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THE INFLUENCE OF PERFECTIONISM ON MENTAL HEALTH IN GIFTED AND TWICE-
EXCEPTIONAL STUDENTS

by

Margaret Mary Candler

A thesis submitted in partial fulfillment
of the requirements for the Doctor of Philosophy
degree in Psychological and Quantitative Foundations in the
Graduate College of
The University of Iowa

December 2017

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CERTIFICATE OF APPROVAL

PH.D. THESIS

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ABSTRACT

Although a long-standing interest in the abilities of gifted students exists, researchers and clinicians have only recently focused on specific factors that may impact the likelihood of mental health diagnoses, such as anxiety and depression, within this population. This is especially true for gifted students with co-existing disabilities, or twice-exceptional students, who may have unique experiences that differ from those of gifted students without disabilities. Perfectionism is one factor that may be important to consider when examining factors that impact the development of anxiety and depression within these populations.

The current study examined how perfectionism differs within gifted and twice-exceptional students within the context of self-reported anxiety and depression. Scores were reported for both gifted ($N = 39$) and twice-exceptional ($N = 28$) participants ages 8-14 on the Almost Perfect Scale-Revised (APS-R), Revised Children's Manifest Anxiety Scale (RCMAS), and Children's Depression Inventory-2 (CDI-2). Pearson chi-square results suggested that gifted students reported higher rates of maladaptive perfectionism on the APS-R compared to twice-exceptional students. Although gifted and twice-exceptional students in this sample reported style of perfectionism differently, group differences disappeared when also considering self-reported symptoms of anxiety and depression via 2x3 analyses of variance. Tukey post-hoc tests indicated that self-reported maladaptive style of perfectionism was related to higher scores on measures of anxiety and depression. Clinical and research implications of these findings were also explored.

PUBLIC ABSTRACT

Although a long-standing interest in the abilities of gifted students exists, researchers and clinicians have only recently focused on specific factors that may impact the likelihood of mental health diagnoses, such as anxiety and depression, within this population. This is especially true for gifted students with co-existing disabilities, or twice-exceptional students, who may have unique experiences that differ from those of gifted students without disabilities. Perfectionism is one factor that may be important to consider when examining factors that impact the development of anxiety and depression within these populations.

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CHAPTER 1: INTRODUCTION

Many children and adolescents in the United States experience mental health disorders at some point in their lives. These experiences are increasingly recognized within children and adolescents ages three to seventeen. The Centers for Disease Control and Prevention (CDC) estimate that approximately 3.9 to 4.7 % of children within this age range will experience either a depressive disorder or anxiety disorder in their lifetime (CDC, 2013). The National Institute for Health (NIH) estimates the prevalence of anxiety or depression in children and adolescents could be even higher, up to 11 % for depression and 8 % carrying a diagnosis of anxiety (NIH, 2015). Both of these diagnoses carry wide-ranging implications for functioning and overall prognosis in child and adolescent populations. Childhood and adolescent experiences of depression often result in academic difficulty and increased risk for substance use and abuse (Woo & Keatinge, 2008). Children diagnosed with anxiety disorders also frequently struggle with academic and interpersonal situations (Woo & Keatinge, 2008). Many anxiety disorders, including separation anxiety disorder, specific phobia, and social anxiety disorder, often begin in childhood or adolescence (APA, 2013; Woo & Keatinge, 2008). Onset of depressive symptoms in childhood is less common; however, younger age of onset is related to a longer duration of symptoms and a greater experience of relapse (American Psychiatric Association [APA], 2013; Coryell, Endicott, & Keller, 1991; Woo & Keatinge, 2008). For children and adolescents experiencing anxious and depressive symptoms, quick and accurate diagnosis and treatment is paramount to ensure children and adolescents develop skills to deal with symptoms of these disorders.

Children and adolescents diagnosed with anxiety or depression may experience particular difficulty coping in the academic environment (Woo & Keatinge, 2008). As young people spend much of their time at school, experiencing mental health concerns that significantly impact

functioning within this domain can have widespread implications for their attainment of academic success. Rapport and colleagues (2001) found relationships between academic achievement and anxiety, depression, and withdrawal in a sample of 325 ninth grade students. In their sample, both anxiety/depression (measured together) and withdrawal contributed to decreased academic achievement (Rapport, Denney, Chung, & Hustace, 2001). Understanding how the presence of mental health disorders impacts students' academic experiences (and vice versa) is important when attempting to implement appropriate interventions to treat anxiety and depression in children and adolescents.

Although anxiety and depression in children are often examined from the perspective of a large representative sample, understanding how symptoms of these disorders manifest in different subsets of children and adolescents can provide further insight into intervention and treatment. Gifted children comprise one such population that has been the subject of such research. Children are identified as gifted through a variety of means, but definitions of giftedness generally include children who excel in a certain area (or areas) beyond what is typically expected of others their age, and who may benefit from additional services in order to fully develop their areas of talent (National Association for Gifted Children [NAGC], 2015). Although research has generally found that gifted children do not experience mental health concerns at greater rates than non-gifted children (Jones, 2013; Martin, Burns, & Schonlau, 2010), there is a general dearth of research on the topic, especially with regard to contributing factors that may increase the experience of anxious or depressed symptoms.

To complicate matters further, gifted children with disabilities, or "twice-exceptional" children, are not often differentiated from gifted children within samples that aim to examine depression and anxiety. Twice-exceptionality is identified when students have areas of talent, but

also experience some type of learning, developmental, behavioral, or emotional disorder (NAGC, 2014). More specific attention to the needs of these students may be required in order to allow for talent development opportunities while simultaneously accommodating for the disability, a challenging prospect for many schools (Assouline, Foley Nicpon, & Huber, 2006; Foley Nicpon, Allmon, Sieck, & Stinson, 2010). Because of this, twice-exceptional children often have a vastly different educational experience from both gifted children and typically developing children, and can experience a greater degree of difficulty in receiving accommodations for all of their academic needs (Reis & Colbert, 2004). Many twice-exceptional students encounter a lack of understanding about their needs and experiences that can result in a great deal of distress. This lack of understanding can range from denying these students access to gifted programming when disabilities are present to telling twice-exceptional students that they are lazy and unmotivated (Ferri, Gregg, & Heggoy, 1997; Reis & Colbert, 2004). The combination of these factors might result in greater risk for additional mental health disorders for twice-exceptional students.

In addition to a lack of differentiation between gifted and twice-exceptional children in mental health research, additional factors that may contribute to anxiety or depression, such as perfectionism, are rarely the focus of attention. Perfectionism, or the need to perform based on very high standards, is a trait that is observed in many different individuals, including gifted students (Frost, Marten, Lahart, & Rosenblate, 1990; Gilman & Ashby, 2003a; Hewitt & Flett, 1991). Perfectionism has been linked to increased concerns related to depression and anxiety in samples of typically developing students (Gilman & Ashby, 2003a; Hewitt, Caelian, Flett, Sherry, Collins, & Flynn, 2002). For gifted students, perfectionism and its role in the development of anxiety and depression is mixed. Although some distress related to perfectionism

is suggested in samples of gifted students, an understanding of the relationship between certain types of perfectionism and symptoms of anxiety or depression is still developing. For twice-exceptional students, the role of perfectionism in the development of symptoms of anxiety and depression represents an area of research that is, as of now, unexplored.

Rationale for Current Study

Gifted and twice-exceptional students both comprise special populations that have unique educational and psychosocial needs. Despite this, much of the literature fails to completely identify how these two populations differ in terms of mental health diagnoses and accompanying factors that may impact the presence of symptoms of mental health disorders. In general, research has demonstrated a lack of literature addressing mental health concerns within these specific populations of students (Martin et al., 2010). Further exploration of the expression of anxious and depressive symptoms within gifted and twice-exceptional populations will aid researchers and clinicians in the identification and development of appropriate interventions and treatment.

There is a general lack of research on anxiety and depression that compares gifted populations with typically developing or twice-exceptional populations (Jones, 2013; Martin et al., 2010). This is especially true when exploring the role that additional constructs, such as perfectionism, play in the expression of symptoms of mental health disorders. Understanding ways in which gifted students differ from twice-exceptional students can help drive treatment recommendations for students experiencing symptoms of anxiety or depression. Although research on how perfectionism predicts anxiety and depression has been conducted using a sample of typically developing children (Hewitt et al., 2002), an understanding of how gifted and twice-exceptional students present on these variables has not yet been explored.

Additionally, a great deal of literature explores the nature of giftedness and twice-exceptionality; however, much of it comprises case studies and generally uses small samples (Foley Nicpon et al., 2010; Martin et al., 2010). The current study aims to add to the quantitative literature on gifted and twice-exceptional students by differentiating these groups from non-gifted students. Additionally, gifted students and twice-exceptional students are rarely compared to each other, and instead are either grouped together or examined independently. This often makes it difficult to develop hypotheses about how the specific mental health needs of these populations might be similar or different to those of the general population.

For counseling psychologists, a greater understanding of the needs of gifted and twice-exceptional students aligns with the profession's emphasis on understanding diverse populations (Fouad et al., 2004). The impact of perfectionism has been explored in adult populations with chronic illnesses and physical disability (e.g., Hadjistavropoulos, Dash, Hadjistavropoulos, & Sullivan, 2007; Smith & Arnett, 2013); however, little has been done to examine the impact of perfectionism on children and adolescents with learning, attention, or developmental disabilities. A more thorough examination of the factors introduced above may provide insight onto how the presence of perfectionism impacts the presence of mental health concerns for gifted and twice-exceptional children. As a strengths-based profession (Fouad et al., 2004), understanding the role of perfectionism and how to implement interventions within this domain will allow counseling psychologists to work within populations of high ability and twice-exceptional students to further develop their specific strengths and talents.

Purpose of the Study

The current study includes three main objectives. The first objective is to explore how reported perfectionism manifests in gifted and twice exceptional students. Perfectionism has long

been considered a maladaptive trait; however, more recent research suggests that understanding the influence of perfectionism requires a more nuanced and multifaceted approach (Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Although research (e.g., Stornelli, Flett, & Hewitt, 2009) has demonstrated that the presentation of perfectionism in gifted students does not occur more frequently compared to non-gifted populations (as is commonly thought), researchers have still sought to better understand the impact of adaptive and maladaptive perfectionism within the gifted population (Schuler, 2000; Speirs Neumeister & Finch, 2006). Additionally, the current body of literature has not examined perfectionism in twice-exceptional students with the same level of scrutiny allotted for gifted and non-gifted students. Therefore, this study aims to both examine the presence of perfectionism within gifted and twice-exceptional students and to determine if reported perfectionism differs between these two populations.

Next, the present study aims to examine the construct of perfectionism as it relates to symptoms of anxiety and depression in gifted students and twice-exceptional students. Research has demonstrated that identification with certain types of perfectionism is related to expression of mental health disorders in typically developing students (Hewitt et al., 2002); therefore, understanding the influence of perfectionism on mental health diagnoses in gifted and twice-exceptional populations can aid researchers in identification of risk factors for mental health concerns. Developing an understanding of how perfectionism relates to symptoms of anxiety and depression in gifted students can also help guide the development of interventions targeted towards maladaptive forms of perfectionism within this population. Although there is some evidence that perfectionism influences the development of mental health disorders in gifted populations (e.g., Gilman & Ashby, 2003a), the overall research within this domain is lacking.

Finally, the present study will also explore demographic variables and their relationship to the above factors. Specific demographic factors that may influence perfectionism and its impact on anxiety and depression include age, grade in school, and diagnosis. Examination of these factors will provide additional information about the ways in which perfectionism in combination with personal characteristics may influence the development of anxious or depressed symptoms in gifted and twice-exceptional populations.

Overall, the current study aims to explore the role of perfectionism and its relationship to symptoms of anxiety and depression in gifted and twice-exceptional students. It also aims to add to the quantitative literature on these populations in order to better understand how gifted and twice-exceptional students might differ from non-gifted students. The information on this topic will further inform work with students who identify as gifted or twice-exceptional.

CHAPTER 2: LITERATURE REVIEW

Gifted and twice-exceptional students both represent unique populations that have specific educational and psychosocial needs. Identification of factors that impact the mental health within gifted and twice-exceptional population is complicated by the dearth of information on students within these groups. In order to fully comprehend the experiences of twice-exceptional students, it is necessary to both understand the characteristics of this population and how their experiences might compare with those of gifted students without disabilities. The following chapter will highlight characteristics and means for identifying high ability and twice-exceptional students and the role of specific factors that frequently correlate with mental health in gifted populations, including perfectionism and academic programming.

Studying Giftedness: A Brief History

The minds of high ability individuals have long been an object of fascination and research (Hollingworth, 1926). Early research often took the form of descriptive case studies, with researchers simply striving to document the extraordinary abilities of gifted individuals (Hollingworth, 1926; Terman, 1922). As scientists increasingly focused on the role of heritability in establishing observable traits, research on highly intelligent adults often focused on the inherent superiority of upper class nobility (Goodwin, 2012). For example, Francis Galton's book, *Hereditary Genius*, aimed to support his belief that intelligence was innately present in humans, and was one of the first to utilize statistical methods in order to substantiate these claims (Goodwin, 2012). Although his claims presented a degree of bias due to his upbringing as nobility, Galton was one of the first researchers who attempted to quantify characteristics of intelligence based on measureable features. Galton's attempts to measure intellect were furthered via the efforts of James McKeen Cattell, who established tests that were less focused on physical

measurements and instead emphasized mental strengths (Goodwin, 2012; Sattler, 2008). The first attempts to measure intellect were created through Galton and Cattell's collaboration on research into individual differences.

The idea of measuring intellect was most advanced through the development of the Binet-Simon Scale in 1905 (Goodwin, 2012; Sattler, 2008). This test, created by Alfred Binet and Theodore Simon to identify French students with mental retardation, established the concept of a comprehensive battery of items that could assess varying domains comprising intellect. In addition, the measure established the concept of "mental age," which provided a basis of comparison for results (Sattler, 2008). The Binet-Simon Scale was adapted for use in the United States by Henry Goddard, who, although not in line with Binet's original intent, used the measure to further the idea of intelligence as a heritable trait.

With the advent of instruments such as the Binet-Simon Scale that were designed to measure intelligence, researchers began to further develop the scale for use with a wider range of individuals. Perhaps the most instrumental in this evolution was Lewis Terman, who revised the Binet-Simon Scale in 1916 into the Stanford-Binet. Terman's Stanford-Binet Scale established the use of the term "intelligence quotient," or IQ, as a way to better quantify an individual's cognitive abilities (Hollingworth, 1931; Sattler, 2008). As the measurement of IQ became more refined, Terman and others began to explore how intellect was related to other traits. This research extended the use of IQ as a tool to identify mental insufficiencies and applied the use of psychometric measurement to high ability individuals.

Although the use of individualized assessments (such as IQ tests) are still used as a means of identifying gifted students, other forms of identification, such as talent searches, have also increased in popularity. Talent searches, or administration of a test intended for older

students to a chronologically younger cohort, were first implemented in the 1980s, and have increased in popularity since that time (Olszewski-Kubilius, 2004). By administering a test intended for older students, gifted children can more fully demonstrate the extent of their knowledge rather than obtaining the highest possible score on a grade-level test, and can also allow administrators and educators to implement enrichment opportunities for high scoring students (Almarode, Subotnik, Crowe, Tai, Lee, & Nowlin, 2014; Olszewski-Kubilius, 2004). The opportunities for enrichment provided for students who participate in talent searches are often integral in allowing students to more fully develop their talent areas both in and outside of the classroom (Subotnik, Olszewski-Kubilius, & Worrell, 2011).

Outcome research on students who have participated in talent searches also suggest that these students tend to benefit from the increased educational opportunities provided as a result of the talent search experience. For example, the Study for Mathematically Precocious Youth (SMPY) has been collecting data on students with advanced skills in mathematics since 1971 (Lubinski & Benbow, 2006). Adolescents ages 12 to 14 were initially identified through top scores on school-administered achievement tests and then given the opportunity to take the Scholastic Aptitude Test (SAT) as an above-level test while in middle school. Students who received a score of 500 or above on the Math or Verbal subtests were then considered for inclusion in the study (Lubinski & Benbow, 2006). Researchers have found that participants from the various SMPY cohorts have participated in grade-level acceleration, tend to complete doctoral degrees in science and mathematics, and have also found that those with access to increased opportunities for enrichment in these areas tend to achieve increased success within their field (Wai, Lubinski, & Benbow, 2005; Wai, Lubinski, Benbow, & Steiger, 2010).

Understanding Gifted Children: Early Research

Early research on gifted individuals often focused on adults and their life accomplishments (Terman, 1922). However, with the development of the Stanford-Binet, Terman began to examine distinguishing features of gifted children. By studying both extremes of intellect, researchers believed that they could better understand cognition in general (Hollingworth, Terman, & Oden, 1940). In addition, anecdotal reports of gifted children often described the children to be psychologically ill, physically weak, and to experience early mortality (Hollingworth, 1926; Jones, 2013). This common belief was perpetuated for several years and highly gifted children were often believed to have a poor prognosis. However, as researchers explored the abilities of gifted children more thoroughly, the opposite was found to be true. Terman established a large cohort of 1,470 highly gifted students in California and found that his students tended to be well-adjusted, emotionally stable, and largely productive in society (Terman, 1922). Longitudinal outcomes of these students demonstrated consistently positive results, and did much to dispel the idea that gifted children were negatively impacted due to their intellect (Goodwin, 2012; Hollingworth et al., 1940).

As Terman's research with gifted students gained momentum, additional efforts by Leta Hollingworth were made to establish guidelines for educating gifted children. Terman (1922) noted that many of the individuals within a smaller sample of gifted children had skipped one or more grades, suggesting the need for more challenging coursework. Hollingworth strongly advocated for enrichment opportunities for gifted students, especially in self-contained settings, and wrote a book detailing her experiences working with a class of gifted students (Goodwin, 2012). The efforts made by Terman and Hollingworth to define giftedness and establish guidelines for educational needs led to an increased effort to identify and provide programming

for gifted students, and several organizations were founded to support this goal (National Association for Gifted Children [NAGC], 2014). In 1972, the Marland Report officially provided recommendations for defining giftedness in education (Foley Nicpon, Assouline, & Colangelo, 2013; NAGC, 2014).

In the same decade that recommendations were provided for the education of gifted students, federal legislation also began to focus more intently on the academic needs of students with disabilities. Initially enacted as the Education for All Handicapped Children Act of 1975, in its current iteration, the Individuals with Disabilities Education Act (IDEA) provides educational opportunities and supports for students with disabilities (Foley Nicpon et al., 2013). IDEA has been consistently renewed and allows increased access for students of all ability levels in the classroom. However, the integration of IDEA and gifted programming in order to best provide for the needs of twice-exceptional students is still a work in progress, largely due to the difficulties with providing a concise definition of the characteristics and needs of this population. This will be discussed in the following section.

Characteristics of Twice-Exceptional Students

Twice-exceptional students are defined as students who identify as both gifted and experience some type of disability (National Association for Gifted Children [NAGC], 2014). Broadly, twice-exceptionality extends the notion of skill discrepancies (that is, a significant difference between abilities) and expands it to include students who experience difficulties that are significant enough to warrant further investigation. However, this presents a somewhat simplistic depiction of twice-exceptional children, which has led to some confusion with regard to application and identification of students within this population. To address these concerns, Reis and colleagues (2014) proposed a new definition that aims to present a more comprehensive

representation of twice-exceptional students. Their definition of twice-exceptionality aims to accomplish several things: expand the definition of giftedness to include both academic and artistic pursuits, encouragement of comprehensive assessment in the diagnosis of these students, and to encourage educational interventions that meet educational needs in areas of strength as well as those of weakness (Reis, Baum & Burke, 2014).

Because the term twice-exceptional includes the possibility for a wide range of diagnoses, it often makes concise descriptions of features of twice-exceptionality quite difficult. Students with learning disabilities, attention-deficit/hyperactivity disorder, mood disorders, or autism spectrum disorders can all be considered twice-exceptional, yet these students experience vastly different symptoms and domains in which they experience difficulty or impairment (Foley Nicpon et al., 2010). Researchers have identified that twice-exceptional students with learning disabilities may think and process information differently than students without learning disabilities (Hannah & Shore, 2008; Steiner & Carr, 2003), but this often varies based on the diagnostic category into which the student falls. Gifted students with learning disabilities may exhibit depressed IQ scores depending on the specific area of disability; students with attention-deficit/hyperactivity disorder or an autism spectrum disorder may experience greater difficulty with behaviors that interfere with their ability to learn in the classroom (Assouline et al., 2006).

A common difficulty encountered by professionals working with gifted and twice-exceptional students is that the definition of what qualifies as gifted varies widely (Assouline, Foley Nicpon, & Whiteman, 2010). Students are identified as “gifted” using a broad array of criteria. Researchers and practitioners often use cognitive ability measures, such as the Wechsler Intelligence Scale for Children (WISC), in which a student’s IQ must fall at or above a cut score (often 120 or higher) to ascertain giftedness. (Assouline et al., 2006; Assouline et al., 2010).

Within the use of this parameter, there is a wide range of disagreement regarding how to best utilize these scores, as some researchers argue for the use of higher cutoffs, and still others prefer using Full Scale IQs over index scores to avoid over diagnosis of learning disorders in gifted students when other factors, such as low motivation, may be the actual cause of the score discrepancy (Lovett & Sparks, 2011). In school settings, clinicians or educators working to identify gifted students often use academic achievement measures, standardized test scores indicating above-grade level performance, or placement in a talented and gifted class in order to define giftedness. Because of the conflicting ways in which students can be identified, parents, educators, and clinicians often disagree on how best to identify students for whom additional academic opportunities might be valuable.

In addition, the variation in defining gifted students across settings often makes comparison of the research literature difficult, and presents additional complications when attempting to identify twice-exceptional children. When utilizing assessment tools to diagnose and identify twice-exceptional students, standardized measures may lack the nuance required to accurately identify twice-exceptional students (Morrison & Rizza, 2007). Morrison and Rizza (2007) comment that twice-exceptional students often obtain scores that appear lower than their true abilities due to the impairment presented by their disability. Students with twice-exceptionalities can then be at a disadvantage when it comes to identifying giftedness because schools often rely heavily on test scores for identification and placement in gifted programs (Assouline et al., 2006; Bianco, 2005; Minner, 1990). This not only impacts identification of these students as gifted, but also can disproportionately increase focus towards interventions related to their disability and away from development of their gifts (Bianco, 2005). Thus,

although broad characteristics of this population can be described, overall, students who are twice-exceptional are particularly difficult to identify.

Diagnosis of Twice-Exceptionality

Accurate diagnosis of twice-exceptional students often presents challenges for clinicians given the difficulties noted surrounding identifying characteristics of twice-exceptionality (Assouline & Whiteman, 2011; Leroux & Levitt-Perlman, 2000). A primary difficulty stems from the fact that twice-exceptionality can encompass a wide range of diagnoses, including physical and emotional disability in addition to learning or developmental disabilities (Foley Nicpon et al., 2010; Foley Nicpon & Assouline, 2015; Morrison & Rizza, 2007). Because this creates such a broad definition, identification of specific strategies that can be used to identify twice-exceptional students vary substantially depending on which diagnosis is being considered (Foley Nicpon et al., 2010; Foley Nicpon & Assouline, 2015). Based on a search of the extant literature, Foley Nicpon and colleagues (2010) found it difficult to make conclusions regarding consistent identification strategies used to identify twice-exceptional students due to the differing opinions on the use of IQ scores and wide variation in state requirements for identification of gifted students. This often results in twice-exceptional students not being identified until a later age, especially compared to students who only receive disability diagnoses. In a study examining differences between college students with learning disabilities and those identified as twice-exceptional, researchers found that the majority of twice-exceptional students were identified later, and a significant number (41 %) were not identified until participation in the study as college students, despite having high IQs (Ferri et al., 1997).

A primary reason for the difficulties encountered when diagnosing twice-exceptional students results because the student's disability often masks their strong cognitive skills

(Assouline & Whiteman, 2011; Foley Nicpon et al., 2010; Foley Nicpon & Assouline, 2015). However, certain considerations can aid practitioners and educators in the determination of whether or not a student is twice-exceptional. First and foremost, individualized assessment by a qualified professional is often recommended due to the nuanced presentation of individuals within this population. Frequently, researchers suggest that the most appropriate way to assess twice-exceptional students is through the use of comprehensive ability and achievement measures, such as the Wechsler scales of intelligence and achievement or other similar measures, that provide practitioners with the information necessary to make comparisons (Assouline et al., 2006; Assouline et al., 2010; Morrison & Rizza, 2007). General consensus (e.g., Assouline et al., 2010) suggests that looking for skill discrepancies in excess of 15 points might help identify areas of particular weakness for students. In addition, researchers regularly note that the use of the General Ability Index (GAI) on the Wechsler scales can help highlight students' particular areas of strength when large discrepancies are present (Assouline et al., 2010). Support for individualized assessment also highlights the fact that group-administered assessments may not reflect the true abilities of twice-exceptional students (Bianco, 2005).

Comprehensive individualized assessment helps to differentiate twice-exceptional students from students who are highly gifted but experiencing additional non-academic difficulties in areas such as adaptive and psychosocial functioning (Assouline, Foley Nicpon, & Doobay, 2009). In a comparison of two highly gifted students (one with Autism Spectrum Disorder and one with no diagnosis), Assouline and colleagues (2009) identified several domains in which individualized assessment aided in differentiating between them including processing speed, psychosocial functioning, and adaptive skills, which highlights the importance of considering a wide range of factors beyond cognitive or academic skills when making a twice-

exceptional diagnosis. However, not all researchers agree that a comparison of IQ and achievement scores provides the most meaningful definition of twice-exceptional students, especially with regards to those with learning disabilities (e.g., Lovett, 2011; Lovett & Sparks, 2011). In a review of the literature on diagnosing twice-exceptional students with learning disabilities, Lovett and Sparks (2011) concluded that the lack of consensus surrounding how to accurately diagnose children who often were achieving within the average range (despite IQ scores falling well above average) brought the category of gifted students with learning disabilities into question.

Additional Factors Impacting Gifted and Twice-Exceptional Students

A full understanding of giftedness and its impact on the individual has continued to change as researchers and clinicians have developed a greater understanding of the needs of this particular population. Historically, much of the work completed has explored identification and characteristics of gifted and twice-exceptional populations; however, more recently, researchers and clinicians have begun to explore the implications of giftedness and twice-exceptionality on the individual experience. Two prominent domains in which this has been explored include academic placement and diversity considerations.

Academic Placement

Accessing appropriate educational opportunities is a barrier that may particularly impact twice-exceptional students, and can result in significant stress for students and their families. Students with disabilities are protected by federal legislation such as the Individuals with Disabilities Education Act (IDEA), which provides students with documented disabilities access to educational opportunities that are appropriate for their ability level (Foley Nicpon et al., 2013). Another accommodation, the 504 Plan, provides for academic support that might require

less structured curriculum changes, but still allows for access to services required for educational success. These acts aim to provide students with an education appropriate to their skill level and ability so that each student can reach his or her maximum potential.

Although providing necessary educational services to students with a documented disability is required through IDEA at public K-12 institutions (Foley Nicpon et al., 2013; Zirkel, 2004), gifted students sometimes experience greater challenges in securing appropriate educational opportunities. Federal legislation does not currently provide guidelines for the education of gifted students, and therefore it is often up to the states to determine what types of services are provided (Zirkel, 2004). For this reason, the types of services and programs available can vary widely both by state and by district, as can eligibility requirements for gifted education programs. Gifted education is further complicated by misconceptions regarding opportunities for gifted students, which may further impact the provision of such services to students who might benefit (Colangelo, Assouline, & Gross, 2004). For example, parents and educators might question the appropriateness of acceleration and its impact on the students' psychosocial functioning, despite general consensus among researchers that appropriate use of acceleration can be vastly beneficial to gifted students (Colangelo et al., 2004; Neihart, 2007). Overcoming these barriers to education for gifted students can be quite difficult.

Given the challenges that can arise when gifted students seek out specialized programming to address their educational needs, it follows that twice-exceptional students often encounter even more difficulty when seeking out appropriate academic programming. Although Reis and colleagues' (2014) definition of twice-exceptionality provides for necessary accommodations for these students via an Individualized Education Plan (IEP) or 504 Plan, the actual provision of gifted programming as part of accommodations is rare. As twice-exceptional

students often have highly specific and sometimes contradictory educational needs, it can be much more difficult for academic programming to fully meet the needs of the student. For instance, educators may not have the tools and experiences needed to integrate gifted programming with academic accommodations. When developing educational interventions, such as an IEP or 504 Plan, school districts often focus disproportionately on the disability rather than accommodations that provide for development of both strengths and weaknesses (Talent-Runnells & Sigler, 1995; Zirkel, 2004). In addition, twice-exceptional students might be more impacted by external factors, such as strict cut-off scores for inclusion in gifted programming that would negatively affect their eligibility for participation (Bianco, 2005; Minner, 1990). This often leads to exclusion or under-representation of twice-exceptional students in gifted programming (Bianco, 2005). When teachers were asked to make recommendations for placement in talented and gifted programming based on fictional vignettes, teachers were less likely to refer students when a disability was included in the students' profile (Bianco, 2005; Minner, 1990). Talent-Runnells and Sigler (1995) surveyed gifted and talented programs in Texas and found that only 19.7 % of programs included twice-exceptional students. In a 2013 examination of state provisions for gifted education, only four states specifically noted gifted education for students with disabilities as something that was included in state guidelines for gifted education, suggesting that comprehensive inclusion of twice-exceptional students in gifted programming is still lacking in most areas (NAGC State of the States, 2013). In general, educators may have limited education and/or experience in supporting twice-exceptional students, which influences the decisions made for programming (Foley Nicpon et al., 2013).

When twice-exceptional students are identified, educators often struggle to reconcile meeting their educational needs in terms of their gifts as well as their disability, although

researchers agree that this is essential when developing educational interventions for these students (Reis et al., 2014). Educators frequently emphasize remediation of the twice-exceptional students' weakness and often this results in neglecting their gifts (Reis & McCoach, 2002). For twice-exceptional students, this can make academics boring (Reis & McCoach, 2002). This lack of understanding about the needs of twice-exceptional students can also lead to a great deal of frustration, and often, twice-exceptional students experience criticism and punishment from teachers who lack understanding about the nature of their difficulties (Reis & Colbert, 2004). In a qualitative study of twice-exceptional college students, many of the participants noted the negative impact these experiences had on their self-concept, and over half of these students reported that they sought counseling following high school (Reis & Colbert, 2004).

In addition to exclusion from gifted programming, twice-exceptional students often experience mischaracterizations with regards to their academic motivation and effort. Although underachievement in gifted students may be indicative of learning or emotional concerns that have yet to be identified, twice-exceptional students are often characterized as underachievers due to a lack of understanding regarding the nature of their disability (Reis & McCoach, 2000; Willard-Holt, Weber, Morrison, & Horgan, 2013). In a study of 20 seven- to ten-year-old students perceived as performing below expected levels, 17 of the 20 were diagnosed with a learning disability (Gilmore & Boulton-Lewis, 2009). It is vitally important to rule out any learning or emotional concerns when working with a student who underachieves (Gilmore & Boulton-Lewis, 2009; Reis & McCoach, 2000).

The impact of academic programming that does not fully meet the needs of a twice-exceptional student can carry quite significant and sometimes detrimental effects for these individuals. Twice-exceptional students are often identified much later than non-gifted peers

with learning disabilities, and often experience a great deal of frustration in their early years of school as a result (Reis & Colbert, 2004). For example, in a sample of twice-exceptional college students (N=48), only four were identified for talented and gifted programming in lower grades despite 13 of the participants reporting ability scores of 130 or higher (Ferri et al., 1997). This can lead to pervasive misconceptions regarding twice-exceptional students in terms of ability and motivation. School personnel might conclude that twice-exceptional students are simply “lazy” or “underachievers” rather than experiencing difficulties related to a disability that impacts performance; these conclusions can also limit opportunities for participation in gifted programming (Assouline et al., 2006). In a qualitative study of twice-exceptional college students, Reis and Colbert (2004) found that many students reported negative experiences in early education. Participants often reported that their gifts were overlooked in favor of focusing on their disability, which often led to a great deal of distress (Reis & Colbert, 2004). Although research has not fully addressed the implications this might have for mental health, understanding the role of academic programming and corresponding self-concept may provide important insights into this area.

Diversity Considerations for Gifted and Twice-Exceptional Students

When contemplating the unique needs of both gifted and twice-exceptional students, it is important to also consider the role that various multicultural factors may have on individuals within these groups. Because schools are federally required to provide special education services to students with disabilities, yet gifted programming is dictated by state or district requirements, students may have uneven access to services simply based on where they attend school. In a study of Texas school districts, researchers found that rural schools, small schools, and schools with higher percentages of low-income students often provided students with fewer opportunities

for gifted and talented education compared to schools in other areas (Kettler, Russell, & Puryear, 2015). Lack of resources for rural districts in particular is commonly noted as a concern for gifted students, as districts can be unwilling or unable to provide academic enrichment opportunities (Howley, Rhodes, & Beall, 2009). As noted by Howley and colleagues (2009), students of color or of lower social classes may be particularly impacted by rural location due to other obligations to family and community as well as identification barriers that can limit their participation when opportunities exist.

Another important consideration regarding diversity within gifted and twice-exceptional students is the disparity that often exists in both gifted and special education classes. Within gifted education, students often identify as White or Asian at higher rates than other racial or ethnic minorities (Howley et al., 2009; Kettler et al., 2015). However, in special education classes, the reverse trend is often observed, with students of color (particularly Black students) being represented at much higher rates when compared with the general school population (Artiles, Harry, Reschly, & Chinn, 2002; Stambach & Bal, 2010). For twice-exceptional students of color, this may present particular challenges, both in terms of identification and equal access to enrichment and support through gifted and special education (Artiles et al., 2002; Howley et al., 2009). Some researchers even question whether identification of twice-exceptionality provides unfair advantages to children of affluent parents who have the means to access resources within both systems (Lovett, 2013). To combat this, a careful reflection on culture as well as the benefits and limitations of intellectual assessments may be an appropriate first step for clinicians and educators interested in working with these populations (Howley et al., 2009).

Many factors impact the experience of gifted and twice-exceptional students, including identification, diagnosis, and access to programming aimed at developing areas of talent.

Diversity considerations, including race, ethnicity, social class, and location may also influence the extent to which students are identified and able to access appropriate services related to their specific academic needs. When access to appropriate resources are lacking, gifted students may experience more difficulty with symptoms of anxiety and depression. In addition, perfectionism may become more salient and increasingly influential in these students' lives. Although the role of perfectionism and its impact on mental health has been the subject of research within literature on gifted and typically developing children (e.g., Hewitt et al., 2002; Stornelli et al., 2009), there is no current literature discusses the impact that perfectionism may have on twice-exceptional children. The following section will further explore the research regarding perfectionism and its impact on mental health.

Perfectionism

Perfectionism is a personality trait in which an individual possesses an overwhelming desire to succeed at high levels (Frost et al., 1990; Hewitt & Flett, 1991). Perfectionism can be observed in all ages and across a variety of domains and settings. One study examining the constructs of various perfectionism measures in a large sample of adolescents ($N = 938$) found that perfectionism was identified in approximately 30% of the sample (Sironic & Reeve, 2015). Early research on perfectionism initially focused on the dichotomy of the trait as present in a negative connotation or absent; however, more recent research has defined perfectionism as more continuous and dimensional to better reflect the positive and negative attributes that contribute to perfectionism (Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Much of this rationale stems from the idea that perfectionism is as much a function of the individual as it is their interactions with others (Hewitt & Flett, 1991). Determining whether perfectionism is adaptive or maladaptive can better characterize the impact

of these traits (Stornelli et al., 2009). The following section will describe the impact of perfectionism, and highlight how this might be different for gifted and twice-exceptional students.

Measurement of Perfectionism

Initial attempts to assess multidimensional perfectionism began in the late 1980s to early 1990s and resulted in two scales of the same name, the Multidimensional Perfectionism Scale. The first, developed by Frost and colleagues (1990), established six dimensions to embody perfectionism as a construct. These constructs focused both on internal factors, such as concern about mistakes, and external factors, such as perceptions of others' standards (Frost et al., 1990). The research surrounding the development of the Frost Multidimensional Perfectionism Scale found that elevations on the various dimensions included in the scale were associated with both positive attributes as well as indicators of psychopathology (Frost et al., 1990). The Multidimensional Perfectionism Scale developed by Hewitt and Flett (1991) defined perfectionism as embodying three separate domains: self-oriented, other-oriented, and socially-prescribed. Self-oriented perfectionism encompasses what many people consider traditional perfectionism, and focuses on setting and meeting high standards for oneself (Hewitt & Flett, 1991). This type of perfectionism is internally driven. Other-oriented perfectionism occurs when individuals develop stringent expectations for those around them (Hewitt & Flett, 1991). Finally, socially prescribed perfectionism involves the belief that those around the individual have lofty goals that must be accomplished (Hewitt & Flett, 1991). Both of these scales attempted to define both the inter- and intrapersonal aspects related to perfectionism (Frost et al., 1990; Hewitt & Flett, 1991). Comparisons of the two scales found many shared features (Flett, Sawatzky, & Hewitt, 1995; Frost, Heimberg, Holt, Mattia, & Neubauer, 1992). For example, Frost, et al.'s

Personal Standards scale correlated with Hewitt and Flett's self-oriented dimension. However, the other-oriented dimension from Hewitt and Flett's measure did not correlate well with the Frost Multidimensional Perfectionism Scale (Frost et al., 1992). Other research has also found that individual and socially prescribed perfectionism are commonly related, but less attention is placed on other-oriented perfectionism (Speirs Neumeister & Finch, 2006; Stornelli et al., 2009).

Another more recent measure, the Almost Perfect Scale-Revised (Slaney et al., 2001) divides and simplifies perfectionism into identification of adaptive and maladaptive characteristics. Adaptive characteristics of perfectionism include traits such as increased goal orientation, perceiving perfectionism as a driving force for success, or making the most of one's abilities. Maladaptive perfectionism focuses more on traits traditionally considered when discussing perfectionism, such as difficulty coping with failure or refusing to accept any possibility of mistakes, which broadly tends to lead to a decrease in self-worth (Gilman & Ashby, 2003a). The Almost Perfect Scale-Revised follows a three-factor model in which scores on three subscales determine if an individual identifies as an adaptive perfectionist, maladaptive perfectionist, or non-perfectionist (Gilman & Ashby, 2003b; Rice, Ashby, & Gilman, 2011). The High Standards subscale allows for identification of personal attributes related to completion of tasks that might correspond with perfectionism. By adding in the additional items on the Discrepancy scale, researchers can then determine if the Standards endorsed are adaptive or maladaptive. The third scale, Order, addresses neatness but is found to have less statistical validity in the assessment of perfectionism and thus most studies eliminate it from analysis (Rice et al., 2011). Although certain factors of both Frost, et al.'s and Hewitt and Flett's scales address more adaptive features of perfectionism, the Almost Perfect Scale-Revised more fully distinguishes between positive and negative features of perfectionism. Although all three

measures identify slightly different factors relevant to perfectionism, one common feature is that perfectionism can have positive or negative implications for an individual (Frost et al., 1990; Hewitt & Flett, 1991; Slaney et al., 2001).

Consequences of Perfectionism

Although frequent attention is given to the maladaptive aspects of perfectionism, recent research has also highlighted more adaptive features, especially with regard to self-oriented perfectionism (Bong, Hwang, Noh, & Kim, 2014). Many well-known theorists, including Alfred Adler and Abraham Maslow, suggest perfectionism is an important part of fully realizing human potential (Gilman & Ashby, 2003a). For Adler, a common theme driving his theory of the mind was the role of striving for superiority in order to rise above deficits of the self (Archer & McCarthy, 2007; Watts, 2012). Likewise, Maslow viewed perfectionism as a way to more fully realize the self, and viewed it as an integral part of self-actualization (Maslow, 1963). More recent research has also supported the claims that perfectionism can often be adaptive and even beneficial to an individual's growth and self-concept. In a study of 132 middle school students, Gilman and Ashby (2003a) found that students who identified as adaptive, or self-oriented perfectionists also identified greater levels of self-satisfaction compared to maladaptive or non-perfectionists. Adaptive perfectionism also benefits students in academic settings. For instance, adaptive perfectionism can lead to increased goal setting and motivation towards increased learning (Bong et al., 2014). Accordino and colleagues (2000) found that higher scores on the High Standards subscale of the Almost Perfect Scale-Revised predicted higher grade point averages and decreased depression. Similar correlations regarding High Standards, grade point average, and reported depression were also found in a sample of 185 middle school students (Gilman & Ashby, 2003b).

Despite the identified positives of perfectionism, there are also many instances in which the negative aspects of perfectionism prevail. In these cases, socially prescribed perfectionism, or concerns about others' perceptions of the individual's ability, often relates to poorer outcomes. In a study of Korean seventh graders (N=306), researchers found that students reporting socially-prescribed perfectionism generally described more adverse outcomes in terms of academic performance, increased procrastination, and presence of anxiety (Bong et al., 2014). Socially prescribed perfectionists may also struggle more when asked to do things outside their areas of comfort. In a study of students enrolled in third through sixth grade, socially prescribed perfectionists had more difficulty with unfamiliar tasks compared to self-oriented perfectionists, and also experienced more concerns about successful completion of the tasks (DiBartolo & Varner, 2012).

Perfectionism and Culture

Within the literature on perfectionism, little has focused specifically on the experiences of children and adolescents while also accounting for multicultural factors. However, existing research specifically focused on the experiences of African American adolescents found that those students tended to display similar patterns between reported negative forms of perfectionism and increased symptoms of anxiety and depression (Herman, Wang, Trotter, Reinke, & Ialongo, 2013). A seven-year longitudinal study of African American adolescents found that although there were some changes in reporting of perfectionism over time, students who reported self- and socially-oriented forms of perfectionism were also more likely to report greater depression and anxiety (Herman et al., 2013). There is also some evidence that African American students may report maladaptive forms of perfectionism at higher rates than White peers. A study of adolescents with chronic illness and their parents found that African American

students reported maladaptive perfectionism at higher rates than the White students; however, differences in rates of reported depression were not significant (Rice, Tucker, & Desmond, 2008). The authors hypothesized that within these students' respective communities, African American students may feel increased pressure to succeed compared to their White peers. Social class has also been examined in the context of gifted high school students from high income ($N = 141$) and low-income schools ($N = 158$; Lyman & Luthar, 2014). Although no significant differences were observed specifically related to reported perfectionism between the two groups, perfectionism was again related to increased report of internalized symptoms often related to other mental health concerns such as anxiety and depression (Lyman & Luthar, 2014).

Research on perfectionism and mental health in children and adolescents has also focused on broader cultural differences based on country of origin. In studies conducted in Korea, China, Hong Kong, and Germany, researchers found the presence of a relationship between perfectionism and indicators of mental health difficulties, such as increased anxiety (Bong et al., 2014; Essau, Leung, Conradt, Cheng, & Wong, 2008). Bong and colleagues (2014) also found that socially prescribed perfectionism was related to other academic difficulties, such as lower performance and increased procrastination. In a study comparing perfectionism and anxiety within two samples of high school students from Hong Kong and Germany, researchers found that while students in Hong Kong reported greater anxiety compared to their peers in Germany, the relationship between maladaptive perfectionism and increased anxiety was consistent across the two samples (Essau et al., 2008). Positive relationships between adaptive perfectionism and happiness in Chinese students have also been identified, suggesting similar benefits when students identify with adaptive traits of perfectionism (Chan, 2012). The current research within this area suggests that perfectionism is relatively indiscriminate in terms of country of origin,

race, or social class, and that correlations between adverse outcomes exist across groups regardless of culture.

Perfectionism in Gifted Children

Although people often assume that perfectionism occurs more frequently with gifted students, the evidence supporting this assertion is unclear. Although perfectionism might occur at slightly higher rates for gifted children, most agree that perfectionism is not significantly higher for children who are gifted (Schuler, 2000; Speirs Neumeister & Finch, 2006; Stornelli et al., 2009). For instance, Stornelli and colleagues (2009) compared students from regular, gifted, and arts programs, and found no evidence of increases in perfectionism in students enrolled in gifted programming. However, LoCicero and Ashby (2000) compared students in gifted classes with those who were participating in regular academic programming and found that gifted students did classify themselves as adaptive perfectionists more frequently than their typically developing peers. As in typically developing children, perfectionism in gifted children can be regarded as beneficial or indicative of poor psychological functioning depending on type (Fletcher & Speirs Neumeister, 2012; LoCicero & Ashby, 2000). Likewise, gifted children also contend with type of perfectionism and goal orientation as possible predictors of outcomes, just as non-gifted children do (Fletcher & Speirs Neumeister, 2012). One possible difference that may impact gifted children more than typically developing children is that gifted children who are perfectionists might be more heavily influenced by early experiences in which perfection was often readily attainable. As a result, gifted children may respond with more difficulty when approached with the possibility of failure and thus exhibit more tendencies towards negative perfectionist traits (Speirs Neumeister, Williams, & Cross, 2009). Speirs Neumeister and colleagues (2009) interviewed gifted high school students and found that easy coursework and

corresponding boredom often influenced their drive to complete work perfectly. However, this strategy became less effective as students encountered more difficult academic material (Speirs Neumeister et al., 2009). In addition, gifted students may also internalize failure to a greater extent than typically developing students, especially when traits of maladaptive perfectionism are present (Speirs Neumeister, 2004). Gifted students also reported that their parents and families inspired their perfectionist responses to different situations, especially expectations within their family unit and observations of parents enacting perfectionist behaviors (Speirs Neumeister et al., 2009). In another study, Speirs Neumeister and Finch (2006) examined the relationship between style of perfectionism and attachment style in 265 first-year college honors students and found that students who reported insecure attachments with their parents also identified more strongly as maladaptive perfectionists.

As with typically developing students, type of perfectionism in gifted children influences both the level of distress as well as possible outcomes (Fletcher & Speirs Neumeister, 2012; Speirs Neumeister, 2004). The type of perfectionism students identify with can greatly impact perceptions surrounding life experiences. In a study of 251 gifted students in China, individuals who identified with healthy perfectionism styles reported greater levels of happiness and life satisfaction (Chan, 2012). In many cases, gifted children who identify as perfectionists benefit from this trait, especially if perfectionism is identified as adaptive. Researchers found that gifted sixth to twelfth grade students who identified as perfectionists, yet sought to achieve based on mastery goals over perfection, had higher self-esteem and self-concept than those who focused more on perfection over mastery (Wang, Fu, & Rice, 2012). Fletcher and Speirs Neumeister (2012) also pointed to higher motivation and goal achievement as characteristic of gifted

perfectionists. Gifted students who align with more positive aspects of perfectionism also tend to be more well-adjusted and higher achieving (Dixon, Lapsley, & Hanchon, 2004).

In the gifted literature, research often focuses on negative ramifications of perfectionism rather than the more balanced approach used in non-gifted samples. Maladaptive perfectionism in gifted students often indicates greater distress and possible mental health concerns. In general, increased perfectionism is also correlated with decreased happiness (Stornelli et al., 2009). In a study of gifted adolescents, Schuler (2000) found that students whose perfectionism appeared more maladaptive reported higher levels of anxiety and concerns surrounding making mistakes. In a study of honors college students, researchers found that individuals who reported insecure attachments to parents reported higher self-oriented and socially prescribed perfectionism (Speirs Neumeister & Finch, 2006). In another study of gifted adolescents, students who identified as maladaptive or pervasive perfectionists also reported more mental health concerns and poorer coping skills (Dixon et al., 2004).

Overall, the literature suggests that gifted students do not experience maladaptive perfectionism at greater rates than non-gifted students. However, when gifted students identify as maladaptive perfectionists, they experience similar concerns to those within non-gifted populations. Because of this, gifted students may also be more at risk for symptoms of anxiety and depression if they identify as maladaptive perfectionists, although research within this area is still developing.

Perfectionism in Twice-Exceptional Children

The role of perfectionism in twice-exceptional children has not been extensively researched. Twice-exceptional students might also identify as perfectionists, and this perfectionism may be more likely to take on unhealthy characteristics (Reis & Colbert, 2004).

According to Reis and Colbert (2004), twice-exceptional students may experience perfectionism related to unrealistic self-expectations, some of which may stem from pressure experienced due to misunderstanding of their disability status. However, there is a dearth of current empirical research on how perfectionism manifests within this population.

Role of Perfectionism in Mental Health

Because perfectionism leads to potential impairment across several domains, it also presents ramifications in the realm of mental health (O'Connor, Rasmussen, & Hawton, 2010). Several studies using typically developing samples of children or adolescents have demonstrated a relationship between perfectionism and anxiety and depression. For example, multiple studies have found that the presence of perfectionism is mediated by negative cognitions (Flett, Coulter, Hewitt, & Nepon, 2011; Pirbaglou et al., 2013). In many cases, children who report dysfunctional styles of perfectionism also report greater difficulties with a variety of mental health concerns (Ablard & Parker, 1997). The presence of certain types of perfectionism may be indicative of increased symptoms of anxiety and depression (Accordino, Accordino, & Slaney, 2000; Gilman & Ashby, 2003a; Gilman & Ashby, 2003b; Hewitt et al., 2002). The domain of socially prescribed perfectionism correlates most frequently with poor mental health outcomes, as do high scores on the Discrepancy subscale of the Almost Perfect Scale-Revised. In a study of 58 adolescents, socially-prescribed perfectionism correlated to increases in reported symptoms of depression (Flett, Druckman, Hewitt, & Wekerle, 2012). Other dimensions of perfectionism can also impact the experience of anxious and depressive symptoms. Hewitt and colleagues (2002) examined the relationship between type of perfectionism and mental health concerns, such as anxiety, depression, stress, and anger in children and adolescents. In a sample of 114 children, they found that self-oriented perfectionism was related to increased depression and anxiety,

whereas socially prescribed perfectionism was associated not only with increases in depression and anxiety but other domains as well, such as anger (Hewitt et al., 2002). Studies with middle school and high school students have also demonstrated relationships between maladaptive perfectionism and increased depression (Accordino et al., 2000; Gilman & Ashby, 2003b).

Understanding the impact perfectionism has on mental health can aid practitioners in identifying and treating students who may struggle with these experiences (Hewitt et al., 2002; Rice et al., 2011). The presence of perfectionist tendencies may also impact how clinicians proceed with therapeutic work. Children who are perfectionists might be more resistant to the use of cognitive or behavioral strategies due to concerns about perfectionism within treatment (Mitchell, Newall, Broeren, & Hudson, 2013). In a study of 67 children with anxiety, Mitchell and colleagues (2013) found that while cognitive-behavior therapy initially showed positive outcomes with both self- and socially-oriented perfectionism, self-oriented perfectionists had less positive long-term outcomes. In a study examining group therapy outcomes conducted within a school setting, researchers also found that outcomes on reported depression and anxiety following the group intervention were impacted by reported perfectionism (Nobel, Manassis, & Wilansky-Traynor, 2012).

Summary

Researchers have focused on various psychological attributes, including cognitive ability and high achievement to understand the phenomenon of giftedness. In more recent years, an understanding of how developmental, social, and learning disabilities manifest in gifted students (twice-exceptional) has broadened the conceptualization of gifted students and provided important insight regarding how best to serve these students academically. Psychological traits, such as perfectionism, can impact the performance of students who have high cognitive ability.

Less is known about the impact of perfectionism, as a psychological trait, on individuals who have both high cognitive ability and one or more diagnosed disability. Understanding the implications of perfectionism within these populations is important to further enhance our understanding of the development of mental health issues, especially anxiety and depression. Research has examined how perfectionism interacts with mental health disorders within typically developing populations; however, an understanding of the ways in which perfectionism manifests in gifted and twice-exceptional students is still developing. An improved understanding of the ways in which perfectionism relates to symptoms of mental health within these populations is important in order to provide recommendations for intervention and treatment.

CHAPTER 3: METHODS

Although the impact of perfectionism, anxiety, and depression has been addressed separately within gifted and twice-exceptional populations, little research has looked at these factors comprehensively. The following chapter will detail the present study's research questions, means for assessing participants, and other relevant information surrounding the research questions.

Current Study: Research Questions

The current study examined two primary domains or questions: whether self-reported style of perfectionism (adaptive, maladaptive, or none) differentiates gifted students from twice-exceptional students, and the relationship between style of perfectionism and symptoms of anxiety and depression. The following research questions were explored:

1. Are there meaningful differences between self-reported styles of perfectionism in gifted students with and without self-reported disabilities?
2. How does style of perfectionism relate to the presence of symptoms of anxiety in twice-exceptional and gifted students?
3. How does style of perfectionism relate to the presence of symptoms of depression in twice-exceptional and gifted students?
4. Do demographic variables (e.g., age, grade, group membership) differentiate students based on their style of perfectionism?

The aim of research question #1 was to identify any similarities and differences in how gifted and twice-exceptional students report their style of perfectionism. Although gifted students are often the focus of research on perfectionism (Speirs Neumeister & Finch, 2006; Stornelli et al., 2009), twice-exceptional students have not received the same attention using perfectionism as a

construct. Developing an understanding of whether patterns of perfectionism are similar or different for gifted and twice-exceptional students drives research questions #2 and #3, as it provides insight into differences that may exist between these two groups.

Research questions #2 and #3 are similar questions with regard to how style of perfectionism connects to symptoms of anxiety (research question #2) and depression (research question #3). Existing research conducted with gifted students has demonstrated a relationship between certain types of perfectionism and both anxiety and depression (Rice & Richardson, 2014; Slaney et al., 2001); however, the lack of research on perfectionism in twice-exceptional students limits current understanding of whether or not gifted and twice-exceptional students also experience differences in how style of perfectionism impacts symptoms of anxiety or depression. Research question #2 explores the variable of anxiety. Assuming group differences exist between gifted and twice-exceptional students with regards to style of perfectionism, question #2 allows for examination of how these differences in reported perfectionist style influence reported anxiety within each of these two groups. Research question #3 will explore the variable of depression, and will again allow for examination of how differences in style of perfectionism influence reported depressive symptoms in gifted and twice-exceptional students. Similarly to research question #2, research question #3 will allow for a better understanding both of how style of perfectionism is related to reported symptoms of depression and whether or not these differences vary based on group membership of high ability versus twice-exceptionality.

Research question #4 examines additional demographic variables such as age, gender, and group membership to determine what, if any, impact these variables have on gifted and twice-exceptional students and their report of style of perfectionism, anxious symptoms, or depressive symptoms. Closer examination of these variables allows for identification of whether

any significant group differences exist within the areas assessed that may impact interpretation of the results. In addition, the demographic variables may also help highlight specific differences between the groups or variables of interest that may provide further explanation for the results of the present study.

Participants

The current sample was recruited from a population of individuals ages eight to 14 who self-identified as gifted/high ability or who self-identified as twice-exceptional. Participants were recruited from a population of students who identified as gifted through their participation in enrichment programming, psychoeducational evaluations conducted in a clinic focused on twice-exceptionality, and various email listservs targeting parents and educators interested in these topics. In addition to student participants, their parents also participated by completing a demographic questionnaire that provided additional information about their child, including the process by which they were identified as gifted/high ability or twice-exceptional. Participants were recruited from two groups: high ability or gifted students ($N = 39$) and twice-exceptional students ($N = 28$). Students and parents self-identified the student as gifted and their parents then provided additional information about how they had learned about their child's high abilities. For the purposes of this study, giftedness was self-defined and parents were asked to provide additional information about how they learned about their child's high abilities, including participation in a formal psychoeducational evaluation, in-school or extracurricular above-level programming, above level testing, or additional methods. Although many means of identifying high ability students exist, above-level testing or talent searches is one of the most commonly used. Above-level talent searches are used to identify high-ability students through administration of a test intended for older students (e.g., administering the ACT to middle school

students; Olszewski-Kubilius, 2004). Talent searches are an effective way to identify several gifted students through the use of an above-level test, and are often paired with enrichment opportunities to further develop the gifts of these students (Olszewski-Kubilius, 2004). Twice-exceptional students were also identified via self-identification by their parents as a student with identified high abilities and co-occurring disability. For this group, parents were asked to provide additional information related to their child's diagnosis or diagnoses as well, including age at diagnosis and information about who diagnosed their child's disability in order to better understand how parents and their children came to their understanding of this identity.

Participants were recruited through several avenues aimed at targeting both gifted and twice-exceptional students. First, participants were recruited through their participation in activities at the Belin-Blank Center, including registration for summer or school-year enrichment programming or participation in diagnostic psychoeducational assessments. Parents and teachers also received information about the study through a clinic research listserv and gifted teachers listserv managed by the Belin-Blank Center. These lists were created to provide individuals interested in learning more about twice-exceptionality and giftedness with additional information about Belin-Blank Center activities. The clinic list reaches approximately 120 parents and the gifted teachers listserv includes approximately 1,000 subscribers (personal communication, July 6, 2016). Participants were also recruited through the 2E Newsletter, a publication geared towards parents and educators of twice-exceptional students. The 2E Newsletter reaches approximately 6,000 individuals, approximately 900 of whom identified as parents of twice-exceptional children when subscribing (personal communication, October 12, 2015). Students recruited from all sources were asked to provide information about how they were identified as

gifted as well as information about how they received their diagnosis or diagnoses in order to ensure consistency across the overall sample.

Participant Characteristics

The present sample was comprised of 82 individuals who initially consented to participate in the study. Sixty-nine participants returned their completed study materials for an overall response rate of 84 %. Of these, two participants were excluded for exceeding the age limit of the study, so the final sample was comprised of $N = 67$ participants. Although the sample is relatively small, this is consistent with much of the existing literature on gifted and twice-exceptional students, which often relies on case studies or small samples due to the limited information available about these populations (Foley Nicpon et al., 2010; Martin et al., 2010). The current sample was 47.8 % male and 83.6 % identified as White/Caucasian. The mean age for participants was 12.27 ($SD = 1.76$, range 8 to 14; further demographic information can be found in Table 1).

	<u>M</u>	<u>SD</u>	<u>Range</u>
Age	12.27	1.76	8 to 14
Grade	7.25	1.93	2 to 9
Gender	<u>Gifted</u>	<u>Twice- Exceptional</u>	<u>Total</u>
Male	12 (30.8 %)	20 (71.4 %)	32 (47.8 %)
Female	27 (69.2 %)	8 (28.6 %)	35 (52.2 %)
Race	<u>N</u>	<u>%</u>	
White/Caucasian	56	83.6	
Asian/Asian American	6	9.0	
More than one race	5	7.4	

Within this sample, $N = 39$ identified as gifted only and $N = 28$ identified as both gifted and having a diagnosed disability (twice-exceptional). Although 67.2 % of participants reported

multiple ways in which their child was identified as gifted, participants within the overall sample most frequently endorsed participation in talented and gifted programming during the school year ($N = 49$), followed by completion of above-level testing as means of identification ($N = 36$; full results are provided in Table 2).

	<u>Talented and Gifted Programming</u>	<u>Psychoeducational Evaluation</u>	<u>Enrichment Programming</u>	<u>Participation in Above-Level Testing</u>	<u>Other Means of Identification</u>
Gifted	34 (87.2 %)	6 (15.4 %)	25 (64.1 %)	24 (61.5 %)	5 (12.8 %)
Twice-Exceptional	15 (53.6 %)	23 (82.1 %)	7 (25.0 %)	12 (42.9 %)	1 (3.6 %)
Total	49 (67.2 %)	29 (43.3 %)	32 (47.8 %)	36 (53.7 %)	6 (9.0 %)

Note. 67.2 % of total participants identified more than one method of identification; thus, numbers do not sum to 100 %.

Participants who identified as twice-exceptional were also asked to provide information about diagnosis. Of the participants, $N = 16$ (57.14 %) identified more than one disability. The most commonly reported disability was Attention Deficit/Hyperactivity Disorder; $N = 17$, and the majority of the sample reported that their diagnosis or diagnoses came from a licensed psychologist ($N = 23$; frequencies for disability and means of diagnosis are reported in Table 3).

<u>Learning Disability</u>	<u>ADHD</u>	<u>Autism Spectrum Disorder</u>	<u>Anxiety Disorder</u>	<u>Depressive Disorder</u>	<u>Other Diagnoses</u>
9 (32.1 %)	17 (60.7 %)	6 (21.4 %)	9 (32.1 %)	4 (14.3 %)	8 (28.6 %)

Note. 57.1 % of twice-exceptional participants identified more than one disability or diagnosis; thus, numbers do not sum to 100 %.

Measures

In order to answer the research questions stated above, participants and their parents completed several measures to provide responses relevant to these questions. The measures used are described below:

Perfectionism

Perfectionism was assessed using the Almost Perfect Scale—Revised (APS-R; Slaney, Mobley, Trippi, Ashby, & Johnson, 2001). The APS-R includes 23 items that load onto three subscales (High Standards, Order, and Discrepancy) in order to distinguish between adaptive and maladaptive perfectionists. Students respond to prompts such as “I often feel frustrated because I cannot meet my goals” using a Likert-style scale (1=strongly disagree to 7=strongly agree). Students who score high on the High Standards subscale are considered perfectionists; students who also score high on the Discrepancy subscale are identified as maladaptive perfectionists. Rice and colleagues (2011) established useful cut scores for use with adolescent populations, and identified a score greater than or equal to 35 on the High Standards subscale as indicative of perfectionism. A score of 41 or lower on the Discrepancy subscale suggests adaptive perfectionism, whereas a score greater than 41 indicates maladaptive perfectionism (Rice et al., 2011). If a student does not obtain a score above the cut point on these scales, the student is classified as a non-perfectionist (Rice et al., 2011; Slaney et al., 2001). Although Order is included as a subscale of the APS-R, research has suggested that although the items comprise a separate domain, they do not contribute significantly to identifying type of perfectionism (Gilman & Ashby, 2003b; Rice et al., 2011). The current study utilized common practices and focus primarily on the High Standards and Discrepancy subscales as a means for establishing type of perfectionism for participants.

The APS-R has well-documented reliability and validity with a wide range of populations, including adolescents and young gifted students. Slaney and colleagues (2001) first validated the APS-R with a sample of college students and demonstrated good reliability, with alpha levels ranging from 0.82 to 0.92. In a sample of middle school students, reliability estimates were from 0.82 to 0.95 (Gilman & Ashby, 2003b). Further research found alpha levels ranging from 0.77 to 0.87 as well as adequate construct validity in a sample of 342 gifted middle school students (Vandiver & Worrell, 2002). This study also demonstrated adequate convergent and discriminant validity within this sample based on the three factors of the APS-R (Vandiver & Worrell, 2002).

Anxiety

To assess anxiety, participants completed the Revised Children's Manifest Anxiety Scale-2 (RCMAS; Reynolds and Richmond, 1978; 1997). The RCMAS was first published in 1978 and re-published in 1997, and is a self-report measure of anxiety symptoms used with children ages 6 to nineteen. This measure contains 28 items that assess multiple dimensions of anxiety, such as physical symptoms, worry, concentration, and an overall score (Reynolds & Richmond, 1978; 1997). Participants are asked to respond to questions such as "I get nervous around people" with yes or no, and these responses are combined to reflect various domains of anxiety. Scores that fall above $T = 60$ generally suggest the presence of anxiety symptoms. The RCMAS has good overall reliability, with alpha levels ranging from 0.61 to 0.77 for the subscales and 0.81 for the total scale (Ryngala, Shields, & Caruso, 2005). In addition, the RCMAS also has good convergent and divergent validity with other measures of childhood anxiety (Muris, Merchelbach, Ollendick, King & Bogie, 2002). Scholwinski and Reynolds (1985) examined how children with IQ scores above 130 responded to items on the RCMAS

compared to the normative sample. They found that gifted children's responses maintained good reliability and followed the same factor structure represented via the normative sample, suggesting that this measure is appropriate for use with high-ability populations (Scholwinski & Reynolds, 1985).

Depression

Symptoms of depression were assessed through the use of the Children's Depression Inventory-2 (CDI-2; Kovacs, 2003), a measure used to examine self-reported symptoms of depression in children ages seven to 17. The CDI-2 contains 28 items that fall across four factors ranging from negative mood and self-esteem to interpersonal problems. Individuals completing the CDI-2 are asked to respond to a series of questions and select the sentence that best describes them over the last two weeks. For example, children are asked to select if "I do most things O.K.", "I do many things wrong", or "I do everything wrong" best applies to them (Kovacs, 2003). Children who receive T-scores above 65 on the various domains are considered to be experiencing significant symptoms of depression, especially if many domains result in elevated scores. Although the CDI-2 does not have established research for overall reliability and validity given the recent revision of the measure, the first edition of the measure (CDI) was demonstrated to have well-established overall reliability and validity (Carey et al., 1987; Lee, Krishnan, & Park, 2012). Smucker and colleagues (1986) reported alpha coefficients from 0.83 to 0.89 for the CDI, and also reported good test-retest reliability. Likewise, in a study that examined the use of the CDI within a diverse group of third through eighth grade students (N=990), Cole and colleagues (1998) found that the CDI demonstrated good convergent, discriminant, and construct validity. The CDI has also been used in studies sampling gifted populations (e.g., Jones, 2013;

Beer, 1991); however, additional psychometric information on the use of this measure within such populations was not reported.

Demographics

Participant's parents completed a demographic questionnaire to confirm eligibility for the study and that provided general information of relevance to the research questions, particularly related to how participants were identified as gifted or twice-exceptional. Questions included: age, race/ethnicity, grade, diagnosis (if applicable), age at diagnosis, and current academic programming (gifted programming, special education programming, a combination, or regular programming; please see the Appendix for a list of questions). These questions aimed to determine the representativeness of the sample and provide information about demographic variables that may impact perfectionism style and presence of anxious or depressive symptoms.

Procedures

Participants were provided with information about the study either through handouts made available during their activities at the Belin-Blank Center or through listserv and newsletter announcements regarding study participation. Once parents and their child expressed interest in participating (either through email or in-person contact), they were provided with an informed consent and assent document for the participant and their parents to complete according to Institutional Review Board guidelines. Once completed, this was returned to the researcher via U.S. Mail, and a packet with study materials, including the demographic questionnaire, APS-R, RCMAS, and CDI-2 was sent via U.S. Mail for participants to complete. Once completed, participants were asked to return the completed surveys in a provided pre-paid envelope within a timeframe of two weeks from receipt. A follow-up reminder was sent via email to participants

following this two-week window if surveys had not been returned, and a final reminder email was sent one week following the initial reminder for participants who had not returned materials.

Analysis of Results

In order to examine the four primary research questions, several analyses were utilized. To explore research question one, a chi-square test was used to assess whether reported style of perfectionism differed between gifted or twice-exceptional students within the sample. For this analysis, the relationship between group membership (gifted or twice-exceptional) and type of perfectionism was examined. The goal of this analysis was to determine whether gifted and twice-exceptional students report differing styles of perfectionism, which would both contribute new information to the existing research on this topic and provide context for the following two research questions.

A two by three analysis of variance design (ANOVA) was utilized for research questions two and three, with grouping (gifted or twice-exceptional, assuming differences existed based on the results of the first research question) and type of perfectionism acting as independent variables and score on anxiety or depression measure acting as the dependent variable. By determining whether or not gifted and twice-exceptional students differ with regards to perfectionism as explored in research question one, subsequent analyses were able to either integrate or differentiate between the two samples. In addition, these two questions further examine the link between style of perfectionism and mental health within the two groups, and provide increased insight into relationships between anxiety or depression and style of perfectionism.

For the final research question, demographic variables aided in identifying characteristics within both samples that may influence the results obtained on the measures of perfectionism and

anxious and depressive symptoms. Specifically, characteristics that possibly differentiated the two groups, such as presence or absence of a disability (group membership), age, and gender were explored in context of the variables of interest. This provided further information about how group differences may have influenced overall results, as well as additional insight into the ways in which participants with different characteristics reported perfectionism, anxiety and depression overall.

CHAPTER 4: RESULTS

The following chapter will describe the plan of analysis and results obtained for the present study. The results will be presented in the context of the four research questions stated in Chapter 3. Specific analyses conducted to answer each question as well as results obtained for the current sample will be reported and explored to better understand the impact of perfectionism's role on anxiety and depression within high ability and twice-exceptional students.

Research Question #1

Chi-square analysis of style of perfectionism based on group membership demonstrated that participants identified different styles of perfectionism based on affiliation with either gifted/high ability or twice-exceptionality, $\chi^2 (2, N = 67) = 14.227, p = 0.001$. Calculation of effect size ($\phi = .461$) suggested a medium effect for this test. Specifically, more high ability participants ($N = 21, 54\%$) reported a maladaptive style of perfectionism compared with participants identified as twice-exceptional ($N = 7, 25\%$). Likewise, participants identified as twice-exceptional were more likely to identify as non-perfectionists ($N = 10, 36\%$) compared to students identified as gifted ($N = 1, 3\%$). Results of this analysis are summarized in Table 4.

	<u>Observed %</u>	<u>Expected %</u>
Gifted		
Non-perfectionist	2.6	16.4
Adaptive Perfectionist	43.6	41.8
Maladaptive Perfectionist	53.8	41.8
Twice-exceptional		
Non-perfectionist	35.7	16.4
Adaptive Perfectionist	39.3	41.8
Maladaptive Perfectionist	25.0	41.8

The results of these analyses suggest that gifted and twice-exceptional students reported style of perfectionism differently, with gifted students identifying more often with maladaptive perfectionism and twice-exceptional students identifying as non-perfectionists more frequently.

Research Question #2

A two-way analysis of variance (ANOVA) was used to determine whether participants reported anxiety differently based on group membership and reported style of perfectionism (means and standard deviations are reported in Table 5). The mean anxiety score for all groups did not exceed the $T = 60$ cutoff indicating the presence of significant anxiety symptoms, which was not unexpected given that this was not a clinical sample of students with anxiety.

<i>Table 5. Means and standard deviations for anxiety total scores</i>			
	<i>M</i>	<i>SD</i>	<i>N</i>
Gifted			
Non-Perfectionist	61.00	---	1
Adaptive Perfectionist	42.71	9.25	17
Maladaptive Perfectionist	49.21	11.42	21
Total	49.21	11.81	39
Twice-Exceptional			
Non-Perfectionist	48.60	9.55	10
Adaptive Perfectionist	41.45	6.64	11
Maladaptive Perfectionist	59.00	8.00	7
Total	48.39	10.47	28
Total			
Non-Perfectionist	49.73	9.80	11
Adaptive Perfectionist	42.21	8.21	28
Maladaptive Perfectionist	55.18	10.76	28
Total Sample	48.87	11.19	67

Results suggested significant difference in reported anxiety based on reported style of perfectionism at the $\alpha = 0.05$ level, $F(2, 66) = 13.924, p < 0.001$. An effect size of 0.313 was observed ($\alpha = 0.05$), suggesting a small to medium effect. Results for reported anxiety based on group membership were not significant and did not indicate a main effect. Likewise, no

significant interaction between group membership (gifted versus twice-exceptional) and reported style of perfectionism was observed. Results of these analyses are presented in Table 6.

Table 6. 2x3 ANOVA examining the impact of group membership and style of perfectionism on reported anxiety					
Source	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Group Membership	50.831	1	50.831	0.551	0.461
Style of Perfectionism	2566.769	2	1283.384	13.924	<0.001**
Group*Perfectionism	282.588	2	141.294	1.533	0.224
Error	5622.466	61	92.172		
Total	168258.000	67			
** <i>p</i> < 0.001					

Follow up testing for the significant main effect between reported anxiety and reported style of perfectionism was conducted using the Tukey post-hoc test. Results of this test suggested that maladaptive perfectionists ($M = 55.18$) reported greater levels of anxiety than adaptive perfectionists ($M = 42.21$; $p < 0.001$). There were no significant differences identified between adaptive perfectionists and non-perfectionists or between maladaptive perfectionists and non-perfectionists. The results suggest that group differences observed in research question #1 are not present when also examining the relationship between style of perfectionism and anxiety. However, participants that reported maladaptive styles of perfectionism also reported higher scores on measures of anxiety. Given the small sample size and the presence of cells with $N < 5$ participants, the analysis of variance was also run without the non-perfectionist category. However, results remained unchanged, with significant differences in reported anxiety observed based on reported style of perfectionism at the $\alpha = 0.05$ level, $F(1, 55) = 26.299$, $p < 0.001$.

Research Question #3

A two-way ANOVA was also utilized to examine whether group membership and reported style of perfectionism impacted participants' reported depression. Means and standard deviations for this test are reported in Table 7. The mean scores reported on the CDI-2 did not exceed the $T = 65$ cutoff that indicates significant depression symptoms within the overall sample, which was not unexpected given that this was not a clinical sample of students with depression.

	<i>M</i>	<i>SD</i>	<i>N</i>
Gifted			
Non-Perfectionist	58.00	---	1
Adaptive Perfectionist	46.82	6.95	17
Maladaptive Perfectionist	59.10	13.30	21
Total	53.72	12.29	39
Twice-Exceptional			
Non-Perfectionist	55.30	10.26	10
Adaptive Perfectionist	51.45	9.48	11
Maladaptive Perfectionist	60.00	13.51	7
Total	54.24	11.69	28
Total			
Non-Perfectionist	55.55	9.77	11
Adaptive Perfectionist	48.64	8.20	28
Maladaptive Perfectionist	59.32	13.10	28
Total Sample	54.24	11.69	67

Results suggested a main effect of reported style of perfectionism, $F(2, 66) = 5.48, p = 0.006$, which is significant at the $\alpha = 0.05$ level. The effect size was reported at 0.152 ($\alpha = 0.05$), suggesting a small effect. A main effect of group membership was not significant, nor was the interaction between group membership and reported style of perfectionism. Results of these analyses are presented in Table 8.

Table 8. 2x3 ANOVA examining the impact of group membership and style of perfectionism on reported depression					
Source	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Group Membership	5.584	1	5.584	0.047	0.829
Style of Perfectionism	1302.795	2	651.398	5.48	0.006*
Group*Perfectionism	68.171	2	34.086	0.287	0.752
Error	7251.107	61	118.871		
Total	206128.0	67			
* <i>p</i> < 0.01					

A Tukey post-hoc test was conducted to further examine group differences related to the main effect of reported style of perfectionism. Results indicated that maladaptive perfectionists ($M = 59.32$) reported greater depression than adaptive perfectionists ($M = 48.64$; $p = 0.001$). No significant differences were identified between maladaptive perfectionists and non-perfectionists or between adaptive perfectionists and non-perfectionists. The results suggest that the group differences identified in research question #1 are not observed when examining style of perfectionism in the context of reported depression. However, there was a relationship between reported style of perfectionism and depression, with participants identifying maladaptive styles of perfectionism also reporting higher scores on the depression measure. Given the small sample size and the presence of cells with $N < 5$ participants, the analysis of variance was also run without the non-perfectionist category. Significant differences in reported anxiety observed based on reported style of perfectionism at the $\alpha = 0.05$ level, $F(1, 55) = 10.509$, $p = 0.002$, and thus results were consistent with inclusion of the non-perfectionist category.

Research Question #4

To address the role of demographic variables on and their impact on reported style of perfectionism and group membership, additional Pearson correlations were performed to

determine if any relationships existed between these categories. Significant correlations at the $\alpha = 0.05$ level were observed for the following: age and group membership, gender and group membership, and reported anxiety and reported depression. Values for these correlations are reported in Table 9. Additional chi-square calculations were completed to examine the relationship between style of perfectionism and these variables; however, no significant relationships were observed.

<u>Variable</u>	<u>Age</u>	<u>Gender</u>	<u>Group Membership</u>	<u>Anxiety</u>	<u>Depression</u>
Age	---				
Gender	-0.181	---			
Group Membership	-	0.401**	---		
Anxiety	0.511**	-0.228	-0.036	---	
Depression	-0.173	0.027	0.053	0.697**	---
* $p < 0.01$					
** $p < 0.001$					

Further analyses of the relationships between the significant correlations and chi-square calculations were conducted to determine whether these relationships might have impacted the findings related to the first three research questions. Specifically, these analyses sought to provide insight into whether relationships between age, gender, and the variables of interest (e.g., group membership) may have impacted the results obtained in the first three questions. An independent samples t -test was conducted to examine the relationship between age and group membership. Participants in the high ability group ($M = 13.03$, $SD = 1.246$) tended to be older than the participants in the twice-exceptional group ($M = 11.21$, $SD = 1.853$), $t(44) = 4.494$, $p < 0.001$. Cohen's d for this difference was 1.15, which suggests a small effect. To explore the relationship between gender and group membership, a chi-square test was conducted. Results

were significant, suggesting that gender differed based on whether students were identified as high ability or twice-exceptional, $\chi^2(1, N = 67) = 10.799, p = 0.001$. Specifically, the distribution of boys was higher in the twice-exceptional group (71.42 %) compared to the high ability group (30.77 %). The relationship between anxiety and depression was significant, but was not subject to further analyses because they did not explore the question of relevant demographic variables.

Further analyses were conducted to examine the relationship between style of perfectionism with the variables introduced above. A one-way analysis of variance was completed to examine the relationship between age and reported style of perfectionism. There was a significant effect of reported style of perfectionism on age, with reported maladaptive perfectionism occurring more frequently in older students ($M = 12.86, SD = 1.297$) compared to students identifying as adaptive perfectionists ($M = 12.43, SD = 1.574$) or non perfectionists ($M = 10.36, SD = 2.063$), $F(2, 66) = 10.403, p < 0.001$. The relationship between group and reported style of perfectionism as well as reported style of perfectionism and anxiety were not explored further given that these relationships were addressed by previous research questions.

Overall, demographic results demonstrated several relationships of note with regard to the variables of interest. Participants in the gifted group were more likely to be older and female compared to the participants in the twice-exceptional group. Reported style of perfectionism was also influenced by the age of the participants, with older student identifying more often with maladaptive perfectionism.

Summary

When looking at perfectionism alone, gifted and twice-exceptional students tended to report style of perfectionism differently. Gifted students reported more maladaptive

perfectionism, while twice-exceptional students were more likely to identify as non-perfectionists compared to gifted students. When exploring perfectionism and its relationship to anxiety and depression, however, the group effect was no longer significant. Participants who identified as maladaptive perfectionists were also more likely to report higher scores on measures of both anxiety and depression. In addition, age and gender were both found to be correlated with group membership and style of perfectionism, with participants in the gifted group being more likely to be older and female, and with maladaptive perfectionists identifying as older. The implications and applications of these findings will be discussed in the following chapter.

CHAPTER 5: DISCUSSION

The results of the current study identified several factors relevant to the interaction of perfectionism and mental health in the lives of gifted and twice-exceptional students. Gifted and twice-exceptional students tended to report style of perfectionism differently, with gifted students endorsing higher rates of maladaptive perfectionism. However, group differences were no longer significant when evaluating the relationship between perfectionism and anxiety or the relationship between perfectionism and depression. Participants within the overall sample who identified as maladaptive perfectionists were more likely to endorse higher scores on measures of anxiety and depression. Age and gender were identified as factors impacting the results, as participants in the gifted group tended to be female and older than those in the twice-exceptional group. Older participants were also more likely to endorse maladaptive styles of perfectionism.

The purpose of this chapter is to further examine the results presented in Chapter 4. First, the findings related to each research questions will be reviewed in the context of the existing research literature. Next, implications for future research and practice will be discussed as they relate to the findings. Finally, limitations of the current study will also be explored, as well as future research that may continue to expand understanding of this topic.

Research Question #1: Are there meaningful differences between self-reported styles of perfectionism in gifted students with and without self-reported disabilities?

This question pertained to any potential differences in how gifted and twice-exceptional students reported style of perfectionism given the current dearth of literature on perfectionism and twice-exceptional students. The results of the present study suggested that gifted and twice-exceptional students do report style of perfectionism differently, with high ability students endorsing maladaptive perfectionism more frequently than twice-exceptional students. Within

the current sample, twice-exceptional students endorsed non-perfectionism more frequently than the gifted student group. The existing literature on gifted students and style of perfectionism is often mixed, with some researchers identifying no differences between gifted students and other students while others have found that gifted students were more likely to identify as adaptive perfectionists compared with non-gifted students (LoCicero & Ashby, 2000; Stornelli et al., 2009). The current research literature does not address perfectionism in students with disabilities regardless of ability level; therefore, the finding that twice-exceptional students within this sample endorsed non-perfectionism more frequently than gifted students offers new insight into how this particular sample of twice-exceptional students reported style of perfectionism. However, these results must also be interpreted within the context of a relatively small sample size, and thus, may have limited generalizability to twice-exceptional students as a whole.

The existing research on endorsement of perfectionism within students identified as gifted is often mixed; however, the gifted students within the current sample endorsed higher levels of maladaptive perfectionism. This differs from much of the current literature on the perfectionism in gifted students, which suggests that gifted students do not identify increased levels of maladaptive perfectionism (LoCicero & Ashby, 2000; Stornelli et al., 2009). Interestingly, the pattern of responses provided by the high ability students differed significantly from the responses gathered from the twice-exceptional participants, as the twice-exceptional students tended to endorse non-perfectionist styles at greater rates than other responses. These variations in responses suggest that there may be underlying differences in how gifted and twice-exceptional students perceive perfectionism. One possibility is that gifted students and twice-exceptional students receive different messages about what is expected of them academically. For instance, several studies (e.g., Gilman & Ashby, 2003a; Stornelli et al., 2009) found that

gifted students who experience more maladaptive forms of perfectionism also tend to place higher emphasis on achievement orientation and accomplishment of goals. Because placement in gifted classes or programming tends to be highly focused on achievement and attainment of goals for participation, such as certain test scores, teacher nomination, or faculty recommendations, some high ability students may feel increased pressure to perform in order to maintain access to these opportunities. Although this study did not compare gifted and twice-exceptional students in terms of goal orientation, it still highlights important motivating factors that might be more salient for gifted students.

It is possible that twice-exceptional students also may have experienced more opportunities related to adversity compared to high ability students, thus increasing their tolerance for challenging situations. For example, in one study, researchers found that twice-exceptional students reported not only using more skills to decipher complex reading passages, but also reported increased confidence that they had been successful in doing so (Hannah & Shore, 2008). Additionally, twice-exceptional students may have fewer opportunities to demonstrate their areas of strength due to the current educational structure in most U.S. schools. Although twice-exceptional students often have access to academic interventions within an IEP or 504 Plan, as many of the twice-exceptional students in the current sample did, the interventions available vary widely by district and often neglect to focus on students' strengths, instead emphasizing areas for improvement. For example, Crim and colleagues (2008) found that high-IQ students with learning disabilities often had fewer academic modifications and a lack of emphasis on strengths compared to students with lower IQ scores. The over-emphasis on remediation of skill deficits may make opportunities for failure more salient in twice-exceptional students at a younger age compared to high ability students for whom academic modifications

are directly aimed at already strong areas. Although this may benefit twice-exceptional individuals in terms of their perceptions surrounding perfectionism, it does not necessarily improve the academic experience of these students. Twice-exceptional students often report more difficulty with negative school experiences and difficulty with social relationships surrounding their dual statuses (Reis & Colbert, 2004), which suggests that the mental health needs of this group, while not necessarily directly related to style of perfectionism, should still be carefully considered by mental health professionals.

Despite the differences in how gifted and twice-exceptional students might report perfectionism, researchers generally agree that individuals endorsing maladaptive styles of perfectionism are often at greater risk for negative consequences related to emotional and mental health, including increased, fear, sadness, depression, and anxiety (Speirs Neumeister & Finch, 2006; Stornelli et al., 2009). The second and third research questions provide more information about how participants' self-reported style of perfectionism relates to their experience of mental health symptoms.

Research Question #2: How does style of perfectionism relate to the presence of symptoms of anxiety in twice-exceptional and gifted students?

This question focused specifically on whether or not gifted and twice-exceptional students reported differences in symptoms of anxiety based on self-reported style of perfectionism. Existing research has suggested that increased anxiety is related to certain styles of perfectionism, including maladaptive perfectionism as measured by the APS-R (e.g., Gilman & Ashby, 2003b). Results from the current study suggested that students identifying a maladaptive style of perfectionism report greater anxiety than students who identify an adaptive style of perfectionism. Although differences in reported style of perfectionism were observed

when looking at perfectionism alone, the group differences between high ability and twice-exceptional participants disappeared when the additional variable of anxiety symptoms was added.

The relationship between maladaptive perfectionism and increased anxiety is consistent with the existing literature, which suggests that maladaptive styles of perfectionism are often correlated with poorer outcomes, including higher anxiety (Gilman & Ashby, 2003b; Hewitt et al., 2002). However, the interaction between style of perfectionism and group membership was not significant, nor was the effect of group membership on reported anxiety. This suggests that although differences existed surrounding the relationship between perfectionism and anxiety within this sample, more research is needed to explore if this relationship is different for students identified as twice-exceptional. Additionally, drawing conclusions about whether or not any differences or similarities exist between gifted and twice-exceptional participants as far as perfectionism and anxiety cannot be determined due to the non-significance of the existing results. It is possible that gifted and twice-exceptional students report increased symptoms of anxiety related to higher self-reported maladaptive perfectionism at similar rates; however, the current dearth of research on perfectionism in twice-exceptional students makes drawing conclusions about this difficult. Future research might explore perfectionism in twice-exceptional students in greater depth in order to better formulate specific treatment recommendations for both gifted and twice-exceptional students. Because of the relationship between style of perfectionism and anxiety identified within the current sample, researchers and clinicians may be better able to identify features related to this population and provide more clear-cut guidelines for treatment of individuals within this population.

Research Question #3: How does style of perfectionism relate to the presence of symptoms of depression in twice-exceptional and gifted students?

The third research question addressed the issue of whether differences in group and reported style of perfectionism impacted self-reported symptoms of depression. Again, existing research suggested that increased depression is related to maladaptive styles of perfectionism (Accordino et al., 2000; Gilman & Ashby, 2003a; Gilman & Ashby, 2003b; Hewitt et al., 2002). The results of the current study suggested that participants who identified as maladaptive perfectionists endorsed greater levels of depression than those who identified as adaptive perfectionists. Therefore, these results are consistent with previous research that indicates a relationship between maladaptive perfectionism and depression (Accordino et al., 2000; Gilman & Ashby, 2003a; Hewitt et al., 2002). As with anxiety, there was no interaction effect between group membership and style of perfectionism, and the effect of group membership was not significant. The addition of reported depressive symptoms eliminated the previously reported effect of differences in reported styles of perfectionism between the gifted and twice-exceptional groups.

Although the results of this study correspond with results found in other research studies, more research is necessary to determine what effect, if any, identification as high ability or twice-exceptional might have when examining relationships between perfectionism and depression. The results from the current study suggest that treatment recommendations for individuals reporting both maladaptive perfectionism and depression might be similar for both gifted and twice-exceptional students. However, further exploration of how perfectionism and depression manifest in twice-exceptional students may further clarify what, if any, modifications to treatment might be appropriate.

Research Question #4: Do demographic variables (e.g., age, grade, group membership) differentiate students based on their style of perfectionism?

The intent of the final research question was to determine how demographics impacted the results reported above. The information obtained provided additional information to further identify possible reasons for the results obtained during this study. This section will focus on the results that pertain to significant relationships between demographic variables and other variables to remain consistent with the aim of this research question.

Several analyses examined if any relationships existed between demographic variables and the variables of interest, including group membership, anxiety, and depression. Significant correlations were identified between the following variables: Age*Group and Gender*Group. Notably, the age of the participants appeared to be related to both group membership and style of perfectionism, as a follow up *t*-test suggested that older participants were more likely to be in the gifted group. *F* tests also indicated an age effect based on reported style of perfectionism, as older participants were more likely to endorse maladaptive styles of perfectionism. Gender impacted group membership as well, with a chi-square test of independence suggesting that participants in the twice-exceptional group were more likely to be male.

These relationships and subsequent findings are important to note as it suggests that age and gender may have also impacted the findings documented in research questions one through three. Given that within this sample older students were more likely to report maladaptive styles of perfectionism, it is possible that age may have impacted how students reported style of perfectionism more than presence or absence of a disability. In general, older individuals tend to have a greater wealth of life experiences and understanding to draw upon, which may have led to a better understanding of the constructs of perfectionism, anxiety, and depression among the

older students. However, research on whether or not perfectionism changes as one ages is limited. A study conducted with adults did not demonstrate a relationship between age and reported perfectionism (Stoeber & Stoeber, 2009), but no research has examined whether age has a similar effect on individuals younger than 18. It is possible that as students approach adulthood, perfectionism becomes more prevalent and noticeable, thus increasing the likelihood of identifying as such compared to younger students. Individuals in high school often experience increased academic and social demands, which could make characteristics of perfectionism more salient to them, especially in high ability populations. For example, research conducted by Speirs Neumeister and colleagues (2009) found that high ability high school students often encountered more difficulty maintaining perfectionism as they aged due to increased complexity of coursework. Although the vast majority of the students in the present sample were not yet in high school, it is possible that they have already experienced some of the effects of increasingly complex classes during middle school. Conversely, twice-exceptional students may have a limited understanding of how their disability impacts their understanding of perfectionism, anxiety, or depression. Many students diagnosed with autism spectrum disorders, for example, struggle with insight into their own and others' experiences (APA, 2013). It is possible that for students with disabilities, the effects are similar; however, given the small yet diverse sample utilized in the present study, it is difficult to determine whether this also played a role in participants' understanding of their own experiences.

Likewise, gender also differentiated the two groups, with students in the twice-exceptional group being more likely to identify as male. Although males are more likely to receive diagnoses such as attention disorders and autism spectrum disorders that would place them within the twice-exceptional group (Christensen et al., 2016; Visser et al., 2014), it is again

difficult to determine whether subsequent differences reported by the two groups with regard to style of perfectionism were related to gender differences, age differences (as noted above), true differences in style of perfectionism, or a combination of these factors. The literature on gender differences within perfectionism is mixed, especially in adolescents; however, one recent study identified no gender differences related to perfectionism in gifted adolescents (Margot and Rinn, 2016). Another study conducted with adults also found no relationship between style of perfectionism and gender (Stoeber & Stoeber, 2009). However, the impact of gender has not been examined in twice-exceptional samples, and may merit further exploration. More research is needed to determine whether the differences observed related to group membership and style of perfectionism were truly related to group membership or were due to the effects of age or gender differences between the groups.

Summary and Implications

The primary findings of the current study were that gifted and twice-exceptional students tended to report perfectionism differently, and differences in perfectionism tended to be related to self-reported symptoms of both anxiety and depression. Specifically, gifted students tended to be more likely to report maladaptive perfectionism, and students who self-identified as maladaptive perfectionists were more likely to endorse increased symptoms of anxiety or depression compared to students who reported adaptive styles of perfectionism. However, differences in perfectionism as they related to self-reported anxiety or depression were not related to group membership, as no significant differences were observed for these analyses. There were also significant relationships between age and group membership, age and reported style of perfectionism, and gender and group membership, which indicates that the results reported in the first three research questions may have been impacted by demographic

differences rather than true differences between gifted and twice-exceptional students or students reporting different styles of perfectionism.

A greater understanding of the interaction of perfectionism and its role in mental health can play an essential role in helping psychologists provide appropriate and meaningful treatment for individuals experiencing mental health concerns such as anxiety and depression in the context of perfectionism. The current literature on mental health interventions related to perfectionism predominantly focuses on adults or school contexts (Ashby et al., 2012; Flett & Hewitt, 2014). Broadening the discussion of perfectionism to the therapy environment may provide further benefits and strategies for children and adolescents experiencing difficulties within these domains. For instance, Flett and Hewitt (2014) suggest that increasing resilience may be one important component of creating school-based interventions related to maladaptive perfectionism. Factors such as these are also often components of individual or family therapy, making the discussion of perfectionism within the therapy environment a natural fit. This transfer to the therapeutic domain may be particularly true for gifted students whose academic needs may be prioritized over emotional needs in academic environments, or for twice-exceptional students, for whom remediation of skills may be the predominant focus.

A better understanding of the interactions between perfectionism and mental health may also benefit gifted and twice-exceptional adolescents in particular. Although the current sample did not differ based on ability with regard to report of anxiety and depression and its relationship to style of perfectionism, differences were identified related to increased age and self-reported maladaptive perfectionism. Adolescence can often be a challenging time for young people, with up to 30 % of the adolescents in one study identifying as perfectionists (Sironic & Reeve, 2015). However, little research exists on what types of interventions might provide the most support for

teenagers with concerns regarding perfectionism and mental health, especially when these students are also identified as high ability or twice-exceptional.

Perfectionism can also have a significant role on how counseling psychologists and other mental health professionals approach the therapy process. Maladaptive perfectionism can impact many aspects of the therapeutic process, from clients' responses to common factors through therapy outcomes following treatment. Research across the lifespan has suggested that when individuals identified as perfectionists, this had the possibility to impact the therapy process, including the relationship with their therapist as well as decreased improvement related to report of anxiety and depression (Mitchell et al., 2012; Nobel et al., 2012; Zuroff, Shahar, Blatt, Kelly, & Leybman, 2016). Because of this, special attention to how perfectionism might be interfering with the therapy process might help clinicians confront these issues within a supportive therapy environment.

Although the sample within the current study was small, an increased awareness of the impact that perfectionism and corresponding mental health concerns may exert within high ability adolescents can provide clinicians with additional insight into treatment approaches. For example, treatment may focus on the development of cognitive flexibility related to perfectionist attitudes to a greater extent than for individuals who do not endorse maladaptive styles of perfectionism. Third-wave modes of therapy, such as Acceptance and Commitment Therapy (ACT), may also provide clinicians with unique approaches to working with perfectionism in client populations. For instance, one of the primary aims of ACT is to “defuse” from your thoughts, which may be helpful when individuals feel particularly tied to their identity as perfectionists. Although empirical research is still developing, the use of ACT within college

student populations is already being explored (Crosby, Armstrong, Nafziger, & Twohig, 2013), and this might have additional applications for high ability children and adolescents in the future.

For counseling psychologists, a better understanding of how perfectionism and mental health concerns impact adolescents specifically may help providers utilize a strengths based approach that addresses multicultural factors salient to these clients, thus integrating two key parts of the counseling psychology identity (Fouad et al., 2004). This may be particularly important for twice-exceptional students, as many of these students and their families may already have difficulty balancing the dual identities of high ability and disability. Helping students to understand their pattern of strengths and weaknesses as well as identifying areas of perfectionism that are impacting their current experience may result in positive collaborations that provide twice-exceptional students with greater insight and understanding of how to flexibly meet their academic and emotional needs. In addition to confronting negative aspects of perfectionism through therapy modalities such as cognitive-behavior therapy or ACT, working with high ability or twice-exceptional students may also allow counseling psychologists to provide clients with insight into the adaptive aspects of perfectionism in order to cultivate a more positive approach to this trait.

A greater understanding of how perfectionism impacts the mental health needs of gifted and twice-exceptional students may also provide counseling psychologists and other mental health professionals with increased ability to advocate for the specific needs of gifted and twice-exceptional students. Although this may be particularly true in terms of advocating for appropriate educational opportunities within the classroom, counseling psychologists are uniquely positioned to integrate the emotional and psychological needs of their clients into therapeutic interventions and support of mental health within multiple environments, as well as

promote education and legislative efforts that better support the needs of gifted and twice-exceptional students. Historically, counseling psychologists have promoted advocacy as a means of social justice (Fouad & Prince, 2012). For gifted and twice-exceptional students struggling with perfectionism and mental health concerns, advocacy work could take several possible forms, such as promoting equal access to special education and gifted education programming for twice-exceptional students as well as working to reduce disparities in gifted education for students of color and other marginalized groups. Psychologists may also be able to provide additional education and training to other professionals about the specific needs of students struggling with perfectionism in order to better address concerns related to perfectionism in the classroom, as suggested by Flett and Hewitt (2014). Taking these steps can provide a more well rounded approach to mental health treatment in children and adolescents through the consideration of perfectionism and other factors while continuing to challenging common assumptions related to issues of giftedness and twice-exceptionality.

Limitations and Future Research

The current study provides initial insight into relationships between style of perfectionism and mental health within a sample of students with specific educational and/or mental health needs. However, the following limitations were also present, which provide helpful guidance when considering future research on this topic.

The number of participants in the present study was relatively small, with an overall N of 67. Given that the observed effect sizes for many of the analyses were small, this, combined with the relatively low number of participants (especially within the twice-exceptional group) limits the overall generalizability of the study. The present study also relied on self-report for identification as a gifted student as well as documentation of reported disabilities. Participants

were asked to provide supporting details about the means by which they were identified as gifted or twice-exceptional through questions on the demographic questionnaire targeted specifically at information related to identification and diagnosis. However, future research could also employ more rigorous verification (such as submission of IQ or above-level testing scores or diagnostic reports) to ensure accurate identification of the participants.

Participants who identified as twice-exceptional reported high rates of comorbidity, with 57.1 % of individuals reporting more than one diagnosis. Although high rates of comorbidity are not uncommon in children and adolescents (APA, 2013), drawing conclusions about perfectionism as it related to specific diagnoses was not possible for this study. Future research could focus on targeting specific populations (such as twice-exceptional students with autism spectrum disorders) in order to clarify how perfectionism impacts group with varied diagnostic presentations. Finally, the current study was also limited by certain demographic variables, including variability in age and gender between the two groups as well as overall lack of racial/ethnic diversity represented by the sample. Although the homogeneity of the sample is not unsurprising given that gifted programs tend to be lacking in racial diversity when compared to overall school populations (Howley et al., 2009; Kettler et al., 2015), future research may also expand to examine how cultural variables such as race may also impact style of perfectionism within gifted and twice-exceptional samples. Likewise, future research may also attempt to clarify the role of age and gender as it pertains to style of perfectionism and reported anxiety and depression.

Summary and Conclusions

The research on issues surrounding giftedness continues to evolve, more recently focusing on twice-exceptionality and additional factors that may impact students with high

abilities. The current study adds to the literature by providing a new perspective on the role of perfectionism and how it might present differently within gifted and twice-exceptional students. Additionally, this study found a consistent relationship between maladaptive perfectionism and both anxiety and depression, consistent with other literature on these topics. This provides researchers and clinicians with increased perspective on how to examine issues related to giftedness as well as approach these issues within a clinical setting. The current study also suggests that age may impact the role that individuals perceive perfectionism plays, which further aids researchers and clinicians interested in working with special populations. Future exploration of perfectionism within twice-exceptional students in particular will continue to expand understanding of the unique issues faced by these individuals, thus improving opportunities to provide appropriate interventions.

APPENDIX
Demographic Questionnaire

Person completing the questionnaire: mother father other: _____

1. Your age _____

Please provide the following information about your child.

2. Your child's age _____

3. Child's grade in school _____

4. Circle one: male female

5. Circle the one that best identifies your child:

White or Caucasian

Black or African American

American Indian or Alaska Native

Asian or Asian American

Native Hawaiian and Other Pacific Islander

More than one race

Other: _____

Please complete page 2 (over)

6. Is your child identified as gifted/talented? Yes No

7. If yes, how was your child identified as gifted/talented?

_____ Participation in gifted and talented programming at school

_____ Psychoeducational evaluation

_____ Participation/nomination for summer programming intended for gifted/talented students

_____ Participation in above-level testing

_____ Other means of identification: describe here _____

8. Does your child have a diagnosed disability? Yes No

9. If yes, which of the following diagnoses apply to your child? (please check all that apply)

_____ Learning Disorder (e.g., dyslexia, dysgraphia)

_____ Attention Deficit Disorder/Attention Deficit-Hyperactivity Disorder

_____ Autism Spectrum Disorder/Asperger's/Pervasive Developmental Disorder (PDD)

_____ Anxiety disorder

_____ Depressive disorder

_____ None of the above

_____ Other mental health: describe here _____

10. How old was your child when you learned about the diagnosed condition(s) in #9?

11. Who diagnosed your child's disability? (please provide name and position)

Please complete page 3.

12. At school, your child (please check all that apply):

_____ Participates in Talented and Gifted (TAG) or Extended Learning Programming (ELP)

_____ Receives extra help in the classroom

_____ Has an Individualized Education Plan (IEP) or 504 Plan

_____ None of the above

13. Did your child participate in summer programming at the Belin-Blank Center in 2015?

Yes No

14. If yes, which class did they participate in? _____

Comments regarding the above questions: -

Thank you for completing this questionnaire!

REFERENCES

- 2E Newsletter. (2014). *About Us*. Retrieved from <http://www.2enewsletter.com/index.html>
- 2E Newsletter. (2014) *2E Newsletter Survey Results*. Retrieved from http://www.2enewsletter.com/topic_2e_survey.html
- Ablard, K.E., & Parker, W.D. (1997). Parents' achievement goals and perfectionism in their academically talented children. *Journal of Youth and Adolescence*, 26, 651-667.
- Accordino, D.B., Accordino, M.P., & Slaney, R.B. (2000). An investigation of perfectionism, mental health, achievement, and achievement motivation in adolescents. *Psychology in the Schools*, 37, 535-545.
- Almarode, J.T., Subotnik, R.F., Crowe, E., Tai, R.H., Lee, G.M., & Nowlin, F. (2014). Specialized high schools and talent search programs: Incubators for adolescents with high ability in STEM disciplines. *Journal of Advanced Academics*, 25, 307-331.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Archer, J., & McCarthy, C.J. *Theories of Counseling and Psychotherapy: Contemporary Applications*. Upper Saddle River, NJ, Pearson Education, Inc., 2007.
- Artiles, A.J., Harry, B., Reschly, D.J., & Chinn, P.C. (2002). Over-identification of students of color in special education: A critical overview. *Multicultural Perspectives*, 4, 3-10. doi: 10.1207/S15327892MCP0401_2
- Ashby, J.S., Slaney, R.B., Noble, C.M., Gnilka, P.B., & Rice, K.G. (2012). Differences between “normal” and “neurotic” perfectionists: implications for mental health counselors. *Journal of Mental Health Counseling*, 34, 322-340.
- Assouline, S.G., & Whiteman, C.S. (2011). Twice-exceptionality: Implications for school psychologists in the post-IDEA 2004 era. *Journal of Applied School Psychology*, 27, 380-402.
- Assouline, S.G., Foley Nicpon, M., & Doobay, A. (2009). Profoundly gifted girls and autism spectrum disorder: A psychometric case study comparison. *Gifted Child Quarterly*, 53, 89-105. doi: 10.1177/0016986208339565
- Assouline, S.G., Foley Nicpon, M., & Huber, D.H. (2006). The impact of vulnerabilities and strengths on the academic experiences of twice-exceptional students: A message to school counselors. *Professional School Counseling*, 10, 14-24.
- Assouline, S.G., Foley Nicpon, M., & Whiteman, C. (2010). Cognitive and psychosocial characteristics of gifted students with written language disability. *Gifted Child Quarterly*, 54, 102-115. doi: 10.1177/0016986209355974
- Beer, J. (1991). Depression, general anxiety, test anxiety, and rigidity of gifted junior high and high school children. *Psychological Reports*, 69, 1128-1130.
- Bianco, M. (2005). The effects of disability labels on special education and general education teachers' referrals for gifted programs. *Learning Disability Quarterly*, 28, 285-293.

- Bong, M., Hwang, A., Noh, A., & Kim, S. (2014). Perfectionism and motivation of adolescents in academic contexts. *Journal of Educational Psychology, 106*, 711-729. doi: 10.1037/a0035836
- Carey, M.P., Faulstich, M.E., Gresham, F.M., Ruggiero, L., & Enyart, P. (1987). Children's depression inventory: Construct and discriminant validity across clinical and nonreferred (control) populations. *Journal of Consulting and Clinical Psychology, 55*, 755-761.
- Centers for Disease Control and Prevention (2013). Mental health surveillance among children--United States, 2005-2011. *Morbidity and Mortality Weekly Report, 62*(2), 1-35.
- Chan, D.W. (2012). Life satisfaction, happiness, and the growth mindset of healthy and unhealthy perfectionists among Hong Kong Chinese gifted students. *Roeper Review, 34*, 224-233. doi: 10.1080/02783193.2012.715333
- Christensen, D.L., et al. (2016). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites, United States, 2012. *MMWR Surveillance Summary, 65*, 1-23. doi: 10.15585/mmwr.ss6503a1
- Colangelo, N., Assouline, S.G., & Gross, M.U.M. (2004). *A Nation Deceived: How schools hold back America's brightest students, Volume I*. Iowa City, IA: The University of Iowa.
- Cole, D.A., Martin, J.M., Peeke, L., Henderson, A., & Harwell, J. (1998). Validation of depression and anxiety measures in white and black youths: Multitrait-multimethod analyses. *Psychological Assessment, 10*, 261-276.
- Coryell, W., Endicott, J., & Keller, M.B. (1991). Predictors of relapse into major depressive disorder in a nonclinical population. *Am J Psychiatry 148*(10), 1353–1358.
- Crim, C., Hawkins, J., Ruban, L., & Johnson, S. (2008). Curricular modifications for elementary students with learning disabilities in high-, average-, and low-IQ groups. *Journal of Research in Childhood Education, 22*, 233-245. doi: 10.1080/02568540809594624
- Crosby, J.M., Armstrong, A.B., Nafziger, M.A., & Twohig, M.P. (2013). Using acceptance and commitment therapy (ACT) to treat perfectionism in college students. In J. Pistorello (Ed.) *Mindfulness and acceptance for college counseling students: Theory and practical applications for intervention, prevention, and outreach* (pp. 139-158). Oakland: Context Press/New Harbinger Publications.
- DiBartolo, P.M., & Varner, S.P. (2012). How children's cognitive and affective responses to a novel task relate to the dimensions of perfectionism. *Journal of Rational-Emotive Cognitive-Behavior Therapy, 30*, 62-76. doi: 10.1077/s10942-011-0120-8
- Dixon, F.A., Lapsley, D.K., & Hanchon, T.A. (2004). An empirical typology of perfectionism in gifted adolescents. *Gifted Child Quarterly, 48*, 95-106. doi: 10.1177/001698620404800203
- Essau, C.A., Leung, P.W.L., Conradt, J., Cheng, H., & Wong, T. (2008). Anxiety symptoms in Chinese and German adolescents: Their relationship with early learning experiences, perfectionism, and learning motivation. *Depression and Anxiety, 25*, 801-810. doi: 10.1002/da.20334

- Ferri, B.A., Gregg, N., & Heggoy, S.J. (1997). Profiles of college students demonstrating learning disabilities with and without giftedness. *Journal of Learning Disabilities, 30*, 552-559.
- Fletcher, K.L. & Speirs Neumeister, K.L. (2012). Research on perfectionism and achievement motivation: Implications for gifted students. *Psychology in the Schools, 49*, 668-677. doi: 10.1002/pits.21623
- Flett, G.L., Coulter, L., Hewitt, P.L., & Nepon, T. (2011). Perfectionism, rumination, worry, and depressive symptoms in early adolescence. *Canadian Journal of School Psychology, 26*, 159-176. doi: 10.1177/0829573511422039
- Flett, G.L., Druckman, T., Hewitt, P.L., Wekerle, C. (2012). Perfectionism, coping, social support, and depression in maltreated adolescents. *Journal of Rational-Emotive Cognitive-Behavior Therapy, 30*, 118-131. doi: 10.1007/s10942-011-0132-6
- Flett, G.L. & Hewitt, P.L. (2014). A proposed framework for preventing perfectionism and promoting resilience and mental health among vulnerable children and adolescents. *Psychology in the Schools, 51*, 899-912. doi: 10.1002/pits.21792
- Flett, G.L., Sawatzky, D.L., & Hewitt, P.L. (1995). Dimensions of perfectionism and goal commitment: A further comparison of two perfectionism measures. *Journal of Psychopathology and Behavioral Assessment, 17*, 111-124.
- Foley Nicpon, M., & Assouline, S.G. (2015). Counseling considerations for the twice-exceptional client. *Journal of Counseling & Development, 93*, 202-211.
- Foley Nicpon, M., Allmon, A., Sieck, B., & Stinson, R.D. (2011). Empirical investigation of twice-exceptionality: Where have we been and where are we going? *Gifted Child Quarterly, 55*, 3-17. doi: 10.1177/0016986210382575
- Foley Nicpon, M., Assouline, S.G., & Colangelo, N. (2013). Twice-exceptional learners: Who needs to know what? *Gifted Child Quarterly, 57*, 169-180. doi: 10.1177/0016986213490021
- Fouad, N. A., McPherson, R. H., Gerstein, L., Blustein, D. L., Elman, N., Helledy, K. I., & Metz, A. J. (2004). Houston, 2001: Context and Legacy. *The Counseling Psychologist, 32*(1), 15-77. doi:10.1177/0011000003259943
- Fouad, N.A. & Prince, J.P. (2012). Social justice in counseling psychology. In E.M. Altmaier and J.C. Hansen (Eds.), *The Oxford Handbook of Counseling Psychology*. doi: 10.1093/oxfordhb/9780195342314.001.0001
- Frost, R.O., Heimberg, R.G., Holt, C.S., Mattia, J.I., & Neubauer, A.L. (1992). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*, 119-126.
- Frost, R.O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449-468.
- Gilman, R., & Ashby, J.S. (2003a). A first study of perfectionism and multidimensional life satisfaction among adolescents. *The Journal of Early Adolescence, 23*, 218-235. doi: 10.1177/0272431602250942

- Gilman, R., & Ashby, J.S. (2003b). Multidimensional perfectionism in a sample of middle school students: An exploratory investigation. *Psychology in the Schools, 40*, 677-689. doi: 10.1002/pits.10125
- Gilmore, L., & Boulton-Lewis, G. (2009). 'Just try harder and you will shine': A study of 20 lazy children. *Australian Journal of Guidance and Counseling, 19*, 95-103.
- Goodwin, C.J. (2012). *A History of Modern Psychology: Fourth Edition*. Hoboken, NJ: John Wiley & Sons, Inc.
- Hadjistavropoulos, H., Dash, H., Hadjistavropoulos, T., & Sullivan, T. (2007). Recurrent pain among university students: Contributions of self-efficacy and perfectionism to the pain experience. *Personality and Individual Differences, 42*, 1081-1091.
- Hannah, c.l., & Shore, B.M. (2008). Twice-exceptional students' use of metacognitive skills on a comprehensive monitoring task. *Gifted Child Quarterly, 52*, 3-18.
- Herman, K.C., Wang, K., Trotter, R., Reinke, W.M., & Ialongo, N. (2013). Developmental trajectories of maladaptive perfectionism among African American adolescents. *Child Development, 84*, 1633-1650. doi:10.1111/cdev.12078
- Hewitt, P.L. & Flett, G.L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*, 456-470.
- Hewitt, P.L., Caelian, C.F., Flett, G.L., Sherry, S.B., Collins, L., & Flynn, C.A. (2002). Perfectionism in children: associations with depression, anger, anxiety. *Personality and Individual Differences, 32*, 1049-1061.
- Hollingworth, L.S. (1926). History of the study of the gifted. In Hollingworth, L.S. (Ed.) *Gifted children: Their nature and nurture* (pp.1-22). doi: 10.1037/10599-001.
- Hollingworth, L.S. (1931). Special gifts and special deficiencies. In Murchison, C. (Ed.) *A Handbook of Child Psychology* (pp. 627-642). doi: 10.1037/13524-020
- Hollingworth, L.S., Terman, L.M., & Oden, M. (1940). The significance of deviates. In Whipple, G.M. (Ed.) *The thirty-ninth yearbook of the national society for the study of education: Intelligence: Its nature and nurture, Part 1, Comparative and critical exposition*. (pp. 43-89). doi: 10.1037/112266-003
- Howley, A., Rhodes, M., & Beall, J. (2009). Challenges facing rural schools: Implications for gifted students. *Journal for the Education of the Gifted, 32*, 515-536. DOI: 10.1177/016235320903200404
- Jones, T.W. (2013). Equally cursed and blessed: Do gifted and talented children experience poorer mental health and psychological well-being? *Educational & Child Psychology, 30*, 44-66.
- Kettler, T., Russell, J., & Puryear, J.S. (2015). Inequitable access to gifted education: variance in funding and staffing based on locale and contextual school variables. *Journal for the Education of the Gifted, 38*, 99-117. doi: 10.1177/0162353215578277

- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. *Acta Paedopsychiatrica: International Journal of Child & Adolescent Psychiatry*, 46(5-6), 305-315.
- Kovacs, M. (2003). *Children's Depression Inventory Technical Manual*. Toronto, ON: MHS, Inc.
- Lee, Y., Krishnan, A., & Park, Y.S. (2011). Psychometric properties of the children's depression inventory: An item response theory analysis across age in a nonclinical, longitudinal, adolescent sample. *Measurement and Evaluation in Counseling and Development*, 45, 84-100. doi: 10.1177/0748175611428329
- Leroux, J.A., & Levitt-Perlman, M. (2000). The gifted child with attention deficit disorder: An identification and intervention challenge. *Roeper Review*, 22, 171-176. doi: 10.1080/02783190009554028
- LoCicero, K.A., & Ashby, J.S. (2000). Multidimensional perfectionism in middle school age gifted students: A comparison to peers from the general cohort. *Roeper Review*, 22, 182-185. doi: 10.1080/02783190009554030
- Lovett, B.J., & Sparks, R.L. (2011). The identification and performance of gifted students with learning disability diagnoses: A quantitative synthesis. *Journal of Learning Disabilities*, 46, 304-316. doi: 10.1177/0022219411421810
- Lovett, B.J. (2011). On the diagnosis of learning disabilities in gifted students: Reply to Assouline et al. (2010). *Gifted Child Quarterly*, 55, 149-151. doi: 10.1177/0016986210396435
- Lovett, B.J. (2013) The Science and Politics of Gifted Students With Learning Disabilities: A Social Inequality Perspective, *Roeper Review*, 35, 136-143. DOI: 10.1080/02783193.2013.766965
- Lubinski, D., & Benbow, C.P. (2006). Study of mathematically precocious youth after 35 years: Uncovering antecedents for the development of math-science expertise. *Perspectives on Psychological Science*, 1, 316-345. doi: 10.1111/j.1745-6916.2006.00019.x.
- Lyman, E.L., & Luthar, S.S. (2014). Further evidence on the “costs of privilege”: Perfectionism in high-achieving youth at socioeconomic extremes. *Psychology in the Schools*, 51, 913-930. doi: 10.1002/pits.21791
- Martin, L.T., Burns, R.M., & Schonlau, M. (2010). Mental disorders among gifted and nongifted youth: A selected review of the epidemiological literature. *Gifted Child Quarterly*, 54, 31-41. doi: 10.1177/0016986209352684
- Maslow, A.H. (1962). *Toward a psychology of being*. Princeton, NJ: D. Van Nostrand.
- Minner, S. (1990). Teacher evaluations of case descriptions of LD gifted children. *Gifted Child Quarterly*, 34, 37-39. doi: 10.1177/001698629003400108
- Mitchell, J.H., Newall, C., Broeren, S., & Hudson, J.L. (2013). The role of perfectionism in cognitive behaviour therapy outcomes for clinically anxious children. *Behaviour Research and Therapy*, 51, 547-554.

- Morrison, W.F., & Rizza, M.G. (2007). Creating a toolkit for identifying twice-exceptional students. *Journal for the education of the gifted*, 31, 57-76. doi: 10.4219/jeg-2007-513
- Muris, P., Merckelbach, H., Ollendick, T., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety questionnaires: Their reliability and validity in a normal adolescent sample. *Behaviour Research and Therapy*, 40(7), 753-772. doi:10.1016/S0005-7967(01)00056-0
- National Association for Gifted Children (2013). State of the States Overview: General State Information.
- National Association of Gifted Children. Glossary of Terms. Retrieved on 6 October 2014 from <http://www.nagc.org/resources-publications/resources/glossary-terms>
- National Association of Gifted Children (2015). Definitions of Giftedness. Retrieved on 18 April 2015 from <http://www.nagc.org/resources-publications/resources/definitions-giftedness>
- Neihart, M. (2007). The socioaffective impact of acceleration and ability grouping: Recommendations for best practice. *Gifted Child Quarterly*, 51, 330-341. doi: 10.1177/0016986207306319
- National Institute of Health (2015). Anxiety Disorders in Children and Adolescents (Fact Sheet). Retrieved 18 April 2015 from <http://www.nimh.nih.gov/health/publications/anxiety-disorders-in-children-and-adolescents/index.shtml>
- Nobel, R., Manassis, K., & Wilansky-Traynor, P. (2012). The role of perfectionism in relation to an intervention to reduce anxious and depressive symptoms in children. *Journal of Rational-Emotive & Cognitive Behavior Therapy*, 30, 77-90. doi: 10.1007/s10942-011-0133-5
- O'Connor, R.C., Rasmussen, S., & Hawton, K. (2010). Predicting depression, anxiety, & self-harm in adolescents: The role of perfectionism and acute life stress. *Behaviour Research and Therapy*, 48, 52-59. doi: 10.1016/j.brat.2009.09.08
- Olszewski-Kubilius, P. (2004). Talent searches and accelerated programming for gifted students. In N. Colangelo, S.G. Assouline, & M.U.M. Gross (Eds.), *A Nation Deceived: How Schools Hold Back America's Brightest Students, Volume II* (pp. 59-67). Iowa City, IA: The University of Iowa.
- Pirbaglou, M., Cribbie, R., Irvine, J., Radhu, N., Vora, K., & Ritvo, P. (2013). Perfectionism, anxiety, and depressive distress: Evidence for the mediating role of negative automatic thoughts and anxiety sensitivity. *Journal of American College Health*, 61, 477-483. doi: 10.1080/07448481.2013.833932
- Rapport, M.D., Denney, C.B., Chung, K., & Hustace, K. (2001). Internalizing behavior problems and scholastic achievement in children: Cognitive and behavioral pathways as mediators of outcome. *Journal of Clinical Child Psychology*, 30, 536-551.
- Reis, S.M., & Colbert, R. (2004). Counseling needs of academically talented students with learning disabilities. *Professional School Counseling*, 8, 156-167.
- Reis, S.M., & McCoach, D.B. (2000). The underachievement of gifted students: What do we know and where do we go? *Gifted Child Quarterly*, 44, 152-170. doi: 10.1177/00169862000440302

- Reis, S.M., & McCoach, D.B. (2002). Underachievement in gifted and talented students with special needs. *Exceptionality, 10*, 113-125.
- Reis, S.M., Baum, S.M., & Burke, E. (2014). An operational definition of twice-exceptional learners: Implications and applications. *Gifted Child Quarterly, 58*, 217-230. doi: 10.1177/0016986214534976
- Reynolds, C. R., & Richmond, B. O. (1978; 1997). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*(2), 271-280. doi:10.1007/BF00919131
- Rice, K.G., & Richardson, C.M.E. (2014). Classification challenges in perfectionism. *Journal of Counseling Psychology, 61*, 641-648. doi: 10.1037/cou0000040
- Rice, K.G., Ashby, J.S., & Gilman, R. (2011). Classifying adolescent perfectionists. *Psychological Assessment, 23*, 563-577. doi: 10.1037/a0022482
- Rice, K.G., Tucker, C.M., & Desmond, F.F. (2008). Perfectionism and depression among low-income chronically ill African American and White adolescents and their maternal parent. *Journal of Clinical Psychology in Medical Settings, 15*, 171-181. doi: 10.1007/s10880-008-9119-6
- Ryngala, D. J., Shields, A. L., & Caruso, J. C. (2005). Reliability Generalization of the Revised Children's Manifest Anxiety Scale. *Educational and Psychological Measurement, 65*(2), 259-271. doi:10.1177/0013164404272495
- Sattler, J.M. (2008). *Assessment of Children: Cognitive Foundations, Fifth Edition*. La Mesa, CA: Jerome M. Sattler, Publisher, Inc.
- Scholwinski, E., & Reynolds, C.R. (1985). Dimensions of anxiety among high IQ children. *Gifted Child Quarterly, 29*, 125-130. doi: 10.1177/001698628502900305
- Schuler, P.A. (2000). Perfectionism and gifted adolescents. *Journal of Secondary Gifted Education, 11*, 183-196.
- Sironic, A., & Reeve, R.A. (2015). A combined analysis of the frost multidimensional perfectionism scale (FMPS), child and adolescent perfectionism scale (CAPS), and almost perfect scale—revised (APS-R): Different perfectionist profiles in adolescent high school students. *Psychological Assessment, 27*, 1471-1483. doi: 10.1037/pas0000137
- Slaney, R.B., Rice, K.G., Mobley, M., Trippi, J., & Ashby, J.S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development, 34*, 130-145.
- Smith, M.M., & Arnett, P.A. (2013). Perfectionism and physical disability predict depression in multiple sclerosis. *Journal of Psychosomatic Research, 75*, 187-189.
- Smucker, M.R., Craighead, W.E., Craighead, L.W., & Green, B.J. (1986). Normative and reliability data for the children's depression inventory. *Journal of Abnormal Child Psychology, 14*, 25-39.
- Speirs Neumeister, K.L., (2004). Interpreting successes and failures: The influence of perfectionism on perspective. *Journal for the Education of the Gifted, 27*, 311-335.

- Speirs Neumeister, K.L., & Finch, H. (2006). Perfectionism in high-ability students: Relational precursors and influences on achievement motivation. *Gifted Child Quarterly*, 50, 238-251. doi: 10.1177/001698620605000304
- Speirs Neumeister, K.L., Williams, K.K., & Cross, T.L. (2009). Gifted high-school students' perspectives on the development of perfectionism. *Roeper Review*, 31, 198-206. doi: 10.1080/02783190903177564
- Stambach, A., & Bal, A. (2010). Multicultural education in the United States. *A report submitted to the International Alliance of Leading Education Institutes*.
- Stoeber, J., & Stoeber, F.S. (2009). Domains of perfectionism: prevalence and relationships with perfectionism, gender, age and satisfaction with life. *Personality and Individual Differences*, 46, 530-535. doi: 10.1016/j.paid.2008.12.006
- Stornelli, D., Flett, G.L., & Hewitt, P.L. (2009). Perfectionism, achievement, and affect in children: A comparison of students from gifted, arts, and regular programs. *Canadian Journal of School Psychology*, 24, 267-283. doi: 10.1177/0829573509342392
- Subotnik, R.F., Olszewski-Kubilius, P., & Worrell, F.C. (2011). Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychological Science in the Public Interest*, 12, 3-54.
- Talent-Runnels, M.K., & Sigler, E.A. (1995). The status of the selection of gifted students with learning disabilities for gifted programs. *Roeper Review*, 17, 246-248.
- Terman, L.M. (1922). A new approach to the study of genius. *Psychological Review*, 29, 310-318. doi: 10.1037/h0071072
- Vandiver, B.J., & Worrell, F.C. (2002). The reliability and validity of scores on the almost perfect scale-revised with academically talented middle school students. *The Journal of Secondary Gifted Education*, 13, 108-119.
- Visser, S.N., Danielson, M.L., Bitsko, R.H., Holbrook, J.R., Kogan, M.D., Ghandour, R.M., Perou, R., Blumberg, S.J. (2014). Trends in the parent-report of health care provider-diagnosed and medicated attention-deficit/hyperactivity disorder: United States, 2003-2011. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53, 34-46. doi: 10.1016/j.jaac.2013.09.001
- Wai, J., Lubinski, D., & Benbow, C.P. (2005). Creativity and occupational accomplishments among intellectually precocious youths: An age 13 to age 33 longitudinal study. *Journal of Educational Psychology*, 97, 484-492. doi: 10.1037/0022-0663.97.3.484
- Wai, J., Lubinski, D., Benbow, C.P., & Steiger, J.H. (2010). Accomplishment in science, technology, engineering, and mathematics (STEM) and its relation to STEM educational dose: A 25-year longitudinal study. *Journal of Educational Psychology*, 102, 860-871. doi: 10.1037/a0019454
- Wang, K.T., Fu, C., & Rice, K.G. (2012). Perfectionism in gifted students: Moderating effects of goal orientation and contingent self-worth. *School Psychology Quarterly*, 27, 96-108. doi: 10.1037/a0029215
- Watts, R.E. (2012). On the origin of the striving for superiority and of social interest. In J. Carlson & M.P. Maniacci. *Alfred Adler, Revisited*. Routledge.

- Willard-Holt, C., Weber, J., Morrison, K.L., & Horgan, J. (2013). Twice-exceptional learners' perspectives on effective learning strategies. *Gifted Child Quarterly*, 57, 247-262. doi: 10.1177/0016986213501076
- Woo, S.M., & Keatinge, C. (2008). *Diagnosis and treatment of mental disorders across the lifespan*. Hoboken, NJ: John Wiley and Sons, Inc.
- Zirkel, P.A. (2004). The case law on gifted education: A new look. *Gifted Child Quarterly*, 48, 309-314. doi: 10/1177/001698520404800405
- Zuroff, D.C., Shahar, G., Blatt, S.J., Kelly, A.C., & Leybman, M.J. (2016). Predictors and moderators of between-therapist and within-therapist differences in depressed outpatients' experiences of the Rogerian conditions. *Journal of Counseling Psychology*, 63, 162-172. doi: 10.1037/cou0000139