perspectives on life. These shared perspectives could be transferred to other individuals and studies. This in-depth understanding of the experience of twice-exceptionality could then be used by readers or consumers of the research to transfer the findings to another setting, time, situation, or people (Lincoln & Guba, 1985).

A second method of increasing the transferability of this study was the use of an audit trail. The audit trail provided a detailed explanation of the steps I used to achieve the results. In this way, the style and method of the research could be used by other researchers. In qualitative research, it is not the results that are being replicated; rather, it is the method being replicated to help transfer the information to other studies. Since the
results of a case study with one participant cannot be generalized to the population of twice-exceptional students, it was my duty to leave a clear trail to follow to establish the transferability of this research. It was also important to keep in mind Lincoln and Guba’s (1985) seminal writing on transferability wherein they emphasized transferability has less to do with the original researcher and more to do with the person who sought to apply the insights and findings in another setting. It was my desire that this study would provide future researchers with “sufficient descriptive data to make transferability possible” (Lincoln & Guba, 1985, p. 298).

**Researcher Bias**

Identifying one’s own assumptions, experiences, theoretical orientation, and biases has been an essential element of qualitative research (Merriam, 2009) as an important process of reflecting critically on oneself (Lincoln & Guba, 1985). My own experiences as a special education teacher who was unaware of the existence of the phenomenon of twice-exceptionality until recently formed a lens through which I viewed this phenomenon. I could relate to both the frustration of a teacher not understanding how to deal with a twice-exceptional student and the frustration of the twice exceptional student who remained unidentified and confused by the challenges he or she continued to face. My own assumption was twice-exceptionality was a real phenomenon that existed but was little recognized and understood, especially in my home country in the Middle East. I strongly believed in the importance in listening to the voices of those who had lived life as an identified twice-exceptional individuals. In particular, I believed these individuals had unique insights that could benefit educators working with these students. Knowing and identifying my assumptions and beliefs was critical in understanding the
importance of how I as a researcher would interact with the participant, conduct the study, and interpret the findings.

One of my early biases came from my experience teaching in the Saudi Arabian school system. At that time, I was not pleased with the services provided to students with special needs. When I discovered the phenomenon of twice-exceptionality, I realized a major belief I held was teachers were not doing their best to recognize and serve students’ needs or strengths. I have since changed my position on this issue because I learned it was not easy to recognize strengths and needs unless teachers were specifically prepared to do so. During the course of conducting this research study, I continually checked my biases and assumptions against the data to make sure my interpretations were not being influenced by those biases.

**Ethical Consideration**

**Confidentiality**

Several measures were undertaken to protect the identity of all participants in this study. Pseudonyms were used for all of the participants at all phases of this study--starting with the interview transcripts to the final discussion of the findings. These pseudonyms were the sole identifiers used throughout the study. Outside of the key informants, only I and my research supervisor knew Ryan’s name or the real names of the key informants. No one else had access to the original audio recordings or informant responses; therefore, no other person had access to this personal information.

**Storing the Data**

Data consisted of audio recordings, transcribed interviews, emails with responses to questions from key informants, artifacts, and field notes. All electronic materials were
stored in files on my password-protected computer for the duration of the study. Physical
data including the informed consent forms, paper-based artifacts, my personal field notes
and research journal, and the flash drives I used were stored in a locked file cabinet.

**Respect for Participants**

The focus of my study was capturing Ryan’s lived experiences. To create an open exchange of communication, I listened carefully and respectfully to Ryan as he generously shared his experiences with me. To ensure the interviews captured his experiences as completely as possible, I shared all interview transcripts with him, giving him the opportunity to make any corrections he felt were necessary. During the course of the study, I upheld a position of respect and consideration for Ryan, avoided all judgments, and was careful not to insert my own preconceived ideas and biases into the discussion as much as possible.

**Summary**

Qualitative research is a valuable research method that can provide in-depth insight into the lived experiences of participants from their own personal perspectives. Capturing the unique story of Ryan as told in his own words and without the restrictions placed on quantitative research such as filling out questionnaires or surveys adds to our understanding of unusual situations and circumstances numerical data cannot reveal. In this case study, Ryan provided a view into just such an unusual story--that of a student who is twice exceptional.

The primary data consisted of participant interviews transcribed into documents before being analyzed using a constant comparative method of open coding and storylining. Additionally, data were gathered through key informant questionnaires,
examining artifacts, and reviewing field notes taken throughout the data collection process. During the analysis, five main themes emerged. In the following chapter, the participant’s storyline is presented and each of these themes is discussed in detail.
CHAPTER IV

FINDINGS

The findings from this qualitative case study are presented in this chapter and used to answer the research questions of the study. The purpose of this study was to explore the lived experience of a university student who is gifted and has a learning disability to better understand how this student’s experience of being twice-exceptional impacted his identity development, his views on education and teaching, as well as his career choice.

A qualitative case study method was used to examine the participant’s experiences. Five semi-structured interviews were conducted with the participant and questionnaires were filled out by key informants to gain further insight into the experiences shared by the participant. Additionally, artifacts were examined to confirm participant statements.

The following research questions guided the study:

Q1 How has the lived experience of being twice exceptional influenced one student who is planning to become a teacher?

1a How did his experience shape his identity development?

1b How did this experience inform his perspective on teaching and education?

1c How did his experience influence his career choice?
In the following chapter, information from the interviews, questionnaires, and artifacts is presented. In the first half of this chapter, the participant (Ryan) is presented using a storyline approach. In the second half of the chapter, the main themes and categories that emerged from the data are presented.

**Procedure**

After deciding on the topic of twice-exceptionality for this research, a key informant told me about Ryan, a young man she knew from a university class. She thought he might be willing to be a participant in the research. He agreed to meet with me to talk about possible participation. The purpose of this introduction was to obtain consent and so Ryan would be comfortable with me as the interviewer. At this initial interview, I asked Ryan three qualifying questions to make sure he met the criteria needed for the study: (a) identified as both having learning disabilities and giftedness by an educational professional, (b) a university student, and (c) currently participating in a teacher education program. Ryan answered yes to all of these questions before I continued. I indicated there would be several interviews to which he agreed. He was quiet while I explained what the research was about and how we were going to proceed.

Ryan was interviewed in a private, quiet room on the university campus, which provided a calm and comfortable environment. Four semi-structured interviews were conducted, which ranged in length from one and a half to two hours. Questionnaires were sent to two of Ryan’s friends, whom he identified as being close friends; to one teacher Ryan identified from high school; and to two university professors and one graduate assistant Ryan identified as probably being willing to discuss his information. Two months after the fourth interview, a fifth follow-up interview was conducted to
check on some of the details and for accurate member checking to make sure the
information Ryan had provided was accurate.

Ryan seemed anxious during the first interview. He had many nervous habits
such as rubbing his hands or his forehead and twitching or shaking his knees. His eye
contact was limited; he would not look directly at me when I asked questions. When he
responded, he would glance at me briefly and then look away. Even with all of these
signs of nervousness, Ryan was extremely cooperative.

He was able to answer most of the questions easily as the subject was his current
school situation. However, during the second interview, there were times when Ryan
seemed confused and he would change his answers. For example, Ryan would drop the
endings of sentences or change the subject in the middle of answering a question: “In
elementary school,” he said “I had already … while the other kids were struggling
through their reading, I was already … I had the ability to already read much more
advanced material.” Later, he said “I did that until I ... I can’t believe I ... I haven’t been
actually honest. I moved during elementary school.” By the time of the final interview,
Ryan seemed to be much more comfortable with me and with answering questions even
though there were still times when he would lose focus of what he was saying.

All interviews were recorded and transcribed and field notes were written
immediately following each interview. Member checking was done by asking Ryan to
verify or clarify information on each transcript. Ryan also asked his mother to verify
many of the facts from his early years and reported that information during following
interviews. His parents declined to take part in the interview process. This review of the
interview transcripts provided more information as well as clarification. Ryan also read the final transcript revision as an additional member checking process.

Once the transcripts had been reviewed, I conducted an analysis of the data using a constant comparative method. During the course of my analysis, five main themes emerged from the data: (a) psychosocial challenges, (b) delayed identification, (c) masking effect and school achievement, (d) the importance of support, and (e) motivation for career choice.

To provide further accuracy in determining and reinforcing the confirmability of the study, my professor and advisor was chosen as an external auditor based on his qualifications in the field of twice-exceptionality and his knowledge of the study. The auditor has a Ph.D. in Educational Psychology. Two of his specialized areas included gifted and talented education and underachieving students who are gifted. He is the author of several articles on gifted/talented students and on twice-exceptionality as well as on teaching gifted compensatory skills.

Once I had coded and analyzed the data in one of the four transcripts, the auditor also read and coded one of the transcripts to determine categories. Afterwards, we compared the results of our analyses. Through discussion, we talked about how these categories could be clustered to form major themes. The auditor conducted a peer check of the findings discussed in Chapter IV and the discussion and recommendations in Chapter V, which added to the confirmability and corroborated the accuracy of the findings.
Ryan’s Chronology

Table 2 demonstrates the chronology of Ryan’s life.

Table 2

*Chronology of Ryan’s Life*

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>Ryan is born.</td>
</tr>
<tr>
<td>1998</td>
<td>Ryan demonstrates he has taught himself to read.</td>
</tr>
<tr>
<td>1999-2000</td>
<td>Kindergarten. Testing reveals Ryan reading at 2&lt;sup&gt;nd&lt;/sup&gt; grade level. By the end of the academic year, he is tested at the 5&lt;sup&gt;th&lt;/sup&gt; grade level. Ryan reports he is given an individual education plan (IEP). This report was not confirmed by others or through artifacts.</td>
</tr>
<tr>
<td>2000-2001</td>
<td>First grade. By the middle of the year, Ryan is moved into 2&lt;sup&gt;nd&lt;/sup&gt; grade math.</td>
</tr>
<tr>
<td>2001-2004</td>
<td>First through the middle of fourth grades, Ryan takes part in weekly gifted class.</td>
</tr>
<tr>
<td>2005</td>
<td>In the middle of fourth grade, Ryan moves to a new state. He is not given an IEP and he is not placed in gifted classes, although he continues to work one year ahead in math.</td>
</tr>
<tr>
<td>2005-2008</td>
<td>Ryan finishes elementary school and enters middle school without an IEP or gifted classes.</td>
</tr>
<tr>
<td>2009</td>
<td>Ryan is assessed and identified with dysgraphia. According to one report, Ryan was given a 504 plan and sent to a special resource room for one class period three times a week.</td>
</tr>
<tr>
<td>2010</td>
<td>Ryan is diagnosed as bi-polar. Ryan is given special permission to leave the classroom if he is under stress. For quiet, he spends time in the library</td>
</tr>
<tr>
<td>2012</td>
<td>Ryan graduates from high school.</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>Ryan enrolls in a college in a different part of the state.</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>Ryan enrolls in his current university.</td>
</tr>
</tbody>
</table>
Ryan’s Profile Summary

This profile is included to introduce the reader to the participant in this research. A more detailed account of his life follows in the storyline section. At the time of this study, Ryan is a 21-year-old university student. He is tall and slender, has reddish brown hair, and wears glasses. Ryan is enrolled in a university located in western region of the United States. He lives with his family including his father, his mother, and one older sister. Both of his parents have advanced degrees and his sister is in graduate school. Ryan spent his early life in a southern state. At the age of nine, he moved to a state in the Midwest. Ryan always did well in math and reading in school while his other interests were baseball and theater.

When he participated in this study, he had just started his third year at this university. He attended another college for about a half year but due to personal issues, he did not do well and soon dropped out. He moved back to this community and decided to give college another try. He also changed his career goal from being a forensic scientist to becoming a teacher. As Ryan said, “Most of my family, on both sides, are teachers.” His father has a master’s degree in Fine Arts, his mother has a Ph.D. in Music History, and his older sister is studying art. “Then I'm doing math, which is also art but it's a different kind of art,” Ryan remarked.

Ryan was assessed and identified as gifted in reading and math in kindergarten after his mother advocated on his behalf. He received gifted education services until the middle of fourth grade when he moved to a new state. At his new school, he received some additional assistance from a special education teacher when he was in the fifth grade but this did not continue in middle school. At age 14, one of his teachers
recognized his writing difficulties and referred Ryan for testing. A professional examination revealed Ryan did have dysgraphia, a specific learning disability that interferes with writing ability. At that same time, Ryan was placed in a support program three days a week where he received assistance in writing. At age 16, he was referred by a school counsellor for assessment and was diagnosed with bipolar disorder by professionals outside of the school district. According to Ryan, after this diagnosis, he was allowed to leave the classroom if it became stressful.

Ryan wanted to be a general education math teacher in secondary school. One of the reasons he gave for this was he wanted to help students who might be experiencing what he experienced: “I guess because when I was young, I didn't get as much help as I probably should have, so I guess I just, I'm happy when I'm helping people because I feel like it's something that I've done better than what was given to me.”

**Ryan’s Storyline**

Understanding the nature of giftedness can be difficult for general education teachers because giftedness is not always present in every area of a child’s life. Some gifted students might excel in most areas in school while other students might only excel in one or two academic areas (Bianco & Leech, 2010). An often-held expectation for gifted children is they demonstrate giftedness in many areas instead of one or two. In Ryan’s case, he was already academically ahead of other students when he entered kindergarten. “My mom had an idea that I was gifted when I was young,” Ryan reported. Once Ryan entered kindergarten, his mother began advocating for him. Ryan’s family played an important role in how his exceptionalities were recognized and how he has succeeded.
Family

Ryan’s family life has influenced his overall attitude, his diagnosis of twice exceptionality, academic self-efficacy, and his current educational goals and aspirations. He describes his relationship with his mother as good: “She's a wonderful person. She was the person who was advocating for me when I was younger.” Ryan was close to his mother all through elementary school. However, like many teenagers, he reported, “Towards the end of high school and that first year of college, I kind of shut her and my dad out.” He moved away from home after high school and went off to college in another town in part to be close to his girlfriend. However, that relationship did not last and he found himself far away from everything familiar. Instead of turning to his family for support, he withdrew completely, cutting all communication with family and friends. At the end of that year, however, he decided to move home again and worked to repair his relationships with his family: “I think I've always had a good relationship with my mother, other than that brief period of time.”

His mother has been his biggest advocate since recognizing Ryan’s early reading ability before reaching kindergarten. During a shopping trip in the bedding section of a store, Ryan asked his mother what the word “queen” meant. Ryan was three years old at the time; he reported the incident as follows:

My grandmother was with us and she asked my mom, “How did he know what that said?” Because they didn't realize that I had taught myself how to read. She took me home and gave me one of those children's books that are really small. I read it for her and I'm guessing that's probably when she figured out I was gifted. Then my dad figured out when my mother told him.

When Ryan entered kindergarten, his mother began advocating for him. He did not need to spend time sounding out letters to learn how to spell words because he had
taught himself how to read. Ryan reported his mother suggested the teachers try something different with Ryan by telling them, “Okay, he already knows how to read. He doesn't need your help with the sounding out of all the words. While you are doing ‘K, kuh, K, kangaroo’, have him go to an encyclopedia and find out five facts about kangaroos.” Ryan remembers his mother worked with the school and was able to help decide which teacher he would have for first grade. This was one reason Ryan believes his mother was able to request an individualized educational program (IEP) be put in place. Ryan referred to an IEP several times in the context of gifted education services. While the term IEP is a prominent feature in special education, in this case, both Ryan and his family referred to this as a specialized plan that provided him with gifted services rather than special education services. Ryan was not able to produce any artifacts that confirmed he was given an IEP or that he was placed in a gifted program.

When his mother noticed Ryan had difficulty writing, she told the teachers, “All right, he knows what he's doing, he just can't put it onto paper so find a different way to teach him.” She not only helped make sure he turned in his homework on time, she also helped him understand his homework. Ryan explained,

I'm sure the turning in the homework that I hadn't finished was part of that advocacy, teaching me that I needed to always do it either way so that I would get whatever was on that homework. She made me do that through high school. There were homework assignments in high school I didn't do [on time] that she made me turn in [even though he did not receive a grade for late assignments].

Ryan reported that when he was younger, he was not as close to his father as he was to his mother but “I now realize that I was being dumb.” Once when he was in middle school, Ryan got into a fight with another student and received a suspension. Both of his parents told him they were disappointed in him but it was his father’s
disappointment that really hurt him. His father’s good opinion mattered deeply to him and he always worked hard to impress his father with the hope his father would take more notice of him. Ryan felt this way mostly because he perceived that his father favored Ryan’s older sister.

As he got older, Ryan stated, “I kind of realized how similar I am to my dad.” These similarities included they both spent a decent period of time every day alone, they both went to college with the idea of making a better life for themselves, and they both wanted to become teachers. His father was very supportive of his choice in major: “When I moved back and I switched to education, he's always supported it.” Being a teacher is a family affair--both of Ryan’s aunts are teachers as well. Ryan believed his father had always wanted him to go to college because he set up a college fund when Ryan was young.

Ryan’s sister is two years older than him. When they were younger, he did not remember having much of a relationship with her. When they argued, Ryan’s father would tell him to stop arguing with his sister but not the other way around. He felt like his father always took his sister’s side. Also, his father took his sister to a theater festival in Canada every year. When he was young, Ryan felt this was really unfair. However, once he was older, he realized he was not interested in this festival at all. When asked if he thought that his sister was either gifted or learning disabled or both, Ryan replied,

I'm not entirely sure…I didn't really pay attention when she was younger and I never really asked or talked about it with her so I have no idea. If I had to guess, I would say she is gifted. My sister and I didn't get along until after we had both left the house to go to college. We were siblings, we fought.

Ryan also acknowledged his sister was resentful toward him when he was younger in part because of his giftedness and sometimes teased him about his dysgraphia.
However, as they became older, their relationship improved. By the time Ryan was in high school, his sister started helping him rather than teasing him. These days, his sister helps him with his papers for class even when she does not really understand what Ryan is working on: “Even if it's for a math class and she has no idea what I'm talking about.”

Ryan’s personal relationship with his immediate family has impacted his twice-exceptionality in many ways; his mother advocated for his giftedness at an early age but did not fully understand or grasp his learning disability while his father seemed less interested in his early education. However, after high school, his father became more supportive when Ryan decided to become a teacher. His relationship with his sister changed as well; it allowed him to open up more to her to the point where she helped him with school work. These relationships proved to have a major impact on his performance in school and his desire to pursue teaching as a profession.

Friends

Before Ryan moved to the Midwestern state, he had several friends in elementary school. Ryan said he felt he was a leader in his group of friends. Although he was often disruptive in class, he was one of the “smart kids” who went to the gifted program each week, which elevated his status among his friends. Then he moved to another school in a Midwestern state far from the only home he had known.

Instead of being a popular kid, he was suddenly an outsider, far away from everything familiar. The other kids in his class picked on him and it took a while before he made new friends. Other students whom he trusted would start picking on him, which he says led to a deep-seated lack of trust in others. When he was placed in a special education class for one period each day, other students made fun of him. However, when
he started special education services in the 5th grade, he met Joe, who has become one of his closest friends. Ryan’s classroom teacher became very frustrated with him when he did not complete a written assignment in class and yelled at him in front of the whole class. She then told him he would have to go to the special education classroom. Having been placed in special education for the first time, Ryan felt insecure and alone; at one point, he began to cry and was comforted by a classmate: “It was an interesting moment for me. Somebody I didn’t know just came up and hugged me. It was odd.” Ryan was upset at being in the special education classroom after having his teacher yell at him. He shared how he first met Joe:

I was crying and this really big kid and I say really big, he was two years older than me, so I was only like 11, he was 13, so he just came over and he just sat down and he hugged me and it freaked me out, because I had no idea what was going on. And so we became friends after that and we've moved up together, we just moved up together every year.

Although Joe was two years older than Ryan and autistic, they were at the same educational level in special education. They became good friends in fifth grade but were separated when they attended two different middle schools. Ryan had two other friends when he was in fifth grade but when he started middle school, they too attended a different middle school. Although he made friends in middle school, he spent most of his time alone. Ryan preferred to go to the library and read during lunch. However, once he started high school, Ryan unexpectedly met up with Joe again:

I didn't know he was at school. Then one time when I was going into the classroom and then he hugs me. He picks me up because he's huge. He's a big guy, but he... he... he hugged me and he picked me up and I just ..I freaked out because I had no idea what was going on. He was behind me. Oh, so he was the only...I couldn’t... I had no idea what was going on because I'd just been picked up by somebody. We caught up after that.
Ryan eventually returned the favor Joe had done for him in elementary school and
spent time helping Joe adjust to his new classes every term and tutoring him in high
school. For the first two weeks of each school year, Ryan would help Joe meet the other
students and get to know his teachers: “I'd try to get him to find one or two other people
in the class that he could talk to and do his work with, so he didn't have to do it alone all
the time.” Ryan was concerned for Joe because like Ryan, Joe had also been moved
around from one school to another, was struggling socially, and had developed trust
issues. Ryan has remained close friends with Joe after high school and shared that Joe
was attending a university in a state to the north. “He's popular,” Ryan explained, “He's
working on his degree out there. I don't remember when he's scheduled to graduate, it's
not this year. I miss him, but I accept, but I'm happy that he's being allowed to work on
what he's always wanted to do.”

Ryan met and became friends with Bill in high school. He thought Bill was
probably the nicest guy he had ever met until then. Many of the other students at high
school were mean. Ryan thought this was because they thought he was just odd or weird.
He also met his share of bullies--students who would shove him around and make fun of
him: “I think it's just because I was different and being different in high school is not a
great thing to be, because kids are mean.” However, Ryan generally met their attempts at
bullying with silence; after a while, most just gave up because he did not give them the
response they were looking for. Ryan spent most of his time alone or with his best friend
Joe. Bill, unlike his other classmates, was nice and helpful. They met when they were
freshmen in high school. With the exception of band, Bill and Ryan were in every class
together. Bill noticed Ryan struggling to take notes in class and offered to take notes for
him. Although they initially drifted apart after high school, when Ryan returned from his year of college away from home, he contacted Bill again and they have kept in touch ever since. When Bill was asked how he viewed Ryan, he responded,

Ryan, as I’m sure you’ve noticed, doesn’t talk a lot until he gets going and then he doesn’t stop. He also talks more when he’s happy. When we were in high school, Ryan would always kind of keep to himself. The only person he consistently talked to was a kid named Joe I believe. Whenever we talked he was always so nice though. Ryan seems cold to most people when they first meet him. After you talk to him for a while though, he’s just about the nicest person in the world.

This coincided with what I noticed during our interviews. It took some time for Ryan to trust me and open up. However, once he started talking, he had much to say on every topic. When asked about what strengths Bill had noticed in Ryan, he responded,

He’s super nice. He’s really good at building understanding. When we were in high school, even though most people didn’t like him, he still tutored most of our senior class through their math classes. He also remembers everything that has happened in the last 2-3 years.

Bill had less to say about any challenges he thought Ryan faced but he did say, “While he remembers everything in the last 2-3 years, he doesn’t remember much from when he was younger. He has a hard time writing anything.” This statement indicated that even as a 14-year-old freshman, Bill noticed Ryan’s dysgraphia even though it had yet to be diagnosed. Bill’s comments also supported the fact that Ryan had trouble remembering his early school years, especially middle school.

Throughout the interviews, Ryan stated after he moved in the middle of the fourth grade, he always had difficulty making new friends. He felt like an outsider for most of his life and often felt very lonely. Ryan was always eager to connect with his peers. One way he did this in high school as well as at university was by offering to tutor fellow students in math. While this might not have resulted in many life-long friends, Ryan
always enjoyed these interactions. Even though Ryan enjoyed solitude, he said, at the same time, “I want to have friends. I want to be social. I'm not. I want to be that way. I was an outcast for most of my life. I don't want to be an outcast for my entire life.”

**Elementary School and Gifted Identification**

Ryan attended an elementary school in a Southeastern state for four and a half years before moving to the Midwestern state where he still lives. Because he was already reading, Ryan was given an Individual Reading Inventory in September of his first grade, which showed he was reading at second grade level. In January and again in May, Ryan took the same Reading Inventory, which showed he was reading at a fifth grade level. In May, Ryan was also given a Standardized Test for the Assessment of Reading (STAR) that placed him in the 99th percentile for reading at a fourth grade, fourth month level. It was suggested he continue to read fifth grade level books over the summer. His first grade report card also showed Ryan was doing second grade math by the middle of the first grade. At this time, it was determined by his mother, his teachers, and the school counselor that Ryan was gifted in reading and math. He then began going to a gifted children’s classroom every Friday. He also went into the next higher grade math class. Although Ryan was identified early as being gifted, he also showed early signs of behavioral and emotional problems. Ryan explained, “When I was in those early grades in elementary school, my teachers would send things home with me all the time. …I would get in trouble a lot. I wouldn’t pay attention in class.”

Ryan’s mother responded to the communication by suggesting alternative ways of addressing Ryan’s needs. When his teachers told her Ryan was unable to complete a classroom task or refused to do something, Ryan reported that she responded, “Okay, he
can't do and he's refusing to so make it something he'll do.” According to Ryan, his mother wanted his teachers to provide differentiated tasks and instructions that helped him become more involved in the activity and gave several suggestions for how this could be accomplished. She preferred email correspondence over coming to school and Ryan remembers how persuasive she could be.

During the interview process, Ryan had trouble remembering which grade he was in when his mother worked with the school to have him identified as gifted. There was some question over whether Ryan had an IEP under IDEA (2004) since he had not been identified as having a disability. No artifacts were found to either support or disprove the presence of an IEP. Ryan was sure he had a support plan for his giftedness in elementary school.

Along with his giftedness in reading and math, Ryan had ongoing behavioral problems. At one point, Ryan reported, school officials recommended his mother homeschool him rather than letting him remain a distraction in the classroom. Some of his other behaviors included rolling around on the floor, tilting his chair until he fell backwards in his chair, and generally annoying other students near him. Ryan said his mother assumed he was bored since he was so much further ahead of his peers academically; his behavior was simply a natural outcome of that boredom because of his giftedness. Ryan said,

While the other kids were struggling through their reading, I was already… I had the ability to already read much more advanced material, so while they were trying to get me to read the short little sentences that they use for those younger grades, I was bored because I read them and I just sat there. I didn’t pay a whole lot of attention. I did things to entertain myself and that got me in trouble.
Ryan reported he always had difficulty writing. Although it was not identified until high school, Ryan had dysgraphia. Dysgraphia is a learning disability that affects writing abilities. It can manifest itself as difficulties with spelling, poor handwriting, and trouble putting thoughts on paper. According to Ryan, during his elementary school years, his mother would explain to teachers: “Okay, he's not able to write or he's refusing to write it so give him another way to do it.” She also suggested to teachers that if Ryan finished his work before the other students, then they should give him more to do. Most of the time though, it was assumed if Ryan did not do his writing, it was because he was lazy or acting out. In elementary school, Ryan stated he was not assessed for possible learning disabilities, possibly because he was ahead of his peers in reading and math. Through the first half of fourth grade, even with the extra time and instruction he was given in reading and math, Ryan seemed to have been an average student.

Then in February of his fourth grade year, Ryan’s family moved from the Southeastern state to the Midwestern state. The IEP he had at his previous school did not move with him. He was, however, soon placed in higher math classes in fourth and fifth grades. Ryan was doing seventh grade math before he entered sixth grade. He was not sure why but in sixth grade, he was required to do the seventh grade math over. This was not because he had not passed the class previously; until this time, Ryan had been two full years ahead of his grade level. So when he started middle school, his coursework suggested he was only one year ahead of his grade level. Believing it was the way the school system worked at the time, Ryan suggested, “It might have been a little awkward if I was a sophomore in high school and I was taking calculus with the seniors.”
Ryan described the move from one state to a new state as a time of great upheaval in his life. The family moved when his father got a new job. When asked about how he felt about moving, he replied he was angry about it. He had to leave everything he knew behind including his school friends. He was frustrated and angry.

Ryan also felt the move might have adversely affected his grades. Changing from an educational approach that focused on his individual performance (i.e., IEP) to a traditional classroom setting affected him academically. He stated,

Oh, I don’t know that I ever had that thought, but I definitely didn’t feel as special as I did when I was in [the other state]…. Knowing what I know now, I’m guessing that yes that probably helped contribute to my demeanor… Well, the lowering of my grades. I’m guessing I decided that the anger and frustration also probably [played] a part in that, but I’m guessing that yes, the fact I didn’t feel special probably affected my grades adversely.

Although he did not remember having an IEP at his new school, Ryan’s fifth grade teacher placed him in special education classes twice a week for English. As the fifth grade progressed, his teacher became increasingly frustrated with his inability to write. Ryan remembers vividly the day she referred him to the special education teacher:

My teacher, I guess was just done with me… I remember her yelling at me because I couldn’t … They [the classroom teacher and the assistant] were helping the other kids writing paragraphs and stuff I couldn’t really do it. I just didn’t. I drew pictures. I remember and yeah she got really angry one time. …I thought I was just dumb or something, that’s what the other kids told me. I thought, "They're sending me here because I'm not as smart as everyone else" so I went into the room and I just sat in the corner and I cried for a while.

Ryan’s mother was not happy about having Ryan placed in special education. The school tried to placate her by telling her it was only for one period of the day and it would help Ryan do better in English. She continued to advocate for Ryan, sending emails requesting an assessment rather than simply placing him in a special needs program without providing a reason for it. However, Ryan fondly remembered the
special education teacher working patiently with him. Most of his teachers throughout elementary school allowed him to go to other classrooms for his math and his gifted program so he was used to moving between classrooms. Although his mother worried Ryan was being put into a box where his opportunities would be limited, she liked the fact that Ryan started making friends in special education. It was there when he first met Joe, whom he still counts as a close friend.

That was in fifth grade. At that time, Ryan was not identified as having special needs. He felt his teacher simply gave up on him. During his sixth and final year in elementary school, he did not receive any special education services. Instead, his teachers simply advanced him into seventh grade without trying to help him improve his writing.

In middle school, Ryan struggled to make friends and fit in. His three friends from elementary school went to different middle schools and Ryan felt very alone. Handwriting was a continual challenge for him, yet none of his teachers referred him for assessment or assistance. Although he was reading books far above his grade level and his math skills were also above grade level, his behavior problems and learning disabilities continued to mask his giftedness. Ryan began spending most of his time in the middle school library. He read books rated for high school seniors. He remembered the middle school librarian fondly, saying she was a really nice lady.

Ryan entered high school as a social outsider who excelled in reading and math. It was not until he was 14 that one teacher and a school counselor considered something might be going on and decided to refer him for further assessments. That changed everything for him.
High School and Learning Disability Identification

When Ryan started high school, several things happened that made high school an easier experience for him than middle school. He was placed in a general education English class for students who struggled in English. Here he met the high school teacher who recognized Ryan’s dysgraphia. Mr. S. was a special education teacher who provided support in a general education English class. Ryan remembered how it happened:

Mr. S., he would have been the first person to really figure it out. I was in the, I don’t want to call it remedial English, but it wasn’t upgraded level English, it was below. He was helping out the class, the class taught by somebody else, but he was in the room during all the class periods. He is actually the one who figured that out, that I had dysgraphia.

Mr. S. noticed Ryan struggling with writing. One day, Ryan had difficulty taking a test in this class. He recalls, “After we took our first test, Mr. S. had me come in after school to retake it, but this time he gave it to me verbally. I scored much, much higher than I had before. That’s how he figured it out.”

When Ryan was identified as having dysgraphia, Ryan reported that Mr. S. worked with him and his mother to determine the best ways to help Ryan with his dysgraphia in class. Together, they wrote a 504 accommodation plan that specified the supports and accommodations Ryan would receive. Mr. H confirmed that Ryan did have a 504 plan. Included in the plan was placement in a support program for students who were struggling with writing. Here Ryan received one to one instruction with Mr. S. in writing several periods each week in a special resource room. He described the program in this way:

[The class] met like three times a week or something. For one day of those three, I was in the classroom with the other students, with the other normal students. I hate that word. The other normal students. Then the [other] two times during the
week I was in the support classroom getting help for the things they were doing in the other class.

During the interviews, Ryan talked at great length about how he was able to improve in high school, especially because of the help he received in the support program. Although he was doing so well in his math and science classes, he was never able to transfer this success to his writing. He knew what he was trying to achieve yet, somehow, between thought and paper, it always eluded him. At first, the teachers in the support room tried to connect his math ability with his writing but this strategy did not work. It was only when he received direct instruction in physically writing down his assignments that Ryan saw improvement. He particularly recalled the support he received from Mr. S:

As I said Mr. S. gave me that test to figure out that I actually did know what I was doing. I just couldn’t write. He was actually one of the people in that support room with me, so he helped a lot. He helped teach me how to write in cursive, which I still have problems with, but it’s better. It’s not good. He helped a lot, by the end of high school if I work really hard… I work really hard on it. It takes me a long time, I can write in paragraphs now, but it just takes me a really long time. He was very supportive of that.

Ryan recognized that without Mr. S., his dysgraphia might never have been identified and he might not have received the support he needed to succeed in English. He recognized he might well have failed his required high school English classes. And since he felt writing in college would continue to get harder, he was not sure if he would have had the desire to go to college at all.

Receiving assistance from Mr. S. in writing reduced his frustration as well. Not all of his teachers were supportive or sensitive to Ryan’s needs. He recalled how another teacher had reacted to his placement in the support program.
I don’t think I was ever called dumb in high school; I might have been. I had [an] English teacher…I was only in her classroom once a week, because I was in that support classroom. I think she thought I was dumb, she never said it, but I think she felt…just from what I remember the way she looked at me, I think she thought I was dumb. I don’t remember much about it, I just remember the way she looked at me, but I don’t think I was ever called dumb in high school.

Ryan thought some of the other teachers might have labeled him as having a learning disability as well. He mentioned this because he believed some of his teachers changed their syllabi because of him:

I remember them [some of the teachers] adding things to their syllabus about treating everybody respectfully. Like “you should respect everyone no matter if they had any trouble or if they aren’t doing the best in the class.” I remember at least two of them adding something like that, but I think most of my English teachers did label me that way.

The support program helped him improve his attitude and behavior in school. Ryan stated, “I was getting that hope through [the support program], I was getting help with writing…teachers did seem to treat me more like they understood that I wasn’t able to do as well as other students, so I felt better.”

At the age of 16 when he was a junior, Ryan was referred to a psychiatrist by the school counselor. His social studies teacher noticed Ryan had sudden abrupt mood changes that seemingly came out of nowhere. He would work tremendously hard on a project, putting in extra effort to go far beyond what the assignment called for in both content and presentation, and suddenly be uninterested in everything happening in class. The social studies teacher conferred with his counselor and after a consultation with his parents, Ryan was referred for an assessment. The psychiatrist diagnosed Ryan as having bipolar disorder. After he received this diagnosis, Ryan recalled an official meeting at school where his parents, the school counselor, his special education teacher, and an administrator discussed available supports and accommodations to help him address his
behavior. Ryan explained how he was given accommodations at this time to help him deal with his behavior. Although his self-reported plan was not documented, Ryan explained:

Basically what the plan said was that if I got emotionally overexerted in some...in one of my classes, I was allowed to leave. I didn’t abuse that. I could have--I didn’t, but I...I had to use that a few times when we were going over like...when we were...when I was having a particularly bad day, or if something had happened, or if the...or if the boys or whatever was being specially rude I could...I was allowed to leave.

Ryan recalled that although he left the classroom on several occasions to calm himself, he only had one real meltdown at school: “I just, I broke down. I was having the depressive episode, when it broke down I left the room.” He remembered the teacher in that class followed him into the hallways and asked if he needed anything. Ryan was very touched by this and stated, “I’m still friends with that teacher.” Ryan became emotional at this point in the interview and needed to stop for a few minutes. In these moments, Ryan would seek out the high school counselor or “I could go to the library where I could be by myself somewhere to cool off or to cheer up or whatever I...whichever extreme I had gone to I could pull it back towards the middle.”

In math, Ryan continued to excel. He started high school a year ahead of his peers doing upper level math while they were working at grade level. He took upper level math courses until his junior year. This is how Ryan described the situation:

I was still in the upper level math, I was until my junior year of high school. My junior year of high school I took calculus and then there’s nothing higher offered it seemed so I just took a random math class. I think it was statistics or something my senior year. I don’t remember much about it. I remember being able to pass that class without going to the class.

Ryan remembered being out of school due to illness during his senior year. However, even with numerous absences, Ryan received the highest score in his statistics
His math teachers all seemed to enjoy having him in their class because he was younger than the other students and they thought that motivated the other students to work harder. None of them wanted to be outdone by a younger student.

One of his math teachers from middle school transferred to the high school. When Ryan was in middle school, she tried to get him involved in extracurricular activities including a regional math competition. Although Ryan only had this teacher in math for sixth grade, he remembered her being very supportive. In high school, she continued this quest by urging him to join the Knowledge Bowl—a team event where students compete to answer random questions on a variety of topics including history, science, pop culture, math, or any other topic. The team consisted of students who were good in specific topics. Ryan recalled what this was like for him:

I did that for a few years, but my junior and my senior year I decided I didn’t want to do it anymore because then it would become all about winning for a lot of the other students. I was like I just do it because I thought it was fun. I don’t care if we win.

Ryan was always intellectually curious about a wide range of topics. In high school, he used this curiosity to participate in a range of extracurricular activities that had the added benefit of helping him make friends and socialize with other students. He described all of his extracurricular activities:

In high school I did everything. I was in marching band, I was in that Knowledge Bowl activity for a couple of years. I was in the history club. I was in the international studies club. I was part of the robotics team. I was part of the theater department. I was part of choir. I was part of jazz band. I was the founding member of the group that played video games after school. I did everything in high school.

One of Ryan’s high school teachers, Mr. H., remembered the extracurricular programs in which Ryan took part: “He was in the Games Society, the Model United
Nations (MUN), and in Knowledge Bowl from the time he was a freshman.” Mr. H. shared,

Ryan and I met often regarding Games Society activities and occasionally about miniature gaming or role-playing or MUN. Ryan was a skilled, imaginative game player, and was interested in running and organizing Role Player Groups for that club. Ryan became frustrated with the overly competitive environment of Knowledge Bowl and did not participate in that for long. Near the end of Ryan’s [high school] career and into post-graduation we talked a lot about his desire to be a teacher. He also helped with MUN as an alumnus.

Mr. H was aware of Ryan’s giftedness but not about any special programming such as the support program: “I was aware of Ryan’s giftedness from his sophomore year when he was my student.” He went on to say,

I was only limitedly aware of the support program. I remember knowing he had one [support period], and I just treated him the same way as all the other students, except in regards to encouraging and supporting his participation in other activities and allowing him to participate at a level he was comfortable with.

Mr. H. did not recall knowing Ryan had a learning disability although he recalled times when Ryan struggled: “Ryan only moderately struggled and I never had concern about his academics. If Ryan needed additional time, we worked it out. Ryan was never a discipline problem.” Ryan was also learning more about taking care of his own educational needs in school. Mr. H. recalled, “Ryan was/is a strong self-advocate. I can’t remember talking with other instructors on his behalf unless they needed something from me. I may have had one conversation about that with someone.” Mr. H. was aware of Ryan’s early desires to become a teacher. In fact, Mr. H. seemed to have encouraged this in Ryan. He described interactions with Ryan:

The most productive meetings we had frequently involved his time spent as my teacher’s aide. Ryan organized a lot of my work area and was a fine grader. It was during this time that we started talking about Ryan’s interest in being a teacher a lot. Ryan was an excellent teacher’s aide for me and I was pleased to
discuss his ambition to become a teacher. As a student for me, Ryan did a fine job, but he was always interested in other aspects of school first.

Ryan continued to face challenges in high school; his bipolar disorder led many of his classmates to bully and tease him so he kept to only a few friends, namely Joe and Bill. Although he was receiving support for his dysgraphia, it was still a problem in some of his courses. His mother provided additional assistance in proofreading and editing his work: “I didn't always do my homework and she [my mom] would make me do it and turn it in even if I knew I wasn't going to get any points back for it.” Ryan explained, “It's not like my writing problems have gone away. I still send her, in college, I send her papers and things I have to turn in.” Ryan’s mother helped him understand his assignments and proofread his work. He stated, “She’s probably the only person who's ever been able to completely decipher what I'm trying to say.”

Ryan’s unique experience with twice-exceptionality provided a better understanding of the many ways in which it could manifest itself and how it was diagnosed. When he was asked whether his life would have been different if his dysgraphia had been identified in kindergarten, Ryan was very philosophical. He felt certain that while his life would have been better had he been given support for dysgraphia early on, the challenges he has managed to overcome shaped him in numerous positive ways including his career goals. At the end of the third interview, Ryan said, I'm guessing if I had never been identified, I probably would have just gotten worse throughout high school. I probably wouldn't have gone to college. I wouldn't have been able to pass either of the English classes you're required to take in college so I probably would have realized that and said, "Oh, you know what, I'm not going to. I'm just going to go find a job somewhere doing something," and just probably wouldn't have gone to college.
Because of the identification and assistance he received, Ryan was able to go to college and planned to become a high school math teacher.

**University**

Ryan began his college career in a different city in this same Midwestern state. Although he had considered becoming a teacher in high school, he also enjoyed his science classes. He had received good grades in science and thought it was a lot of fun. Ryan’s original college major was forensic science. However, away from home for the first time in his life, he began experiencing personal problems. He was in a destructive relationship and when his girlfriend broke up with him, he felt very alone in the world and out of control. Ryan went on to explain,

> I was just spiraling downwards and I had burned bridges with my friends from high school. I wasn't really talking to my parents at the time and so I wasn't in a great place and then all that happened and I sort of decided that it was time for me to turn things around, so I moved back here. I started working on my degree in teaching.

After his freshman year away from home, Ryan moved back home and started a new degree at a university in his home town. Ryan’s current major is secondary education with an emphasis on mathematics. When prompted, Ryan explained what kind of math he wanted to teach because it was not simple arithmetic:

> I chose the side of math that's called the discrete side of math. Its things like logic and how many ways can this be done? What's the best way for this to be done? How many paths are there from here to there? That kind of math. The less numeric, more larger thinking. Because I'm not the biggest fan of some subjects, like algebra and calculus and those that have one answer and you're supposed to get to that, your students are supposed to get to that answer. I prefer math that is open ended, that me or my students can get to on their own, they can figure it out themselves, they can come up with any answer, as long as they can defend it.

At the time of this study, Ryan was starting his fourth year at the university. He lost a year when he left his first college program and moved to a teaching program at his
new university but tried to make up for this lost time by taking courses over the summers. He was “trying to graduate on time, which would have put me graduating in the spring, so I was taking seven classes each semester.” Sometimes this schedule was difficult for him when there were written assignments. When talking about his first English class at this university, he said, “I still hadn't asked for help, so I think she, like my other teachers, thought I wasn't [good enough]. I'm guessing other students did poorly as well. I'm guessing she just thought I was someone who didn't really try.” About writing in general, he said, “I have some trouble figuring out what I'm saying. I lose words as I'm talking and it's even worse when I'm writing.” Ryan believed it took him much more time to write than it took others:

Those long papers that professors seem to love to assign, where I'm guessing other students are doing it in like an hour or two, it takes me five-six hours just to write it, because I have to constantly be going back and say no, that's not what I meant. What was I trying to say here?

As Ryan talked about his time at the university, he frequently mentioned the fact that he did not like to ask for assistance: “I've gotten better asking for help. I still don't always do it,” he said. “but that's another thing that I prefer to do myself. If I feel the need to talk to a teacher, I go and do it.” Ryan met with some of his professors to explain his challenges with writing. When he started at the university, Ryan did not go to the disability support center to ask for official accommodations; he preferred to try to solve his problems on his own. Part of this was pride but part was a nagging feeling of not being good enough: “I always thought if I couldn't do it myself, if I couldn't figure out myself and do it myself, then I wasn't as good as anybody who could.” So even though Ryan was not a shy person, asking for help was always hard for him to do because he felt this meant he had given up doing things by himself.
Not all of his professors seemed to understand he had a significant disability and not all of them provided the accommodations he requested in class. However, one of his English professors was willing to listen and worked with him to resolve some of his challenges in class. Ryan did much better in his second English class due in part to the assistance of his professor but also because this professor made the class more interesting and fun:

He didn't just give us books, we watched movies, we had debates, we sat on the tables and talked about the books. We did all these extra things in that class and I did much better. He was one of the first teachers and I told him [about the dysgraphia], because the class was college research paper, which is all about writing research papers, so when I told him, and he understood a lot better, so the things I turned to him weren't fantastic, but he understood that and he gave me more leeway? Not really the word I'm looking for, but yeah, he was more helpful.

Although he hesitated to ask for help for himself, Ryan often mentioned he wanted to be someone who helped others. Ryan explained it this way:

Well, I think it was just because I felt like I was helping the students. I don't know, I've always, I have this need to help people. I guess because when I was young, I didn't get as much help as I probably should have, so I guess I just, I'm happy when I'm helping people because I feel like it's something that I've done better than what was given to me, if that makes any sense whatsoever.

Some of the professors at the university recognized Ryan’s challenges and worked with him to allow his gifts to be recognized. Ryan explained, “It depends on whether or not I've told them that I have certain problems, or for some teachers, whether or not they notice it.” He spoke well of a professor he called Professor J: “She picked up, I mean I told her about some of it, but she picked up most of it on her own.” Other teachers also recognized both Ryan’s gifts and his challenges. He stated, “The teacher I did the research project with caught on quickly.” He continued to explain,

My advisor is aware of most of it and he's actually taught a few of my classes last year and this year… They make me fit in. I don't know when this happened, but
at some point, over the last couple of years, I've gotten increasingly more competitive with a lot of the students in my class, so like I'm always trying to be the first person to raise my hand, I'm always trying to be the best at doing certain things. My teachers, that's one of the ways they've helped the most, is they call on me a lot, which makes me feel better.

He explained that Professor J. allowed him to draw: “I draw on my work sheets, tests, notes, on everything, and she would make comments about my drawings and it made me feel more connected to her, which motivated me to do better in the class.”

Some of his math teachers had done similar things, which also made Ryan feel special. He now allows teachers to know about some of his issues. He later said,

I mean, most of my favorite teachers have figured it out. I tell them, I mean I generally make it a point to make sure my teachers know I have trouble writing and that I have bipolar disorder and I make it a point to tell my teachers that and then from there, most of my teachers recognize [my needs].

One of his professors, Dr. E., responded to emailed questions about Ryan and had this to say about his academic strengths: “Ryan is mathematically gifted. He explains complex mathematical concepts beautifully.” Dr. E. reported, “He really shines when he has the opportunity to teach others. He provides excellent examples in class, participates often, and eagerly grasps new concepts.” When asked about Ryan’s personal strengths, Dr. E. stated, “Ryan is witty, kind, and amazingly self-aware. He is comfortable asking for what he needs to help him learn better and feel safer in the classroom environment.” This statement supported Ryan’s own statements that he has learned how to ask for help when he needs it. In looking at Ryan’s challenges, Dr. E said it was evident Ryan had a learning disability in writing: “This was immediately apparent when he took notes in class.” In discussing the challenges Ryan faced personally, Dr. E. added,

Socially, Ryan was accepted by his peers in my class, but I do wonder if this has always been his experience. Ryan is twice-exceptional and not everybody may understand that. I tend to think this will make him more relatable to his students
and he will be able to use appearing “different” to better relate to his future students.

When asked about Ryan’s career goals, Dr. E. explained it was clear Ryan was passionate about teaching all students and that he sought out resources to assist him with the written assignments. Ryan came to life when he had the opportunity to teach a math class with Dr. E. Although Ryan never sought out his advice about his goal to become a teacher, Dr. E. nonetheless had some opinions about Ryan’s future as a teacher:

He has the potential to be a strong advocate for his future students… As a teacher, I think Ryan will have the unique opportunity to draw on his own personal experiences as a twice-exceptional student in order to recognize and support twice-exceptional students in the future.

Dr. Z. is Ryan’s advisor and math professor. In his response to an email request for information, Dr. Z. explained how persistent Ryan was when it came to working problems and trying to understand the concepts. He stated that Ryan’s persistence “enables Ryan to succeed academically.” In response to questions about Ryan’s personal strengths, Dr. Z. talked about Ryan’s involvement in the mathematics education club as an “example of his desire to participate in the program over and above what is expected.” Among the challenges facing Ryan, Dr. Z. suggested Ryan often struggled to “comprehend subtleties. In mathematics education, ideas are much more fluid than they appear to be in mathematics.” Dr. Z was also aware Ryan faced personal challenges such as being “overwhelmingly passionate toward his personal views.” When this happened, Ryan seems to be overly forceful in “trying to communicate and convince of his personal position toward a topic.” Dr. Z believed this intense personality reflected Ryan’s “desire to compensate for his exceptionalities sometimes.” When referring to Ryan’s grades. Dr. Z stated,
I was the instructor in two courses with Ryan as my student. He earned a B and a B+ in these courses. Upon reflection of this prompt, I would likely say he understood the material better than these grades indicate. Unfortunately, Ryan was unable to demonstrate his understanding on the assessments I used in the courses.

This statement demonstrated the consequences of twice-exceptionality. Students who are gifted and who have a learning disability are often seen as average to good students who are not able to demonstrate their learning based on regularly used assessments.

Dr. Z. was one of the professors who encouraged Ryan’s career choice. He remembered instances where Ryan demonstrated outstanding skills of teaching and made a conscious effort to point these out to him. Dr. Z. supported Ryan as a candidate in the math secondary teacher education program (STEP) including meeting “benchmark indicators, such as a minimum GPA, in order to complete the program.”

A teaching assistant, Ms. R., remembered Ryan worked hard in her classes and seemed to be curious and ready to learn. She reported, “He is not shy about asking questions. He always seems eager to make friends.” When asked about his challenges, she recalled that even though he listened well in class, “He sometimes does not always work to understand how others in his class (and possibly the teacher) are trying to explain the material.” She noticed he had trouble recognizing social cues and there were times when he could be “abrasive,” especially when he would get excited about knowing answers. She stated, “He always tried to answer first and other students found it annoying.” Ryan suggested one of the reasons he always answered quickly was his desire to prove to himself he was the best. In addition to feeding his competitive spirit, Ryan also used his awesome math skills to impress and connect with his fellow students:

I would say that those are the two reasons why I'm eager. One, because I want to be better than I...I want to prove to myself that I'm the best and at the same time, I
want other people to like me and so I do that by saying, "Okay. Well look how good at this I am but you can come to me for help." I'm like, "I can help you with this because I'm really good at this and then that, maybe you'll like me for that reason."

Ryan admitted this might not always be the best way to make new friends. It seemed clear, both from his own statements and those of his professor, at least some of his peers found his behavior irritating. Yet others approached him to request assistance with troublesome math problems.

As a teaching assistant for one of Ryan’s math courses in the Secondary Teacher Education Program, Ms. R. did not remember Ryan talking too much about his career goals. She stated, “I have always tried to foster his love of mathematics and teaching.” Following that statement, she also said, “I have encouraged him to be himself and to continue with his positive attitude for learning and teaching mathematics.”

Ryan learned about teaching in part by observing how he had been taught by his professors. He shared, “Most of the professors here really are extremely nice and they really care about their students. The professors I've had have all been fantastic and they really know what they're doing. A lot of them have been teachers before.” When asked about his favorite professors, he said,

Professor J. is one of them... Everybody loves Professor J. Doctor O., in the Math department, he's the one I did the research paper with, is one of my favorites. Doctor Z., who was my advisor. Mary, oh my gosh, what's her last name? She's another teacher in the math department. Most of them are in the math department, because that's where I spend most of my time, but I really liked my English professor, the one I had for the college research paper class.

Ryan had always had trouble fitting in socially at school. This made him aware of the social environment around him. When asked what motivated him to do well in the teacher education program, Ryan responded, “When teachers are paying attention and
they understand my needs and things, I do feel more like I fit [in].” He went on to explain, “I have more of a connection with those kinds of teachers, than in other classes, when, as I said, I'm just trying to get through.”

**Career Choice**

Much of what motivates Ryan to do well in his classes now also shaped his career choice. He wants to be a teacher--like his parents, like his aunts, like the professors he admires at the university, like family friends he has worked with. His motivation came from his experiences: “Well, the motivation, once again, I wanted to help kids, because it makes me feel better about things. That if I help a student and then somewhere down the line they get crushed by someone else, at least I can say well, I helped them when I could.”

In response to an interview question about when he considered becoming a teacher, Ryan said, “Yeah, it was before I went to college. I was 18 at the time, which means I was legally an adult.” Although, according to his high school teacher, Mr. H., Ryan was probably interested in becoming a teacher earlier. He worked as a teacher’s aide for Mr. H. and had discussions about becoming a teacher as well.

When he returned home after his freshman year away, Ryan was invited to spend time with a family friend in a classroom. After this experience, he became much more enthusiastic about working toward becoming a teacher:

One of our family friends, he was a teacher and he invited me to come watch his class one day and I went and when I was doing it, I thought about it and I realized it would be something I'd be good at and something I could have a lot of fun with and something that I just felt I should be doing.

Ryan has put a great deal of thought into his career choice. He thought about different content areas and realized quickly he should not become an English teacher
because that was always his weakest subject at school. He liked history but acknowledged he had a very hard time memorizing names and dates, which would make teaching social studies a challenge. He always enjoyed science but felt math was his true strength. He also really enjoyed helping others, especially when tutoring, so he decided to pursue a career teaching math.

However, not all of his teachers were supportive. When discussing teachers who supported his career choice, Ryan reported, “Well, I had a teacher tell me that they didn't think I should go into teaching. I don't remember his name, but he taught about integrating technology into the classroom.” Ryan had some trouble recalling exactly what happened. He finally stated,

He basically told me that I was too nice to be a teacher [and] that parents are going to eat me alive and the school board is going to tear me apart and I'm focused too much on the students, not enough on curriculum and those kinds of aspects of teaching.

Others had been more enthusiastic about his career goal: “Well, my parents have been very encouraging. Most of my family has, because most of my family, on both sides, are teachers.” This seemed to be especially true of his mother: “My mom always told me that no matter what I did she would be happy with my decision. If I went into teaching or if I was a manager at Walmart, she would support my decision.” Ryan explained since he has gone into education, his mother has “done everything that she can to help. She was able to find a car for me to drive to the school. …She's helped me find books and resources on teaching strategy and that kind of thing.” Ryan explained how he has always had a hard time making goals for himself but his mother told him several times she thinks Ryan will make a good principal because he cares about students. Ryan said then, “By being a principal of a school I could reach all the students at the school, or
try to. She's always tried to kind of push me farther along. She's always told me I could do anything, basically.”

His friends have been supportive of his career choice as well. His friend Bill wrote,

Well, I remember Ryan telling me that when he was young, middle school age, he wanted to be a teacher like his mother. He didn’t talk much about it though. Ryan did tell me that he could never make up his mind on what to teach. Before he went to college I think that he had changed his mind and wanted to do something else. I’m not sure. There was a time, I believe it was halfway through our senior year, when he cut himself off from everyone. Then a couple of years ago he reconnected with me. Then all he wanted to talk about was becoming a teacher. It’s one of the few topics he’ll talk about.

When asked if he had any additional comments about Ryan, Bill simply stated, “He’s going to be a great teacher.”

Summary of Ryan’s Storyline

Ryan was a precocious reader from a very early age. His mother recognized he was bright and advocated on his behalf with his school. In first grade, Ryan was identified as gifted and was able to take part in a program for gifted children in elementary school. However, Ryan also had an unidentified learning disability, dysgraphia, which interfered with his ability to form sentences and write coherently. His frustrations with school--being bored and not being able to complete writing assignments--led to disruptive behaviors in class. Although his mother requested formal assessments several times to determine why he struggled with writing and behavior, he was not assessed until high school. In high school, a special education teacher noticed the disparity between Ryan’s comprehension and his ability to put it down on paper. He referred Ryan for an assessment for dysgraphia and, for the first time, Ryan received support for his learning disability. By then, Ryan did not have the skills to write well
enough to pass his classes. He was also diagnosed with bipolar disorder and provided with accommodations so he could address his own behavior needs. Ryan said he might not have graduated from high school if his bipolar disorder and his dysgraphia had not been identified and supported. Throughout all of his challenges, Ryan has persevered. He always considered becoming a teacher but until he received support for his dysgraphia, he was not sure he would graduate from high school and continue on to college. Now that he is in a teacher training program at university, he has a clear direction for his life. He plans to become a high school math teacher and ensure other students receive the support and encouragement that made his own future possible.

Analyzing the Data

The data used in this study consisted of five interviews with Ryan and information supplied by his teachers and friends. To identify the main themes within the data, every interview transcription and key informant questionnaire was read and reread. Open coding was used to identify key words and phrases within the data. Categories were identified based on the coding of key words and phrases; then the categories were connected by topic. Five main themes emerged from the data. A fifth interview was conducted to make sure Ryan agreed with the details or needed to clarify any of his experiences. The external auditor and I reviewed the categories and then agreed on the five major themes listed in Table 3. A detailed discussion of the themes follows the table.
### Table 3

*Themes, Categories, and Coding*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosocial Challenges</td>
<td>Negative school experiences.</td>
<td>Acting out from boredom. Not being able to write as well as others. Considered lazy and defiant.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New school did not offer gifted program. Felt teacher sent him to special education class because she was angry. Being bullied</td>
</tr>
<tr>
<td></td>
<td>Feelings of failure, worthlessness, and low self-esteem.</td>
<td>Feeling or being called “dumb”; feeling different; feeling unsure; not asking for help, acting out in class, needing to escape the classroom. Always wanted to help others. Hard to trust others.</td>
</tr>
<tr>
<td></td>
<td>Feelings of depression, anger, frustration</td>
<td>Feeling different; being aware of his abilities in reading and math; not knowing why he could not write well.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Felt like an outcast or an oddball. Spent most of his free time alone in the library.</td>
</tr>
<tr>
<td>Social isolation</td>
<td></td>
<td>Good social interactions in elementary school replaced by bullying. Moved into special education instead of gifted program – loss of status. Break downs, crying, fighting.</td>
</tr>
<tr>
<td>Delayed Identification</td>
<td>Lack of assessment</td>
<td>Two teachers and a counselor determine giftedness. “Not sure of the test.” “Didn’t know he was testing me.” Referred to psychiatrist and diagnosed with bi-polar disorder. Not officially put in special education classes after identifying possible learning disability. No assessments for twice-exceptionality. Few assessments overall.</td>
</tr>
<tr>
<td></td>
<td>Formal assessments</td>
<td>Two high school teachers and university professors recognized the co-occurrence of strengths and challenges, but Ryan was not formally identified as twice-exceptional. Ryan learns about twice-exceptionality while studying to become a teacher.</td>
</tr>
<tr>
<td>Masking Effect</td>
<td>Academic achievement and behavior</td>
<td>Other than reading and math, struggling to keep up with other students. Average grades, thinks other students work faster and do better. Placed in special education out of frustration by one teacher.</td>
</tr>
<tr>
<td>and School Achievement</td>
<td></td>
<td>Felt teacher thought he was dumb. Passed on to the next grade by another teacher after making him retake math for no apparent reason.</td>
</tr>
<tr>
<td></td>
<td>Effect of labeling</td>
<td>High school teacher recognizes discrepancy. Grades and extracurricular activities improve.</td>
</tr>
<tr>
<td>Importance of Support</td>
<td>Positive identify formation</td>
<td>Mother is a strong advocate throughout Ryan’s life. Demands some assessment and support for giftedness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some teachers supportive of Ryan’s struggles and some teachers not supportive.</td>
</tr>
<tr>
<td>Self-advocacy</td>
<td></td>
<td>Strong support from mother and a few teachers helped him develop better self-image.</td>
</tr>
<tr>
<td>Self-determination</td>
<td></td>
<td>Recognizes challenge in asking for help and learns how to change that. Is determined to continue education and career goals.</td>
</tr>
</tbody>
</table>
Table 3 continued

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation for Career Choice</td>
<td>Helping others</td>
<td>Always wanted to be a teacher. Always wanted to help others. Practice through tutoring and visiting a school.</td>
</tr>
<tr>
<td></td>
<td>Teachers as role models</td>
<td>Wants to be like teachers he admires. Understands what happens when students’ issues are not recognized. Recognizes his own strengths</td>
</tr>
</tbody>
</table>

**Themes**

Five themes were derived from clustering the categories into like groups: (a) psychosocial challenges; (b) delayed identification; (c) masking effect and school achievement; (d) the importance of support; and (e) motivation for career choice. In the following section, each theme is described in detail.

**Theme 1: Psycho-Social Challenges**

The first theme to emerge from the analysis was the psychosocial challenges associated with being twice-exceptional: negative school experiences; feelings of failure, worthlessness, and low self-esteem; feelings of depression, anger, frustration; and social isolation. Using examples from the data, each of these categories is described as follows.

**Negative school experiences.** Many students identified as twice-exceptional have had negative experiences at school with teachers and classmates; Ryan was no exception. Although he was identified as gifted in the areas of reading and math by first grade, Ryan also demonstrated challenging behaviors in class. Teachers in elementary school frequently sent home complaints about his behavior in class. Ryan’s behavior continued to be highly challenging for his teachers. Ryan stated he recalled school officials suggesting he be homeschooled although no documentation was available to verify this.
As early as first grade, Ryan’s dysgraphia was impacting his academic achievement. At this time, Ryan’s inability to write coherently and his trouble concentrating on verbal instructions were not recognized as a disability. Although Ryan’s mother suggested Ryan be assessed to identify his challenges, Ryan was not assessed for learning disabilities in elementary school, perhaps because of his high abilities in reading and math. It also had a negative impact on his behaviors because Ryan often felt frustrated that even though he was so far ahead of his classmate in reading and math, he could not do what the others were doing when it came to writing assignments. Ryan believed teachers assumed that when Ryan did not complete written tasks, it was due to laziness or defiance.

In the middle of fourth grade, Ryan and his family moved to another state. He was angry about the move and missed his old friends. Ryan suddenly found himself a social outsider. He did not receive gifted services at his new school and the additional loss of this special status left him frustrated and angry. As his grades dropped, his disruptive classroom behaviors increased.

In fifth grade, when one of Ryan’s teachers became increasingly frustrated with him and even yelled at him before sending him to a special education class, Ryan was convinced he was “just dumb.” In middle school, Ryan’s challenges with writing continued. He did not receive assistance from his teachers but felt they had given up on him. He struggled to fit into middle school culture. The few friends he had made in fifth grade went to other middle schools so he spent most of his lunch breaks alone reading in the library. Bullies started to target him. He was suspended for three days for fighting with another student.
In high school, Ryan was often frustrated by his social and academic challenges. He continued to be targeted by bullies and would explode when he was being teased in class. Although Ryan did not recall being called dumb in high school, he was sure others, including his teachers, thought he was dumb. He recalled how some of his teachers talked about tolerance and respect in class in a way that felt as if he was being singled out and publicly labeled as being different.

**Feelings of failure, worthlessness, and low self-esteem.** Up until the fourth grade, Ryan felt good about school. Although he increasingly struggled with written assignments, he was popular among his friends, he attended the gifted program, and he knew he was far ahead of his peers academically. This changed when he moved to another school in another state.

Ryan’s placement in the gifted program did not follow him into his new school. He was not able to complete the written assignments in class and felt as though the other students in his class were smarter than he was. When he was in the fifth grade, he was sent to a special education class by his classroom teacher. Instead of feeling comfortable at school, Ryan felt singled out, alone, and insecure. He was upset when his teacher yelled at him in class and was certain it was because she thought he was stupid. Being sent to special education confirmed to him that he was a failure.

As his challenges with writing continued in middle school and high school, Ryan continued to feel as though he was dumb even though he was taking advanced math classes and was reading well above his grade level. Other students started to bully him due in part because he received specialized services and in part because he was weird.
Ryan felt that he was different from the other students; the more worthless he felt, the more he isolated himself.

Although Ryan’s teachers never actually called him stupid or dumb, he felt they thought he was based on their actions. When he could not complete his written assignments in elementary school, Ryan was convinced his teachers thought he was lazy or disobedient. He was convinced his fifth grade teacher thought he was not able to do the work because he was dumb. Ryan said he thought one high school teacher thought he was dumb because of how she looked at him. When other teachers emphasized that students needed to demonstrate tolerance and respect, he felt this was aimed at him because he felt like an outsider. Even in college, Ryan’s low self-esteem emerged when he assumed his English professor thought he was not good enough even though other students did equally poorly in this class.

**Feelings of depression, anger, and frustration.** When his family moved to the western state, Ryan felt angry for a long time. He left behind good friends and did not understand the instruction at his new school. He was upset and frustrated much of the time, in particular after he was placed in a special education class by an angry and frustrated teacher.

Ryan was continually frustrated at his inability to put his thoughts into writing. He thought he was smarter than most of his classmates; yet he was unable to complete his assignments in the way he wanted. Throughout elementary school, he channeled his frustration into disruptive behaviors in the classroom.

Ryan frequently felt like a social outcast, especially in middle school. He felt other students thought he was an oddball and several times people he thought were his
friends turned on him and teased him. Ryan believed this was when he started to develop trust issues with others. He started to isolate himself and spent most of his breaks in the school library. The more isolated he became, the more depressed he was. His frustrations escalated in middle school and high school as peers started bullying him, often resulting in outbursts of anger and negative behaviors.

A school counselor finally referred Ryan for an assessment and he was diagnosed with bipolar disorder. At school, Ryan was given accommodations that helped him address his own behavior; he was allowed to leave the classroom when he needed to calm himself. While this helped him reduce his frustrations and control his reactions, Ryan still had depressive periods, one of which resulted in a break-down at school.

**Social isolation.** During his first years in school, Ryan felt he fit in well with his peers. Although his teachers were often frustrated with him and he was often frustrated with written assignments, Ryan had friends in class and met academic peers in his weekly gifted program. He felt he was the leader of his social group. Then he and his family moved to another state.

At his new school, Ryan started having trouble fitting in. He did not receive support from a gifted program; instead, he was placed in special education because of his inability to complete written assignments. This loss of status—from smart kid to special education kid—made Ryan feel like a failure. He recalled breaking down and crying when he was first sent to the special education classroom. However, this was where he first met Joe and started a friendship that would last all the way through high school.

In fifth grade was when the bullying started. Other students would call him names because he went to a special education class. They would play tricks on him,
pretend to be his friend, betray his confidence, and laugh at him. Ryan started distrusting his classmates and spent most of his time with the few friends he knew and trusted.

When Ryan moved to middle school, his friends went to different middle schools. He struggled to fit in with his new classmates. Although he no longer received special education support, bullies continued to taunt him due in part to his behavior. When Ryan was frustrated in class, either from snide comments made by peers or from not being able to complete written work, he got angry very quickly. His moods varied from being very engaged to being extremely disinterested in what was going on in class. Ryan said he felt the other students thought he was weird. They continued to make fun of him, pushing and shoving him physically, until one day things came to a head and he got into a fight with another student. This resulted in a three-day suspension.

Ryan isolated himself in the library at lunch, preferring the company of the librarian and books to his peers. Being alone was not always a bad thing. Ryan described that he and his father were very similar as they both needed to spend time alone every day. However, he really wanted to be more social and make friends; he just did not know how to do that.

By high school, Ryan had accepted he was just different than most of the other students. He also realized this was not a good thing. The bullying continued and while Ryan generally met this with silence, he still noted how very mean the other students could be. He spent most of his time with two friends—Joe, whom he met in the special education room in fifth grade, and Bill, a new friend in high school. His friend Bill said even though Ryan was a very nice person, the initial impression others had was that Ryan
was cold. Although many of his high school peers did not particularly like him, he still tutored them in math.

Being an outsider made him far more aware of his social environment yet did not allow him to crack the social code. However, this did not stop Ryan from trying. He participated in a number of extracurricular activities, joined school clubs, competed on school teams, and tutored his peers when they needed help with math. Sharing his intelligence became a key strategy to connect with others. He continued this strategy through high school and at university with mixed results. While many of his university classmates found it annoying when he raised his hand first in class, Ryan simply wanted to demonstrate he was smart despite his challenges with writing. He also thought this would help him make friends. Some students who approached him to request help with their math work found a generous and knowledgeable tutor and he found the social connection he was wanting.

**Theme 2: Delayed Identification**

By kindergarten, it was evident Ryan was reading and completing math above his grade level. His mother requested that Ryan be assessed for giftedness. In May of first grade, Ryan met with a school counselor and the school’s teacher of gifted students and completed a range of tests for giftedness. Among the tests was the STAR reading assessment where Ryan scored in the 99th percentile at the fourth grade reading level. Ryan was identified as gifted in reading and math and placed in the school’s gifted program for one day of the week. In addition to this placement, Ryan received other accommodations including being able to attend math classes above his grade level.
Lack of assessment. Although Ryan was identified as a gifted student and provided with additional assistance through the gifted program, Ryan was still considered an average student. He struggled to complete written assignments and his mother suggested the reason he did not finish his work was he was not able to write. His disruptive classroom behaviors increased to the point it was suggested Ryan be homeschooled. Although Ryan continued to demonstrate challenging behaviors in class, he was not referred for a behavioral assessment. His mother felt it was the responsibility of the teacher to keep him engaged while his teachers suggested Ryan was purposely disobedient and disruptive.

After the family moved to another state when Ryan was in fourth grade, he no longer received gifted services. His disruptive classroom behaviors continued and in fifth grade, he was sent to the special education classroom by his teacher who was angry when he failed to complete an assignment. At this time, Ryan’s mother requested a formal assessment but the school did not refer him for assessment.

Ryan received no additional special education or gifted services in middle school. He continued to struggle with written assignments and display disruptive and inattentive behaviors throughout middle school. He got into a physical fight and was suspended for three days. Despite his ongoing behavior challenges and problems with writing, Ryan was never referred for assessment for either behavior or learning disabilities.

Formal assessment. In high school, Ryan attended math class above his grade level and was often the youngest student in class. At the same time, he attended an English class for students who needed additional support. A special education support teacher noticed Ryan’s understanding was far higher than his ability to express it in
writing. Although this was not a formal assessment, the teacher allowed Ryan to take a test verbally and Ryan was able to pass the test. At age 14, Ryan was finally identified with dysgraphia. For the first time since kindergarten, Ryan could identify why writing was such a challenge for him. Up until this event, Ryan simply thought other students were smarter than he was and that his teachers thought he was dumb. He thought he was dumb as well because he could not figure out how to get his thoughts onto paper.

Despite his obvious challenges with both writing and behavior and despite his mother’s numerous requests for formal assessment, Ryan did not receive any help at school until a special educator noticed the discrepancy between Ryan’s high ability in reading and low ability in writing. Once Ryan was identified with dysgraphia, his special education teacher and his mother met to create a plan similar to a 504 accommodation plan and discussed ways to support Ryan. It was decided Ryan would receive one-on-one direct instruction in handwriting and other writing skills two days per week in the resource classroom and also attend his general education English class one day each week. According to Ryan, the support he received in high school was the reason he managed to pass his English classes and consider a career other than working at a local chain store.

The following year, Ryan was referred to a school counselor who referred Ryan to a psychiatrist because of continued behavioral issues. The psychiatrist diagnosed him with bipolar disorder. After this diagnosis, another meeting was held to determine behavior supports for Ryan. Accommodations included being able to leave the classroom if an upsetting situation arose, which allowed Ryan to “pull it back towards the middle.” Until his diagnosis, Ryan thought he lacked the self-control most other students had. His
teachers in elementary school suggested he was defiant and disobedient. Relentless bullying in middle school resulted in a fist fight that got him suspended. By the time he was in high school, he was having depressive episodes, frequently shut down, and blocked out classroom activities. However, with accommodations in place, Ryan was able to remove himself from difficult situations to calm himself; he stated he never abused this privilege.

**Theme 3: Masking Effect and Academic Achievement**

Another theme to emerge from the data analysis was school achievement. When Ryan started high school, he was already reading advanced literature and doing math above freshman level. However, he still struggled with written assignments, shifted moods, and had a short fuse toward bullies. He had not yet been identified with dysgraphia and diagnosed with bipolar disorder. In many ways, this exactly reflected the situation when he started kindergarten.

Ryan was a talented reader from an early age. He was reading individual words by the age of three and books by the time he entered kindergarten. Reading inventories conducted in first grade showed him reading well above grade level; by the end of first grade, he was already reading at the mid-fourth grade level. Ryan also excelled at math; in first grade, he was already doing second grade math. Unfortunately, Ryan also displayed unruly behaviors that were so disruptive to his class the first grade school administrators requested he be homeschooled.

**Academic achievement and behavior.** In kindergarten and first grade, Ryan’s behavior masked his giftedness. Ryan shared one reason he acted out in class was he was bored. Another reason he gave for acting out was the tasks that required handwriting
were very challenging for him. His mother, who saw his unusual reading skills, requested he be assessed for giftedness. After assessment, Ryan’s high ability in reading and math prompted his teachers and counselors to place him in a gifted program that met once a week on Fridays.

Despite the fact that Ryan was an excellent reader, he struggled in classes requiring handwriting. He received average grades and was often frustrated by his inability to keep up with other students. He also continued with disruptive and avoidance behaviors in class. Because he could not figure out how to put his thoughts into words and put those words onto paper, Ryan started to avoid written tasks, which his teachers regarded as disobedient behavior. His inability to write was masked by his behavior in class as well as by his giftedness. Neither his teachers nor his family could understand how a student who was so advanced in reading and math could struggle so much with writing.

In the fifth grade, a general education teacher referred him for special education services due to his behavior in her class. Instead of completing an assignment that required writing, Ryan sat at his desk drawing. His teacher felt he was being both disobedient and lazy when, in fact, his dysgraphia was hidden behind his behavior in class. At this time, Ryan was sent to a special education classroom; yet no assessments were conducted on either his behavior or his writing skills. Even working one-on-one with a special education teacher, his dysgraphia was not recognized.

In high school, Ryan continued to take higher grade math classes. By the time he was a senior, he was so far ahead of his same-grade peers that he ran out of math classes to take and he was tutoring other students who struggled in math. At the same time,
Ryan was placed in a remedial English class while taking upper level math classes. Here he met a special education teacher who noticed the discrepancy between his subject understanding and his written performance. Ryan’s dysgraphia masked his high ability to understand and present the material he learned in English class, which was ironic given that Ryan was identified as gifted in reading. His special education teacher referred him for a learning disability assessment. Ryan was identified with dysgraphia and, for the first time, received assistance with his writing challenges. He was also diagnosed as bipolar and received accommodations to help him regulate his behavior. Although his challenges with writing had been evident and consistent since kindergarten, it was only when his teachers in high school referred him for an assessment that Ryan’s challenges were finally recognized. Throughout his education, his obvious strengths in reading and math as well as his disruptive classroom behaviors masked his dysgraphia.

At university, Ryan continued to struggle with writing assignments, especially in English classes. It was only when Ryan went to his professors to share his challenges and request accommodations that he started receiving the assistance he needed to succeed. Although not all of his professors understood or recognized his challenges, those who did encouraged Ryan’s continued efforts in academic achievement and striving toward his career goals. Without the continued support from his mother, his few friends, and some of his teachers, Ryan could easily have failed school.

**Effect of labeling.** Between first grade and 10th grade, Ryan received three different labels—he was identified as gifted in first grade, his learning disability was identified in ninth grade, and he was diagnosed with bipolar disorder in 10th grade. Each of these labels had positive and negative effects for Ryan. In addition to academic
support, the label of giftedness changed how some teachers viewed him. By the middle of first grade, Ryan’s classroom behavior was so challenging his school suggested he be homeschooled. However, once he was identified as gifted and started receiving supports that assisted and challenged him, this was no longer a suggestion even though his disruptive classroom behavior continued.

However, the label of giftedness might also have resulted in a delay in the identification of dysgraphia. Although he clearly displayed avoidance behaviors when faced with assignments that required handwriting, he was not referred for evaluation of possible learning disability. This may have been due to the fact that he so obviously had high abilities in reading as well as math. His behavior was seen as disobedient and disruptive rather than a strategy to avoid a skill he could not do easily or well.

In fifth grade, when he was sent him to the special education classroom, Ryan believed he had been labeled as “dumb” by his teacher. This was emphasized when other students started teasing him about having special needs. Throughout middle school, he continued to be plagued by bullies and felt this was his fault because he was not as smart as other students when he could not do the work they did with ease. In high school, he continued to believe his English teacher thought he was not that smart because he attended a support classroom for English instruction. But it was not until he was identified with a learning disability that Ryan began to believe he did not deserve the label of “dumb.” This continued support helped Ryan overcome the label of dumb he felt he earned in middle school. Ryan no longer self-identifies as dumb. He understands his struggles were mainly because of his learning disability.
Theme 4: Importance of Support

Throughout his life, Ryan received a great deal of support from his family. As early as kindergarten, his mother was advocating for recognition of both his gifted abilities and his challenges. Her advocacy led to Ryan being tested for giftedness and placed in a program for gifted students. The program supported his need for advanced reading and math. Ryan’s mother continually encouraged him to pursue his dreams while she gave him positive reinforcement that supported those dreams. Throughout his education, Ryan’s mother helped him understand and complete school work, insisting he turn in homework even if it was late and he would not receive credit for the assignment so he could learn responsibility. She also helped him identify for himself the problems he had with writing.

Ryan’s father always supported his desire to become a teacher and established a college fund for him, making it clear he expected Ryan to pursue higher education. Although they were not close as children, his sister helped him throughout college with editing papers and by encouraging him in his current desire to become a teacher.

The initial support Ryan received from his school counselor and the teacher of gifted students at his school was fundamental in identifying and supporting Ryan’s giftedness. This identification resulted in his receiving direct services one day each week as well as being able to attend math classes above his grade level and read books at his reading level. Once he was being challenged at his academic rather than his grade level, Ryan really enjoyed school.

It was only after Ryan was identified with the learning disability of dysgraphia and after his bipolar diagnosis that he received support in high school. When he talked
one-on-one with his professors, most of them supported his special needs. A few teachers were not supportive of Ryan and added to his challenge through his perception of their negative reactions to him. He felt as if he had been labeled.

From the time Ryan started kindergarten, he disrupted classroom instruction with his behavior. This continued until his sophomore year in high school when he was diagnosed with bipolar disorder. This diagnosis resulted in his being provided with accommodations that gave him options to step away from frustrating situations and calm himself. Until that time, Ryan was considered disruptive and defiant by teachers when he did not do what he was told, lazy when he failed to complete written assignments, and moody by the time he was in high school. Many of his peers thought he was stupid and weird and felt they had a right to bully him for being different. However, once Ryan was labeled with bipolar disorder, he saw himself differently. He realized he was not a bad kid—he simply needed extra support. Once he received the support, Ryan took full responsibility for his behavior and used the accommodations he was given only when needed. He never abused the fact that he was allowed to leave the room when he got over-excited or when the situation became frustrating for him. True to his nature, once Ryan understood what the problems were, he figured out the best ways to address them. The support Ryan received from his family, from some of his closest friends, and from some of his teachers helped him overcome some psychosocial challenges that might otherwise have kept him from succeeding. Overcoming these challenges included how Ryan developed a positive identity, how he learned self-advocacy, and how he built his self-determination.
**Positive identity formation.** Positive identity formation can be difficult for twice-exceptional students who face confusion over why they face challenges when they are gifted. Ryan struggled in his social interactions when he was bullied. Socio-cultural factors that impacted Ryan’s identity formation included how teachers expected him to be more universally gifted and possibly assumed his bad behavior was due to either laziness or because he was bored. Ryan internalized these messages so by middle school he was struggling with self-esteem. Through the continued support of his mother and the support he received from his high school teachers who recognized his twice-exceptionality, Ryan was able to begin building a more positive identity.

Ryan learned he could identify as a helper by being a teacher’s aide. He tutored his peers in math. His social interactions in high school improved when he took part in extracurricular activities. He realized that despite the challenges he would always face when it came to writing, his deepest desire was to become a teacher and help other students, especially those who were struggling.

**Self-advocacy.** Ryan learned the value of advocacy from his mother. She advocated for him with his teachers and others beginning in kindergarten. It took Ryan until college to realize he could be his own best advocate. Because he did not know he had a learning disability, Ryan had assumed at an early age that if he was having problems in school, then he had to figure out what to do all on his own. It took a great deal of courage for Ryan to go to individual professors at the university and explain his issues to them so they would understand when he asked for help. Ryan has learned how to reach out when it is necessary. He has also learned when he needs to give himself a break. Some of this comes from when he was diagnosed with bipolar disorder and part of
his coping strategy was he was allowed to leave the classroom when it was difficult for him to control his frustration. He learned he could build his self-control this way.

**Self-determination.** Ryan’s self-determination has also been a long process that grew out of his frustrations with how he was treated as a student as well as the satisfaction and enjoyment he felt when helping others. He knows he is following in the footsteps of others in his family who are teachers. Unlike them, Ryan has his own direction. He is interested in teaching math while other family members are involved in creative arts. Ryan knows math is his strength. He sees himself capable of social interaction even though it is not his strength. Ryan knows he can be social. He knows he can succeed and reach the goals he has set for himself. It is this self-determination, built on self-advocacy, that comes out of Ryan’s positive identity formation, which has led Ryan to believe he can achieve his goals. Another term for Ryan’s self-determination could be resiliency. Throughout his life and with the support of people closest to him, Ryan struggled but kept trying. This resiliency was most apparent when he discussed why he wanted to become a teacher. He spoke several times about wanting to help others by becoming a teacher.

**Theme 5: Motivation for Career Choice**

Many young people talk about what they want to be when they grow up from an early age. One of Ryan’s choices has always been teacher, which makes sense since so many of his family members are teachers. In elementary school, high school, and at the university, Ryan has been motivated in his career choice by teachers he admired. Ryan has had both positive and negative role models. Part of his motivation stemmed from his
desire to help others as well as his enjoyment of his chosen content--high school level math.

Ryan acknowledged his fifth-grade teacher had a very negative and long-lasting impact on him. She was the first teacher he felt gave up on him. Other teachers have had a positive as well as long-lasting effect on him as well. Some of the teachers Ryan admired included Ms. J. and Mr. S. who helped Ryan recognize and deal with his twice-exceptionality. Mr. S. showed Ryan alternative ways to demonstrate his academic achievement. At university, Ryan admired a professor who used different learning methods in the classroom instead of relying on a lecture-only format. This course served as an introduction to how instruction could come alive and be meaningful for all students regardless of their abilities or disabilities.

In high school, Ryan worked as a teacher’s aide for one year. He also tutored his peers when they had problems with their math homework. When he was helping other students, he felt he had a purpose and also noticed he got more respect and less bullying from other students. Ryan told one of his best high school friends that he wanted to be a teacher. In his responses to questions, Ryan’s friend Bill stated he thought Ryan would make a great teacher. One other hands-on experience helped motivate Ryan’s career choice. This was when a family friend who is a teacher invited Ryan to spend a day in the classroom with him. It was after this experience that Ryan realized teaching would be something he would not only be good at but he would enjoy. He decided to major in general education and work toward becoming a teacher. All of these experiences helped shape his motivation to become a teacher.
Ryan put a great deal of thought into his career choice. Although he liked a variety of subjects including history and science, Ryan knew math was his true strength. Therefore, he decided to pursue a career teaching high school math. Ultimately, his main motivation for becoming a teacher was to provide students with better help than he himself received throughout most of his education. His delayed identification, how he felt he was treated by some of his teachers, and his feelings of self-esteem all played a part in helping determine Ryan’s career choice.

**Interrelationship of Themes**

The five major themes stood alone but also intersected and had an effect on each other. Delayed identification could have had an impact by the challenges Ryan’s learning disability presented and interfered with his academic achievement. Psychosocial challenges were related to both delayed identification and academic achievement. The support Ryan always had from his mother and some of his teachers has helped Ryan manage to finish high school and continue on to the university. This support has been vital to his determination to become a teacher. Ryan’s experiences at school, both the negative experiences of not receiving assistance and the positive experiences of support and helping peers, also influenced his determination to become a teacher. The interrelationship between themes is demonstrated in the following concept map (see Figure 1).
Figure 1. Themes concept map.
The themes were derived from the clusters of the categories. Categories also interacted and had an impact on each other and the themes. For example, when Ryan was sent to special education in the fifth grade, the “labeling” affected his “feelings of failure.” The themes and categories helped explain how Ryan’s life experiences shaped his whole being.

**Addressing Research Questions Through Relationships of Themes**

As the concept map indicated in Figure 1, many of the effects found in the themes were interrelated. The research questions were addressed by examining these interrelationships. Each section of the response to the particular research question was matched with the themes that applied. The following research questions guided the study:

Q1  How has the lived experience of being twice-exceptional influenced one student who is planning to become a teacher?

1a  How did his experience shape his identity development?

1b  How did this experience inform his perspective on teaching and education?

1c  How did his experience influence his career choice?

Table 4 provides a summary of themes and categories that addressed the research questions.
Table 4

*Themes and Categories That Addressed the Research Questions*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Themes</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a—How did his experience shape his identity development?</td>
<td>Psychosocial challenges, delayed identification, masking effect and school achievement, importance of support.</td>
<td>Feelings of failure, social isolation; lack of assessment of learning disability; academic achievement, labeling; effect of labeling.</td>
</tr>
<tr>
<td>1b—How did this experience inform his perspective on teaching and education?</td>
<td>Psychosocial challenges, importance of support, motivation for career choice</td>
<td>Negative school experiences, feelings of frustration; positive identity development, self-determination; helping others, teachers as role models.</td>
</tr>
<tr>
<td>1c—How did his experience influence his career choice?</td>
<td>Psychosocial challenges, importance of support, motivation for career choice</td>
<td>Positive identity development, self-determination; helping others, teachers as role models.</td>
</tr>
</tbody>
</table>

In the following sections, each of these questions is answered using the findings from the study.

**How has the lived experience of being twice-exceptional influenced one student who is planning to become a teacher?** For most of his life, Ryan felt as though he was different than other students. He knew he was gifted but he did not understand why he experienced such intense academic and social challenges at school. It was not until high school that he was identified with a learning disability and bipolar disorder and finally received the assistance he needed to start to address the challenges he lived with
each day. His experiences in education, both as a student and as a tutor as well as his family background, led him to consider a career as a teacher in large part because he did not want other students to go through what he went through without receiving support.

**How did his experience shape his identity development?** Students who are twice-exceptional often face challenges in developing a healthy self-identity. While they might be identified with both giftedness and a disability, they never fully fit into either of these categories nor do they fit in with grade-age peers. The following themes helped to answer the question of how the experience of being twice-exceptional shaped the participant’s identity development: psychosocial challenges, school achievement, delayed identification, and the importance of support. While each of these themes described specific aspects of Ryan’s experience, they were also highly interrelated to his identity development. For instance, with the exception of his early elementary years, Ryan struggled to fit in socially and make friends. He agreed he was different than his peers and felt responsible for these differences. Being considered different by his peers led to his being bullied, socially isolated, and not being able to trust the intentions of others. Ryan could not understand how he could be smart while at the same time struggle with basic written tasks his peers completed so easily. After being abruptly placed in special education by a teacher who was frustrated with his classroom behavior, he thought the reason he was struggling must be because he was dumb. For a number of years, Ryan, who was exceptionally talented in math and reading, thought he was stupid and destined to work in a low level, unskilled job. It was only when he was identified with a disability in high school that he realized his challenges were not his fault. For most people, being identified with a disability would be upsetting. For Ryan, identification and the support
he received after being identified with dysgraphia resulted in a big shift in his self-awareness. He came to understand the challenges he faced at school were not due to a personal lack of skill or effort but rather to something he could start to address. Ryan no longer felt dumb. The support he received from his family, including his mother's advocacy, made him feel he was important and a valuable person within his family. He believed in himself. In addition, the support he received in high school made him realize he could trust his abilities. He developed self-advocacy skills. The support Ryan received helped him develop his self-determination and made him realize he could have the future he wanted.

**How did this experience inform his perspective on teaching and education?**

To answer this question, findings from all of the themes were used. Although Ryan decided to become a teacher himself, his own experiences in education were very mixed. Many gifted students take responsibility for things for which they are not in fact responsible. Typical students might think a test is hard while gifted students often feel they are not good enough to answer the questions. For Ryan, this expanded sense of personal responsibility led him to feel situations at school were his fault and it was up to him to fix them. School in general was often challenging for him. He often thought he was the problem. In fifth grade, Ryan felt his teacher treated him unfairly by sending him to the special education classroom without really telling him why he was being sent there. Although he was distressed by this decision, he excused this by believing he was just dumb. Teachers in middle school either did not see he was being bullied or ignored it; Ryan again felt he deserved to be treated badly by his peers. However, Ryan also met teachers who went out of their way to make a difference. He appreciated the patience of
his fifth grade special education teacher and appreciated the small group learning environment she provided. He recalled how much he liked his middle school math teacher who was supportive and encouraged him to participate in extracurricular activities. He also spoke at length about Mr. S., the high school special education teacher who was helpful in identifying his dysgraphia and who also offered the direct instruction in writing he so desperately needed.

This wide variety of learning experiences, along with his desire to become a teacher, made Ryan consider the impact a good teacher could have on students. Addressing or ignoring the needs of individual students could have a significant influence on the self-esteem and success of each student, and these experiences could impact students’ futures. Ryan was ready to give up on his own future before he met the one teacher who saw his unique learning needs. He completely understood the power a teacher could have in shaping the future of his students.

**How did his experience influence his career choice?** The final question in this study was answered using findings from the following themes: the masking effect and school achievement, the importance of support, and motivation for career choice. After high school, Ryan first considered being a forensic scientist. However, after a classroom visit with a family friend, he realized being a teacher felt like a better fit for him. He was great in math, he had experience working as a tutor in high school, and he knew he would be good at it. Many members of Ryan’s family were teachers, including both of his parents, so the career of teaching was familiar to him. However, this decision was not an immediate or easy decision for Ryan to make.
However, one of the main motivations for becoming a teacher was Ryan wanted to provide students who were struggling with the kind of assistance he himself did not receive until quite late in his K-12 education. Although he felt from an early age he wanted to be a teacher, his challenges at school made him unsure he would be successful in this field. It was only after he was identified with dysgraphia that he felt he could master these challenges. When he stated his desire to become a teacher, his family and friends, as well as many of his high school teachers, were very supportive.

As he completes his preservice teacher preparation, Ryan’s philosophy of teaching has been developing along with his instructional skills. At university, he found when his professors understood his needs, he felt more connected to the class. He also realized the activities used in class could either include or exclude students with unique learning needs. According to Ryan, it is only when teachers pay attention to the needs of individual students that education becomes authentic and meaningful for all students.

**Conclusion**

This chapter described Ryan’s experience as a twice-exceptional student. Data used in this study came from four semi-structured interviews and one follow-up interview, responses to emailed questions, and artifacts. The storyline described details of the experiences Ryan chose to share with me and provided a narrative of his experiences throughout his education. That Ryan’s mother recognized Ryan’s early abilities and was able to successfully advocate on his behalf was important. As early as first grade, Ryan was recognized as gifted and his reading and math abilities were encouraged. Unfortunately, Ryan’s challenges were not identified as characteristics of a learning disability; thus, Ryan’s unique learning needs regarding writing were not
identified or supported until high school. Ryan’s personal experiences, his academic achievement, his perseverance, and the support he received from others have led him to be motivated to use what he has learned about twice-exceptionality to pursue a career as a general education math teacher.

The constant comparative method was used to analyze the data. Five themes emerged from the qualitative analysis of the data collected: psychosocial challenges, school achievement, delayed identification, the importance of support, and motivation for career choice. Although each of these themes was distinct from one another, they also overlapped to a considerable degree. The giftedness that masked Ryan’s disability was also the strength Ryan has chosen on which to build his future as a teacher. The dysgraphia that has been so challenging for him has led to a strong desire to assist other students in receiving the assistance and support they need to succeed. And while Ryan experienced a significant delay in the recognition of his learning disability, he also received support from his family and some teachers who always believed in him.

The themes that emerged from the data analysis were used to address the research questions. Several of the themes that emerged including psycho-social challenges, delayed identification, the masking effect, and support related to identity formation were also found in the research literature. Yet one theme, the motivation for career choice, was unique to this study.

In Chapter V, I discuss how these themes connected with the review of the literature. There is also a brief presentation of the limitations of this study. Finally, implications and recommendations for future research are discussed.
A qualitative narrative case study was used to explore the experience of a participant who was twice-exceptional. Data were gathered through the use of participant interviews, information provided by people familiar with the participant, and the examination of artifacts provided by the participant. The purpose of this study was to explore the experience and perspectives of one twice exceptional university student identified as gifted and learning disabled in order to understand how his personal experiences of being twice-exceptional influenced his identity development, his perspectives on teaching and education, and, ultimately, his career choice.

When I conducted the literature review for this study, I could not find any research studies that investigated teaching as a career choice of individuals who were twice-exceptional with the exception of Morrison (2000) whose participant revealed his interest in becoming a teacher. The focus of the Morrison study was not on career choice and teaching was only briefly discussed. However, a number of research studies explored the incidence and characteristics of individuals who were twice-exceptional (Bracamonte, 2010; Davis et al., 2011; Hannah & Shore, 1995, 2008; Montague, 1991; Reis et al., 1997; Vespi & Yewchuk, 1992), challenges regarding identification of students with twice-exceptionality (Assouline et al., 2010; Baldwin, Omdal, et al., 2015; Bianco, 2005), and the effects of interventions (Crim et al., 2008; Dole, 2001; Olenchak,
1995. Therefore, findings from this study contributed to the research literature—not only to the field of twice-exceptionality but also to research about teaching as a career choice among students who are twice-exceptional.

Five themes emerged from the data: (a) psychosocial challenges, (b) delayed identification, (c) masking effect and school achievement, (d) the importance of support, and (e) motivation for career choice. This chapter reveals how each of the five themes related to the review of the literature from Chapter II and to the research questions. Following the discussion, the limitations of this qualitative study are described. Finally, implications and the recommendations for future research are discussed.

Discussion

In this section, each of the five themes is discussed in depth. Findings from these themes are discussed related to the existing literature as well as the personal insights of the researcher.

Psychosocial Challenges

**Negative school experiences.** A number of research studies have discussed the psychosocial challenges associated with twice-exceptionality (Barber & Mueller, 2011; Dole, 2001; Hannah & Shore, 2008; Reis et al., 1997; Vespi & Yewchuk, 1992). Both Nielsen (2002) and Reis et al. (1997) found students who were twice-exceptional often had negative experiences at school and these experiences often led to feelings of worthlessness and failure. Ryan was no exception. Although he remembered his early elementary years positively, he also remembered teachers sending notes home to his parents about his disruptive behavior in class. When Ryan acted out in class or when he did not do his written work, his teachers thought he was being lazy and disobedient. In
fifth grade, Ryan experienced a teacher who yelled at him when he did not complete his assigned task and then sent him to the special education classroom, which was devastating and humiliating for him. Although he appreciated the patience of his special education teacher, he was not evaluated for possible learning disabilities despite his mother’s request for assessment. These incidents suggested that while there were procedures in place for referring students for evaluation and providing supports, many teachers were not aware of them. For Ryan, this lack of awareness among teachers, including his fifth-grade special education teacher, resulted in delayed identification and support of his learning disability.

**Feelings of failure, worthlessness, and low self-esteem.** By fifth grade, Ryan, who had been identified as gifted in first grade, felt as though he was the dumbest student in his class. He could not complete written assignments and had been sent to special education. He was convinced he was a failure and he alone was to blame for his poor academic achievement. Ryan continued to feel as though he was dumb all the way through high school despite his extraordinary accomplishments in reading and math. Research suggested it was not uncommon that twice-exceptional and gifted students felt they are responsible for failing (Hannah & Shore, 2008; King, 2005; Vespi & Yewchuk, 1992). Additionally, students with learning disabilities including dysgraphia often have challenges related to lack of self-esteem and frustration when they are not able to express what they know (Chung & Patel, 2015; Dowdy et al., 1992; Lerner & Johns, 2011). Research showed interventions to improve social skills might help address some of these challenges (Olenchak, 1995, 2009; Vespi & Yewchuk, 1992). However, my findings suggested the support Ryan received from his family, in particular his mother, and two
teachers, his middle school math teacher, and his special education high school teacher Mr. S, kept Ryan from falling into despair and dropping out of school altogether. In many ways, Ryan fell between two worlds. Although he was identified as gifted, he did not receive support in the compensatory skills he needed to maintain his self-esteem as a bright, curious, and intelligent learner. Although he clearly needed assistance in writing, he did not receive the special education support he needed to learn how to express himself in writing. It was also very clear from the interviews that Ryan never blamed his teachers for his challenges as he thought it was his fault. This exaggerated sense of personal responsibility is common in gifted students but was not recognized or supported by his teachers. Some students who are gifted often have exceptional emotional as well as academic needs and need instruction in compensatory skills to address them. Ryan never received this kind of support and for every year he failed to live up to his own expectations, his feelings of failure and worthlessness increased.

**Feelings of depression, anger, and frustration.** Ryan was angry and frustrated when his teacher sent him to special education in fifth grade. He did not think this was done to support him; rather, the teacher wanted to get him out of her classroom. He was angry when his peers made fun of him and when they made rude remarks in class. By the time Ryan was in high school, he was experiencing periods of depression when everything seemed to be out of control. Students who are twice-exceptional often report feelings of anger and depression (Nicpon et al., 2011; Reis et al., 1997; Vespi & Yewchuk, 1992). This might be due in part to the lack of challenging coursework, their inability to meet their own expectations, and the social challenges they often face with peers. When asked what he thought was the cause of his anger and depression, Ryan
suggested it was related to being a social outsider. Until the family moved in the middle of fourth grade, Ryan remembered being happy at school. However, after they moved, he faced daily teasing and bullying, which escalated after he was placed in the special education class. He went from being a leader among his friends to a social outcast in a heartbeat. Ryan’s feelings of anger and depression continued to grow without this being recognized or addressed by anyone at his school. In high school, Ryan was diagnosed with depression and bi-polar disorder and was provided with accommodations to help him address his classroom behavior. However, since Ryan was identified as gifted as well as with dyspraxia, both of which could be associated with social challenges including poor self-concept, hypersensitivity, high levels of self-criticism, and inappropriate social conduct (Dole, 2001; Dowdy et al., 1992), providing accommodations that assumed he would independently manage his mood and behavior challenges without also providing him with strategies to identify triggers and reactions might not have been the most appropriate support. Students who are twice-exceptional often need instruction in compensation strategies to help them learn to navigate their social world. Although by this time Ryan was receiving academic support for his dysgraphia and accommodations for his behavior challenges, he never received fully appropriate support for his behavior issues.

Social isolation. Ryan struggled to fit in socially during most of his education. He attributed this to being different than his peers and being perceived as socially weird. After being placed in special education, he experienced bullying and teasing from his classmates including being tricked by people pretending to be his friends and then turning on him. Being betrayed by classmates he considered his friends left him with trust issues.
Ryan’s strategy for dealing with bullies became one of avoidance—he isolated himself socially, spent his lunch breaks alone in the library, or hung out with only a few trusted friends. He felt lonely throughout much of his education. Although he worked hard to change this in high school by tutoring his peers and participating in extracurricular activities, making friends was never easy for Ryan.

According to King (2005), students with learning disabilities often experience greater social problems than students who do not have learning disabilities; those who are twice exceptional are at even greater risk of social problems. In addition to difficulties related to writing and organizing written materials, individuals with dysgraphia frequently display challenges in interpreting body language and understanding social cues (Berninger & May, 2011; Cortiella & Horowitz, 2014). Vespi and Yewchuk (1992) found that all of the four boys in their study who were identified as twice-exceptional reported not fitting in with peers. Barber and Mueller (2011) suggested this might be due to students who are twice-exceptional not being able to find true peers in their classroom.

Social isolation came up many times during the interviews as well as not fitting in. Ryan expressed a desire to have friends and connect with his peers but he also demonstrated a lack of understanding of how to accomplish this. Ryan seemed forever to be falling between different worlds and the different expectations of each. He did not fit into his grade level academically, rising above or falling below expectations, and he did not fit in with his peers socially, often an outsider, sometimes an outcast. At university, Ryan’s chosen strategy of making friends was to demonstrate how smart he was. For Ryan, this demonstrated a fundamental lack of understanding of how social relationships worked. This suggested that in addition to receiving services for giftedness and learning
needs, students who are twice-exceptional might also need structured support in social
skills to address their unique needs.

**Delayed Identification**

Identifying students who are twice-exceptional can be challenging due to a
number of factors. Identification procedures often focus on academic achievement
scores, which often do not provide sufficient information for identification, and both
giftedness and disabilities can mask one another, making identification of either
challenging (Assouline et al., 2010; Beckley, 1998; Bracamonte, 2010; Reis & Ruban,
2005). Additionally, many teachers held the inaccurate belief that students who received
special education services neither needed nor benefited from services provided in a gifted
program (Bianco, 2005). All of these challenges appeared to have been present in Ryan’s
case.

From the start of kindergarten, Ryan displayed disruptive behaviors in class. His
mother believed this was the result of his being bored with the classroom instruction and
suggested his teachers address his behaviors through more interesting instruction. His
teachers, however, believed his behavior was defiant and disobedient. It was only due to
the strong advocacy of his mother that Ryan was even tested for giftedness at the end of
first grade. Although his mother told his teachers he had difficulty completing written
assignments and requested a formal evaluation, Ryan’s dysgraphia was less obvious to
his teachers due in part to his classroom behavior. Ryan’s disruptive behavior continued
until high school when he was diagnosed with bipolar disorder.

Teachers are trained to look for discrepancies between their students’ abilities and
the academic results they achieve. However, they are often not aware a student’s
behavior in itself can mask achievement. Although Ryan’s reading level was extremely high, it was still difficult for him to complete written assignments. It appeared his teachers were unable to recognize his learning disability due to both his giftedness and his behavior. The obvious discrepancies among academic performance, intellectual curiosity and engagement, his level of abstract thinking skills, and his creativity were not examined.

Bracamonte (2010) claimed twice-exceptional students were among the most underserved groups in schools. The findings of this study mirrored findings in the research about the challenges of identifying students who are twice-exceptional. Ryan, whose learning needs were masked by both giftedness and behavior, was not identified with a learning disability until the ninth grade by which time he had struggled with writing for nine years. Using only one tool to assess giftedness can be problematic, especially when giftedness has many different characteristics. Using different sources of information, different assessments over time, as well as using longitudinal data over several years might help with the identification of giftedness. Additionally, ensuring teachers have insight into behavior issues as well as characteristics of giftedness and learning disabilities could result in a higher rate of referrals for their students who struggle.

Masking Effect and School Achievement

Probably one of the most difficult aspects of twice-exceptionality is the masking effect. This is because a gifted student’s disability could be masked, giftedness in a student with a disability might not get noticed, or a student who is average might be masking both giftedness and a disability (Baum, 1990; Beckley, 1998). Students who are
gifted can often compensate for their learning disability; however, compensation strategies such as memorizing facts and using logic to navigate tricky questions only works as long as the strategies work for the individual. The more complex the academic work, the less likely the compensatory strategy would succeed academically (Al-Hroub, 2013; Eig et al., 2014; van Viersen et al., 2014; Willard-Holt et al., 2013). When teachers expect gifted students to be universally gifted, behavioral issues are often seen as signs of disobedience or laziness (Baldwin, Omdal, et al., 2015; Beckley, 1998). Only when students can no longer compensate or when their frustrations become too great that their twice-exceptionality is finally recognized.

In Ryan’s case, his disruptive behavior in class covered up his giftedness to such an extent that he reported it was suggested he be homeschooled. However, Ryan had a mother who advocated for him and insisted on an assessment for giftedness. Although this resulted in increased services for Ryan, his teachers’ expectations of global giftedness coupled with his continuing classroom behaviors helped to mask his learning disability for a number of years.

The discrepancy between Ryan’s giftedness in reading and math and his writing was evident from kindergarten on and this discrepancy increased each year. According to Engel-Yeger et al. (2009), even very young students with dysgraphia often accurately self-report challenges with their writing skills. Ryan was not able to complete written work without assistance, either at home or at school. Yet even though his mother informed his teachers he struggled with any written assignments, teachers failed to identify his challenges accurately or even refer him for evaluation.
Even with such clear indicators, it is apparent that identifying twice-exceptionality can be challenging, perhaps even more so when students demonstrate challenging behaviors. General education teachers seem to consider disruptive behavior to be an indicator of lack of self-control; Ryan stated his teachers sent notes home to his parents suggesting he was disobedient.

Research into the effects of labeling twice-exceptional students included both positive and negative effects (Bianco, 2005; Bianco & Leech, 2010; Henley et al., 1999; Lo, 2014). Labeling can be an asset for parents and teachers when it is used to identify special needs for students who are either gifted or who have disabilities. The negative impact is almost always felt by students. In Ryan’s case, he felt as if he had been labeled “dumb” when he was referred to special education without cause. One effect of using these labels was to effectively mask his learning disability. When teachers apply labels without understanding the causes of either behavior or academic achievement, the effects on students are usually negative (Barber & Mueller, 2011; Nielsen, 2002; Reis et al., 1997, 2000; Vespi & Yewchuk, 1992).

Since both giftedness and dysgraphia are conditions associated with having difficulties reading body language, facial expressions, and interpreting social cues (Berninger & May, 2011; Cortiella & Horowitz, 2014), it seemed clear Ryan was doing his best to inform his teachers that he was not able to do the tasks that involved writing. He used disruptive behaviors that disturbed the classroom instruction as well as avoidance behaviors where he simply sat quietly at his desk drawing. Neither of these strategies resulted in his receiving additional assistance and only added to the masking of his disability and need for support.
When students send signals, we should take them seriously, particularly when the signals they send involve behavior or mood changes. Special education teachers are trained to view behavior as a form of communication; perhaps general education teachers need more pre-service training in non-verbal communication among children. It is better to refer students to an assessment that excludes identification than to miss supporting those students who need support the most. Early recognition is better than later interventions when it comes to academic success. Ryan shared that although he was grateful for the support he finally received in high school, his school experience would probably have been far easier had he received this type of support earlier in his education.

The Importance of Support

Besnoy et al. (2015) claimed parents are the strongest advocates for their children but parents who do not know what to expect within the school could face difficulty managing the system in order to be efficient advocates. Ryan’s mother had a background in education so she knew the importance of being an active advocate to make sure Ryan was challenged in school. She was instrumental in ensuring he was assessed for his advanced reading ability and helped Ryan establish good study and homework habits at home. She also worked closely with his teachers to make Ryan’s early education as positive and successful as possible.

Ryan also received support from teachers. In middle school, his math teacher encouraged him to do extracurricular activities while in high school, a teacher encouraged him to join the Knowledge Bowl and the Math Club. His special education teacher, Mr. S., was the person who finally referred him for assessment of dysgraphia. A social studies teacher referred him to the school counselor to explore his behavior. The
support he received from these teachers was a changing point for him. His feelings of self-worth were minimal, he was convinced he was dumb, and he thought he was meant for an unskilled job. The support he received changed his perspective both about himself, his abilities, and his place in life. Ryan’s self-value increased once he realized the things he had struggled with for so long were not his fault and others were there to assist him with the challenges.

When Ryan described the difference in his attitude about himself, it was apparent that until he received both identification of his challenges and support to address them, he was struggling with his own self-image. Ryan was aware something was not right because he could do higher level work so easily but was not able to put his responses down onto paper. He thought he was dumb. Being identified with dysgraphia gave him confirmation that despite his best efforts, he could not overcome his writing challenges without assistance. The support he received made him aware of his own strengths and needs and it increased his self-awareness and self-identity. Ryan started to believe in himself and felt he was no longer alone.

**Positive identify formation.** The research on how twice-exceptional students build a positive self-identity or self-image was somewhat limited (Barber & Mueller, 2011; Dole, 2001; Morrison, 2000). Most of the research suggested students who are twice-exceptional have difficulty building a positive self-identity because of the challenges they faced when they were young. This was compounded if they were misidentified and their academic and social needs were not being met. Barber and Mueller (2011) suggested strong maternal support was not as effective for students who are twice-exceptional as it is for students with only one exceptionality. Even though
Ryan’s mother was supportive and a strong advocate, it was not until Ryan received recognition of his twice-exceptionality and the support of some of his teachers in high school that he was able to build a stronger positive self-identity. Dole (2001) suggested positive identity formation is developed through extra-curricular activities as well as teacher and parental support. This was demonstrated when Ryan began to take a more active role in extra-curricular activities in high school.

**Self-advocacy.** According to Dole (2001), self-advocacy is one part of the formation of positive self-identity. Developing self-advocacy involves developing a better understanding of oneself and one’s own needs, learning to speak up for oneself, and making decisions about one’s own life. For students with disabilities, self-advocacy also involves understanding the impact of their disabilities as well as knowing how to meet their own needs (Dole, 2001).

For Ryan, self-advocacy was a learning process. Early in his life, Ryan assumed he would need to solve issues on his own and that no one would really be there to help him. He came to this conclusion based on his experiences in school when his attempts at requesting assistance through disruptive behavior were repeatedly ignored. However, once he was identified with dysgraphia and started receiving one-on-one instruction, he began to understand his own learning needs better and learned to ask for the assistance he needed to complete his schoolwork. When he received accommodations for his bipolar disorder, he used them only when he really needed to leave a difficult classroom situation. His understanding of himself increased as well as his ability to express his needs and request assistance. As he became more self-aware, he began to ask for help on his own. The process of developing self-advocacy skills began once Ryan understood his
own needs better. Ryan continued to learn how to state his needs and advocate for support with professors in his university program. This agreed with findings by Olenchak (2009), who found gifted students who received support had increased self-awareness and demonstrated more positive attitudes toward education, and with Dole (2001) who found twice-exceptional students who received support increased their level of self-acceptance as their self-knowledge increased.

**Self-determination.** Both Dole (2001) and Morrison (2000) discussed the importance of self-determination for twice-exceptional students. Students who had self-determination were distinguished from students who had not yet developed this by their ability to make decisions according to their own interests and preferences. They also had the ability to be self-directed, goal-oriented, and to regulate their own actions.

In the Dole (2001) study, self-determination for one participant came only after he was able to advocate for himself. In Ryan’s case, he was always determined to do something with his life--he just needed to find his direction. He said he always wanted to help people and showed an early interest in teaching. After experiencing working in a classroom and as a teacher’s aide, Ryan became more determined to become a teacher. He entered a four-year, pre-service teacher training program and has worked hard to complete his coursework while advocating for his needs and offering his considerable talents in math to fellow students.

Ryan faced a number of challenges during his primary education years. When he was younger, his mother was a staunch supporter and advocate for him. However, in high school, this shifted when he started receiving assistance from Mr. S. Although he was involved in developing the supports and accommodations Ryan received, he
encouraged Ryan to be his own advocate and to explore what worked and what did not. This hands-off approach allowed Ryan to figure out what supports he needed to succeed. During this process, Ryan also increased his self-esteem and his self-awareness. It was interesting to note Ryan only learned to request support after he had received it. Self-esteem is improved by success in academic, social, and extracurricular situations, all of which can develop the strengths and abilities of students. The findings of this study emphasized how important it is that teachers as well as parents recognize the challenges students face and how vital it is that they receive both academic and social supports.

**Motivation for Career Choice**

Limited research was available on what motivates twice-exceptional students’ career choices including why they want to become teachers (Hua & Coleman, 2002). However, teacher motivation research suggested a number of reasons for wanting to become a teacher. Some students gave external reasons for wanting to become teachers including salary, a steady job, and social status, while others listed internal factors related to job satisfaction and the joy of working with children. Reasons ranged from their own positive experiences and the influence of the teachers they had had in school, their families, their perceived love of teaching, and their personal experiences, especially intense events (Akarsu & Kariper, 2015; Alsup, 2006; Beijaard et al., 2000; Bruinsma & Jansen, 2010; Kuswandono, 2014; Watt & Richardson, 2008).

Although many members of his family are teachers, it was never assumed Ryan would follow his family’s path. His family was willing to support any career choice he made. Ryan’s story demonstrated the influence his teachers had on his career choice. He often mentioned how he had always wanted to help people. Ryan was also influenced by
his own frustrating and at times traumatic experiences because his challenges in school were not recognized and he did not get the assistance he needed.

Twice-exceptional students who are gifted with learning disabilities might have low self-esteem issues and might lack social skills necessary in seeking and maintaining a career. At times, they might be discouraged from seeking careers because of the challenges they face and focus on their needs instead of emphasizing their strengths (Hua & Coleman, 2002). Ryan was aware of his challenges and strengths. Like many others, he saw teaching as a rewarding career choice even though it was demanding. His positive experiences with helping others and his desire to offer the kind of teaching he did not get were intrinsic motivations that led him to achieving his goal. Many student teachers consider the positive experiences in school and helping others as motivational (Richardson & Watt, 2005).

Ryan’s experiences in his own education were one reason he wanted to become a teacher. He did not want other students who experienced similar challenges to go through what he had gone through; he wanted to make certain all students had an equal chance to succeed regardless of their abilities or disabilities. Although the lack of support Ryan experienced until high school was a strongly motivating factor for him, he was able to pursue his career goal because he finally received identification and support. This clearly showed the importance of providing support to students with special learning needs. Without the academic and behavioral support Ryan finally received in high school, Ryan might never have graduated from high school, let alone decided to become a teacher himself.
Limitations

This study had two major limitations. The first limitation was this study included only a single participant, which is a very small sample even for qualitative research. University students who met the criteria of this study were extremely rare. Only one such participant was located. To address the challenge of using only one participant, an in-depth analysis was conducted using a total of three semi-structured interviews with two additional follow-up interviews and collecting data from multiple sources. However, even with these measures, it would be impossible to generalize the findings to other individuals who share similar characteristics.

Another limitation was Ryan’s parents declined to take part in the study. This made it difficult to verify some of Ryan’s earliest memories. Ryan did ask his parents to confirm some of the issues; he then reported what he had been told but no information came directly from his parents. A third limitation needs to be mentioned: the majority of the data collected and analyzed was based on the self-report of the participant. Only some of this self-report could be verified by questioning other key informants. It was possible information from Ryan’s parents, from his best friend, and from other K-12 teachers would have helped confirm Ryan’s report. Discrepancies in Ryan’s self-report were noted in the transcripts.

Finally, a significant limitation was a lack of sufficient artifacts. Ryan stated that he could not find much of his paperwork, which also left much of the information gathering based on Ryan’s memory of events. This lack of artifact triangulation led to the need for two additional interviews to follow up and clarify details. Without sufficient artifacts, supporting Ryan’s self-report was made more difficult.
Implications

There are three specific implications concerning twice-exceptional students based on Ryan’s experiences. First, strong evidence indicates early identification of twice-exceptionality might be more likely to lead to higher school achievement, more stable psychosocial factors, and offer students far more support. Without appropriate training regarding twice-exceptionality, teachers and parents might assume gifted students who act out do so because of laziness or behavior issues instead of the lack of appropriate instructional level, which might lead to boredom. The data also revealed it is difficult to assess twice-exceptionality when giftedness masks a learning disability.

The second implication is teachers could be better prepared to not only identify twice-exceptionality but to refer students for appropriate assessment. Using the response to intervention method might still be the best way to find and realize the meaning of discrepancies indicating when a student is twice-exceptional (Yssel et al., 2014). Finally, it is important to understand how vital support is in helping twice-exceptional students succeed (Besnoy et al., 2015).

Ryan seems to be a resilient young man. He lived through challenges he stated might have kept him from graduating high school. He had the support of his mother who advocated for changes in his curriculum beginning in kindergarten and continues to advocate for him. His teachers and friends have continued to support him. Given the support of his mother, his friends, and some of his most influential teachers, Ryan was able to graduate from high school and pursue the career of his choice. As important as that support has been, Ryan realized that because of his dysgraphia, the challenges he had been facing were not his fault. This kind of change in perspective helped him persevere.
For Ryan, this perseverance led him to dedicate his life to becoming a teacher. He has faced his challenges and is working with his strengths to achieve his dream. Understanding the nature of twice-exceptionality allows students to learn how to balance their strengths and challenges to achieve continued success.

**Recommendations for Future Research**

It is clear more in-depth studies of twice-exceptional students are necessary to fully understand the impact of their life experiences. It is important also because characteristics of twice-exceptionality vary so much from one individual to another. Exploring their stories can provide valuable insight into those characteristics and how twice-exceptional students manage throughout their lives.

More research needs to be done to understand the importance of how teachers teach and encourage self-awareness to twice-exceptional students. As Ryan has succeeded in school and has received the support of some of his teachers, he has become much more self-aware, which is essential to how he has been able to get to this point in his life. His self-awareness is primary in his desire to be a teacher himself.

It is also necessary to research individual educational experiences of twice-exceptional students to resolve if some strategies actually work better than others. More information needs to be discovered on what makes best practices in teaching twice-exceptional students. Finally, it is also important to further understand about how interpersonal relationships are formed and what impact they have on the lives of twice-exceptional students.
Conclusion

This study explored the experiences of one twice-exceptional university student who wants to be a general education teacher. Experiences reported here came from the memory of a student who is both gifted and has a learning disability. His words were supported by reports from some of his teachers and friends. Analyzing these reports uncovered unique experiences that impacted Ryan’s life in many ways. Analysis also revealed five major themes that were interrelated: psychosocial challenges, delayed identification, masking effect and school achievement, the importance of support, and motivation for career choice. The findings of this study, which explored the experiences of a single individual who is twice exceptional, stressed the critical importance of support for students who have unique learning needs. It would be unprofessional to generalize the results of this study to other twice-exceptional students because each student is unique in how he or she experiences life. In this case, the results suggested there is still much more to be learned about the paradoxical experience of twice-exceptionality.
REFERENCES


Desoto County School District, Mississippi State Educational Agency, 106 LRP 39825.

103-137.


twice exceptional gifted learners, *Excellence and Diversity in Gifted Education, 1*(1),
15-23.

performance, self-reports, and perceived self-efficacy among children with

Exceptional Children’s Educational Act, CCR 301-8, 2220-R-1.00, et seq. (2013.
Retrieved from https://www.cde.state.co.us/sites/default/files/documents/
spedlaw/download/ecearules-march2013.pdf

skulduggery" or" Whig history”? *American Psychologist, 42*(6), 585.


Individuals with Disabilities Education Improvement Act of 2004, P.L. 108-446.


Student with a Disability, Utah State Educational Agency, 63 IDELR 205.114 LRP 27309 (2014).


http://scholarworks.umass.edu/nursing_faculty_pubs/2.
APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL
DATE: June 6, 2016
TO: Hussain Alamer
FROM: University of Northern Colorado (UNCO) IRB
PROJECT TITLE: [899938-1] Exploring the Phenomenon of the Twice-exceptional University Student: A Case Study
SUBMISSION TYPE: New Project
ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE: June 6, 2016
EXPIRATION DATE: June 6, 2020

Thank you for your submission of New Project materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Hussain -

Thank you for the patience in the UNC IRB process. Your research is described clearly and appears to be a valuable contribution to the literature on this topic.

Please make the following small changes to your consent form before use in your participant recruitment and data collection:

1) add your research advisor's name and contact information in the heading; and

2) update the last sentence of the last paragraph as follows, "If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, in the Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910."

These changes do not need to be submitted for subsequent review. Best wishes with your research.

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.
This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.
APPENDIX B

CONSENT FORM FOR HUMAN PARTICIPANTS
IN RESEARCH—SOLE PARTICIPANT
CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH

Project Title: Exploring the Experiences and Insights of a Twice-Exceptional Student Finishing a College Teacher Preparation Program: A Case Study
Researcher: Hussain Alamer, Ph.D., School of Special Education
Phone: (970) 581-9132 E-mail: alam4277@bears.unco.edu

Purpose and Description: The primary purpose of this study is to examine how twice-exceptionality has influenced the educational and occupational choices of an individual general education teacher candidate. Over a period of up to six weeks, you will take part in up to five one-hour interviews with me.

For each interview, you will be asked a series of questions. You are free to discuss your responses with me. If you have any questions at any time, you are invited to ask. You are also free to stop the interview process at any time. You may choose to discontinue the interview and/or the remaining interviews. If you change your mind and wish to proceed, that will be your decision.

You will also be asked to provide personal documents and artifacts that I may examine. These artifacts may include, but may not be limited to: personal journals, poetry, songs, pictures, report cards, notes from teachers, and letters from parents.

At the end of the study, I will share the data with you and ask if the data presented is accurate. I will take every precaution in order to protect your anonymity. I will assign a pseudonym to you that will be used throughout the project. Only the lead investigator will know the name connected with the pseudonym and when I report data, your name will not be used. Data collected and analyzed for this study will be kept in a locked cabinet in my supervisor’s office, which is only accessible by the researcher and his supervisor.

Potential risks in this project are minimal. As with any research that includes reporting personal history, you may feel some discomfort from time to time. Feeling discomfort is normal, however, if you are uncomfortable to the degree that you wish to interrupt any of the interviews, you are free to make that choice.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form...
will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

Subject’s Signature ______________________ Date ____________________

Researcher’s Signature ______________________ Date ____________________
APPENDIX C

SCRIPT AND INTERVIEW QUESTIONS
Proposed Script and Interview Questions

Opening and closing statements will be read and/or reviewed before and after each interview.

**Opening statement:** I am Hussain Alamer. I am conducting research on the topic of twice-exceptional university students who are planning to become teachers. I hope that I will gain understanding on the influences and motivation for a twice-exceptional individual’s decision to enter the teaching profession. I want to remind you that the consent form you signed ensures that everything you say is confidential and that your name will not appear on any written documents I produce. You may choose to not answer particular questions and you may stop the interview at any time. You may ask questions at any time, especially if you do not understand a question.

My plan is to meet with you over the next few weeks for three to five, one-hour interviews. As mentioned in the consent form, I will be recording each interview, but I would like you to tell me each time that this is okay with you. As you know, my English is not the best and I want to make sure I am getting what you are saying without any mistakes.

I will have the audio recording transcribed by a professional transcription service. Any identifying information will be removed. After I get the transcription returned, and before the next interview, I would like you to read the transcript of the previous interview and let me know if there are any mistakes or corrections.

**Interview 1 Questions:**

Before we get started, please answer these Yes/No questions:

A. Have you been identified as a student with a learning disability? Yes No
B. Have you been identified as a gifted student? Yes No
C. Are you currently enrolled at this university? Yes No
D. Are you a general education pre-service teacher/teacher candidate? Yes No

1. Tell me about yourself currently:
2. What year is this for you at the university?
   a. Did you come to the university right after high school?
3. What is your major?
4. What is your emphasis area?
5. How are your grades?
6. What are your major challenges?
7. What are your major strengths?
8. When did you decide you wanted to be a teacher?
9. What motivated you to become a teacher? Why was this your career choice?
10. Who has encouraged you in your decision to become a teacher?
11. What advice have you had from instructors here at the university?
Tell me about your friends and acquaintances here at the university:

Do any of them know about your gifted/LD identification?

Do they know about your goal of being a teacher?

How do they support your goals?

I would like to review any of your journals, course assessments (grades, papers, etc.), or other memorabilia that can help me understand you better.

Which instructors here at the university do you think I should talk to about you?

Which friends/acquaintances do you think I should talk to about you?

Interview 2 Questions – Elementary, Middle, and High School Years:

Hello. First, I want to remind you that we are recording these interviews, so I need to make sure that I have your permission to record this interview.

Thank you, so much. The last time we met, we talked mostly about your experiences here at UNC. I would like to hear more about your years in elementary through high school.

1. You explained that you were identified as gifted while in elementary school. Please explain a bit more about how you were identified as gifted in math and reading. For example, was this done by your teacher, or did you have other tests and discussions with counselors and others?

2. Tell me about any special programming you received – for example, how did teachers teach to your giftedness?

3. Tell me about any special interventions that you took part in, for example, special assessments, RtI, IEP, or 504 plans in elementary school.

4. How did teachers respond to your strengths in elementary school?

5. How did teachers respond to your challenges in elementary school?

6. Do you believe that you had been labeled by any of your teacher or counselors? For example, did they give you the label of “gifted”?

7. How did any of this labeling affect you?

8. Do you have any special memories of elementary school that you would like to share with me?

Now, let’s move on to middle and high school. You mentioned that you were 16 when you were diagnosed as type 2 bipolar by the school counselor/psychiatrist. You also mentioned that you were diagnosed with dysgraphia when you were 14 or 15. You also mentioned that this was recognized by a special education teacher, Mr. Smart. Is this information correct?

1. Okay. Once your dysgraphia and type 2 bipolar were recognized, what kinds of special education programs were you offered?

2. Tell me about any special interventions that you took part in, for example, special assessments, RtI, IEP, or 504 plans in high school?

3. How did teachers respond to your strengths in high school?

4. How did teachers respond to your challenges in high school?
5. Do you believe that you had been labeled by any of your teacher or counselors? For example, did they give you the label of a “student with disabilities”?
6. How did any of this labeling affect you?
7. What kinds of extracurricular activities did you take part in during high school (sports, clubs, etc.)?
8. Do you have any special memories of high school that you would like to share with me?

With your permission, I would like to review any of your journals, course assessments (grades, papers, etc.), or other personal material that can help me understand you better and that helps present your progress.

With your permission, I would like to send some questions via email to teachers and counselors from your schools. Which teachers and counselors do you think I should send emails? Will you be willing to sign any necessary waivers I might need in order to get more information from your teachers and counselors? Do you know to whom I should send these requests? (or just the name of your elementary school and high school.)

Thank you so much for your time today. Again, if you have any questions, please feel free to contact me. Also, I want to remind you that I will be getting this recording transcribed. As soon as that is done, I will give you a copy of this interview so that you can review it and you can make any corrections or add anything. Then I will make an appointment with you for at least one more interview. I will be in contact with you soon. If you have any questions between now and our next interview you can contact me at (970) 581-9132.

**Interview 3 Questions:**

1. We’ve talked so much about your school experiences, I’d like to talk about family and personal relationships more. Tell me a bit about your family and your relationships with them:
   a. Parents
      i. Were your parents involved with the school when you were identified as gifted/LD?
      ii. May I interview your parents?
   b. Siblings
      i. Are any of your siblings gifted/LD?
      ii. Have you experienced any challenges with your siblings because you were gifted/LD?
   c. Other family relationships

2. What were your relationships with other kids like? Did you have close friends?
3. What do you consider to be important events in your life, and family life?
4. Is there any other memorabilia that I should see at this time? Are there any other friends or acquaintances to interview?
Closing statement: Thank you for your comments. I will be having the interview transcribed and will forward it to you so you can check it for accuracy and add any other comments that you would like. If you have any questions between now and our next interview you can contact me at (970) 581-9132.
APPENDIX D

CONSENT FORM FOR HUMAN PARTICIPANTS
IN RESEARCH—KEY INFORMANTS
CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH

Project Title: Exploring the Experiences and Insights of a Twice-Exceptional Student Finishing a College Teacher Preparation Program: A Case Study

Researcher: Hussain Alamer, Ph.D., School of Special Education
E-mail: alam4277@bears.unco.edu

Dear Participant,

My name is Hussain Alamer and I am a student at the University of Northern Colorado. I am conducting a study examining the experiences of a person who is both gifted and who has a learning disability, which is known as twice-exceptional. I am particularly interested in learning how the experience of being twice exceptional has influenced the educational and occupational choice of this person.

In order to understand this phenomenon better, I am asking the friends, family, high school teachers and university professors of my participant for their input. Attached is a questionnaire for you to complete and return by email.

This questionnaire consists of approximately 8 questions, and should take no longer than 10 minutes to complete. The information you provide will be used to increase our understanding of the experience of being twice exceptional.

I will take every precaution in order to protect your confidentiality. I will assign a pseudonym to you that will be used throughout the project. Only the lead investigator will know the name connected with the pseudonym. When the data is reported, your name will not be used. Data collected and analyzed for this study will be kept in a locked cabinet in my supervisor’s office, which is only accessible by the me and my supervisor.

Potential risks in this project are minimal. As with any research that includes reporting personal history, you may feel some discomfort from time to time. Feeling discomfort is normal, however, if you are uncomfortable to the degree that you wish to not answer all of the questions, you are free to make that choice.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected.
Having read the above and having had an opportunity to ask any questions, please complete the questionnaire if you would like to participate in this research. By completing the questionnaire and returning it in an email, you will give me permission for your participation. You may keep this form for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.
Dear Professor:

I am Hussain Alamer. I am interested in knowing more about the topic of twice-exceptionality. I hope that I will gain an understanding regarding the influences and motivation for an individual who is twice-exceptional and who would decide to enter the teaching profession.

David Grapes has said that I should ask you questions about your relationship with him. Please know that no identifying information about you will be collected or used in the research. You may ask questions at any time. You may send questions to me via email and I will respond within 24 hours. You may choose to answer as many of these questions as you want, however, I am trying to get as complete a picture of David as possible.

1. What do you see as his strengths?
   a. Academically
   b. Personally

2. What would you consider as his challenges?
   a. Academically
   b. Personally

3. How do you think his grades reflect what he has actually learned from your classes?

4. How have you encouraged his goal of becoming a teacher?

5. How have you supported his educational goals?

6. What other advice have you given him about his career goals?

7. What kinds of programs are there at the university that support the participant?

Thank you for your comments. If you have any questions or additional information, you can contact me at alam4277@bears.unco.edu.

Hello. I am told that you are a friend or acquaintance of David Grapes.

I am Hussain Alamer. I am interested in knowing more about the topic of twice-exceptionality. I hope that I will gain an understanding regarding the influences and motivation for an individual who is twice-exceptional and who would decide to enter the teaching profession.

David Grapes has said that I should ask you questions about your relationship with him. Please know that no identifying information about you will be collected or used in the research. You may ask questions at any time. You may send questions to me via email and I will respond within 24 hours. You may choose to answer as many of these questions as you want, however, I am trying to get as complete a picture of David as possible.
1. Did [redacted] ever talk about becoming a teacher? If he did, what do you remember about those conversations.
2. Can you talk about some of your interactions with [redacted]?
3. What kinds of strengths have you noticed?
4. What kinds of challenges have you noticed?
5. What else can you share with me about [redacted]?

Thank you for your comments. If you have any questions or additional information, you can contact me at: alam4277@bears.unco.edu.

Dear School Professional:

I am Hussain Alamer. I am interested in knowing more about the topic of twice-exceptionality. I hope that I will gain an understanding regarding the influences and motivation for an individual who is twice-exceptional and who would decide to enter the teaching profession.

[redacted] has said that I should ask you questions about your relationship with him. Please know that no identifying information about you will be collected or used in the research. You may ask questions at any time. You may send questions to me via email and I will respond within 24 hours. You may choose to answer as many of these questions as you want, however, I am trying to get as complete a picture of David as possible.

[redacted] has signed a FERPA waiver allowing me to ask you questions concerning the identification of his giftedness and learning disability and any other issues about him. Please be aware that no identifying information about you or [redacted] will be used in the project. You may choose to answers as many of the following questions as you want.

1. Please explain what you did during the identification process for his giftedness.
2. Please explain what you did during the identification process for his learning disability.
3. Did you take part in any IEP meetings and if so, what did you do?
4. Tell me what you can about any other meetings you had with him.
5. Tell me what you can about any meetings you had with his parents.
6. What kinds of programs did you suggest or refer [redacted] to for special education and for gifted/talented?
7. What kinds of meetings did you have with [redacted]’s teachers concerning his needs?
8. What other information can you share about [redacted]?

Thank you for your comments. If you have any questions or additional information, you can contact me at: alam4277@bears.unco.edu.